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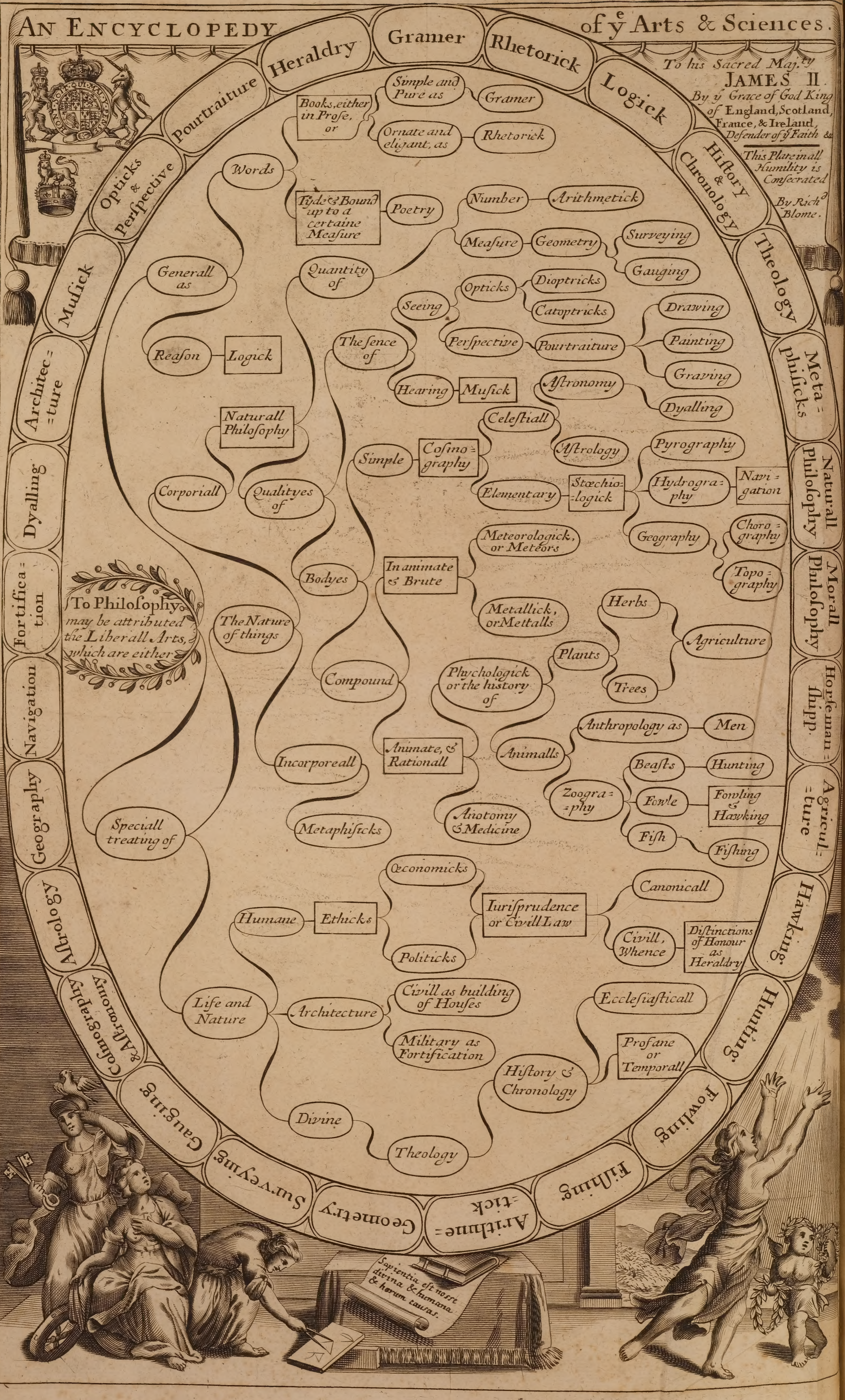
AN ENCYCLOPEDY of y^e^ Arts & Sciences.

*To his Sacred Maj.^ty^*
JAMES II.
By y^e^ Grace of God King
of England, Scotland,
France, & Ireland,
Defender of y^e^ Faith &c.

This Plate in all
Humility is
Conſecrated

*By Rich^d^*
Blome.


Gramer
Rhetorick
Logick
Hiſtory & Chronology
Theology
Meta=phiſicks
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Morall Philoſophy
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Agricul=ture
Hawking
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Geography
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Dyalling
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Opticks & Perſpective
Pourtraiture
Heraldry
To Philoſophy may be attributed the Liberall Arts, which are either
Generall as
Words
Books, either in Proſe, or
Simple and Pure as
Gramer
Ornate and eligant, as
Rhetorick
Tyde & Bound up to a certaine Meaſure
Poetry
Reaſon
Logick
Speciall treating of
The Nature of things
Corporiall
Naturall Philoſophy
Quantity of
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Aſtronomy
Dyalling
Aſtrology
Elementary
Stœchio=logick
Pyrography
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Inanimate & Brute
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Metallick, or Metalls
Compound
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Trees
Agriculture
Animalls
Anthropology as
Men
Zoogra=phy
Beaſts
Hunting
Fowle
Fowling & Hawking
Fiſh
Fiſhing
Anotomy & Medicine
Incorporeall
Metaphiſicks
Life and Nature
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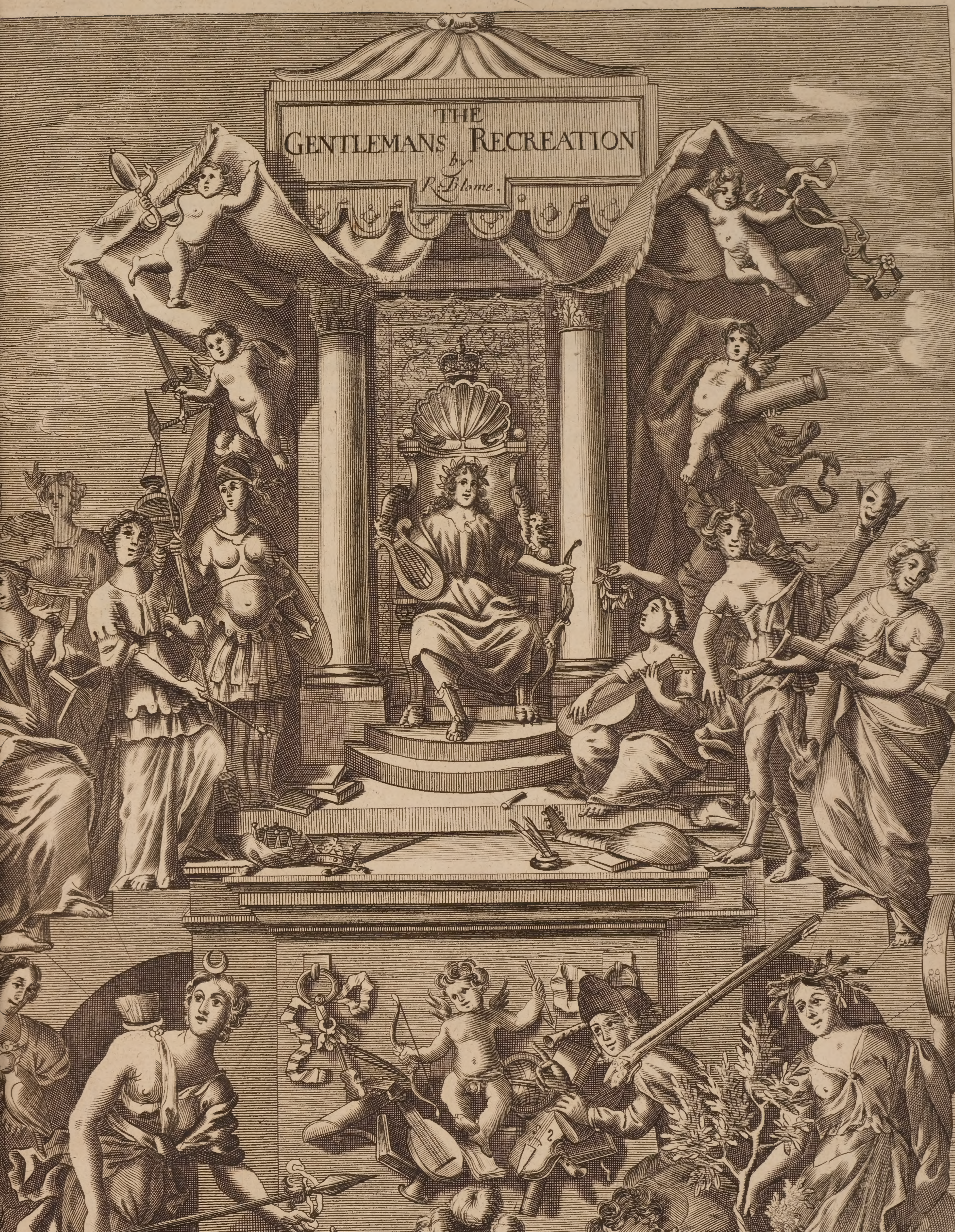
Ethicks
Œconomicks
Politicks
Iuriſprudence or Civill Law
Canonicall
Civill, Whence
Diſtinctions of Honour as Heraldry
Architecture
Civill as building of Houſes
Military as Fortification
Divine
Theology
Hiſtory & Chronology
Eccleſiaſticall
Profane or Temporall
Sapientia eſt noſſe divina & humana & horum cauſas.


THE
GENTLEMANS RECREATION
by
R. Blome.

THE GENTLEMAN's RECREATIONS:

In Three Parts.

The Firſt PART contains

A Short and Eaſie INTRODUCTION
TO ALL THE
Liberal Arts and Sciences, &c.

The Second treats of

HORSEMANSHIP,
HAWKING,
HUNTING,
FOWLING,
FISHING,
AGRICULTURE, &c.

Done from the moſt Authentick AUTHORS, eſpecially ſeveral lately Printed at *Paris*, as may be ſeen in the PREFACE; with great Enlargements, made by thoſe well Experienced in the reſpective RECREATIONS.

The Third is

A Compleat Body of all our FOREST, CHACE, and GAME-LAWS, as they are at this Time.

The Whole Illuſtrated with near an hundred Copper-Cuts relating to the ſeveral Subjects, particularly all Sorts of *Nets*, *Engines*, *Traps*, &c. are added for the Taking of *Wild-Beaſts*, *Fowl*, *Fiſh*, &c. not hitherto Publiſh'd by any.

The Second Edition Corrected, with near one Half of Additions.

LONDON:

Printed for *R. Bonwicke*, at the *Red-Lion* in St. *Paul*'s Church-yard; *J. Walthoe*, in the *Middle-Temple-Cloyſters*; *W. Freeman*, *T. Goodwin*, *M. Wotton*, and *B. Tooke*, in *Fleet-ſtreet* near *Temple-Bar*; *J. Nicholſon*, at the *Queen's-Arms* in *Little-Britain*; *S. Manſhip*, at the *Ship* in *Cornhil*; and *R. Parker* and *R. Smith*, under the *Royal-Exchange*. 1710.

THE

PREFACE.

THE *Additions* and *Improvements* that are made to this Edition of the *Gentleman's Recreations* being ſo many as to make it nigh as big (or large) again as it was before, as will appear to any that will compare the former Edition with this; we think it neceſſary briefly to enumerate what *Authors* were made uſe of herein, which are generally ſuch as were not publiſh'd when the former Edition was printed; and, we hope, will ſufficiently demonſtrate the Care taken to make this Edition as compleat as poſſible.

The Firſt Book contains, *A ſhort Introduction to all the Liberal Arts and Sciences*, &c. It begins with GRAMMAR, wherein Dr. *Wallis*'s Grammar, and that of the *French* Academy are chiefly made uſe of.

POETRY is a *New Eſſay*, not in the former Edition; and as great Pains have been taken in it, we hope 'twill anſwer the Reader's Expectation.

For RHETORICK we follow'd *Pere Lamy*, in great Eſteem in *France*; and his Method being more accommodated to *Gentlemen* than to the *Schools*, was thought properer for this Deſign than *Ariſtotle*'s, or others who follow his Manner.

LOGICK was done from *The Art of Thinking* of Meſſieurs *du Port Royal*, which has obtain'd lately more than any of the *Ancients* or *Moderns*.

THEOLOGY and METAPHYSICKS were done a-new by a Divine of the Church of *England*, whoſe Learning and Abilities ſufficiently qualified him for the ſame: In the latter he was guided by *Pere Malebranche* and *Fromenius*.

PHILOSOPHY *in General* was taken from *Pere Rapin*, and not in the former Edition.

MORAL PHILOSOPHY or ETHICKS from the ſaid M. *Rapin* and M. *Pufendorf*.

NATURAL PHILOSOPHY and PHYSICKS from the Tracts of the Honourable Mr. *Boyle*, thoſe of our *Royal Society*, Sir *Iſaac Newton*, Capt. *Halley*, *Bartholinus*, &c.

In ARITHMETICK, ALGEBRA, GEOMETRY, GAUGING, and SURVEYING, we are beholding to Dr. *Harris* and Mr. *Ward*.

COSMOGRAPHY, ASTRONOMY, and GEOGRAPHY, were Tranſlated and Abridged from M. *Bien*, whoſe Treatiſe is approv'd of by the *Academy of Sciences* at *Paris*, *Varenius*, M. *Robbe*, &c.

In NAVIGATION and DIALING we were beholden to the Writings of Dr. *Harris*, Capt. *Halley*, and others.

ARCHITECTURE, and SCULPTURE, is done from *Felibien*, as is alſo ENGRAVING, PAINTING, DESIGN, *&c.* moſt of which were not in the former Edition.

OPTICKS is done from Sir *Iſaac Newton*.

WAR, GUNNERY, *&c.* from *Coehorne*, *Ozanam*, *Guillet*, &c.

MUSICK, CHRONOLOGY, HISTORY, HERALDRY, *&c.* from ſeveral particular Treatiſes of the beſt *Modern Authors*.

The Second Part begins with HORSEMANSHIP, which has receiv'd very large *Additions*, from the laſt Edition of the *Compleat Horſeman*, written by M. *de Solleyſel*, Querry to the preſent *French* King, and one of the *Academy Royal* of *Paris*, which is deſervedly eſteem'd the beſt of that Kind extant.

HAWKING and FALCONRY, as alſo HUNTING, FOWLING, and FISHING, are much Improv'd from ſeveral *French* Tracts lately printed at *Paris*; as *Les Ruſes Innocentes*, in *Octavo*, with many Cuts; *La Venerie Royale*, *Traite de la Chaſſe*, *Plaſirs Innocens de la Campagne*, *Merveilles de Nature*, &c.

The Treatiſe of AGRICULTURE is Enlarged throughout, from *l'Oeconomie de la Campagne, ou la nouvelle Maiſon Ruſtique*, *The new Country Farm*, lately printed at *Paris*, which is very particular and uſeful in whatever relates to Country Affairs; as all manner of Ploughs, Tools and Engines; of Buildings, Mills, *&c.* of Manures, Dungs, *&c.* of all Sorts of Trees; of Cattle, Liquors, Malting; and what is requiſite to be known in *Huſbandry* or a Country Life. Illuſtrated with new Cuts.

The Third and Laſt Book is a Compleat Body of our FOREST, CHACE, and GAME-LAW, done from *Manwood's Foreſt-Law*, and continued down to this time; whatever *Acts of Parliament* have been made ſince *Manwood* was printed, being here Abſtracted, in there proper Places.

In ſhort, whatever of Uſe was in the firſt Edition is in this, with the large *Additions*, as above; Done by ſeveral Hands that did the different Parts, to make it the *Beſt* in this Kind yet extant in any Language.

The NAMES of thoſe Perſons of Honour and Gentlemen, whoſe *Coats of Arms* are in this Book, as Contributers towards the PLATES; and the Pages where to find them.

Note, *Thoſe Pages without a * refer to the Firſt Book, and thoſe with a * to the Second Book.*

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N. B. If theſe Noblemen and Gentlemen had not contributed towards the Charge of theſe Plates, this Book could not have been afforded for leſs than Three Guinea's.

The NAMES of ſo many of the SUBSCRIBERS to this Second Edition of the *Gentleman's Recreations*, as have been ſent to the Undertakers.

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Sir John Chetwood, *of* Oakeley *in* Staffordſhire.
Thomas Cotton, *of* Combore-Moore *in* Cheſhire *Eſq;*
Walter Chetwynd, *of* Ingreſtre *in* Staffordſhire, *Eſq;*
Thomas Cartwright *of* Aynoe, *Eſq;*
James Cholmeley, *Eſq;*
Thomas Cotton, *Eſq; of* Cotton *in* Cheſhire.

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Sir David Dalrymple.
Robert Doyley, *Eſq; Major of the Tower.*
Alexander Dawſon, *Eſq;*
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Mr. John Deane.

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Euſeby Stratford, *of the* Middle-Temple, *Gent.*
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Mr. James Sherrard.
Mr. John Short, *Engraver.*
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Capt. Samuel Vincent.

W

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The Right Honourable Robert Walpoole, *Secretary of War.*
Capt. H. Walker.

Y

Thomas Yvade, *of* Whitchurch *in* Shropſhire, *Gent.*

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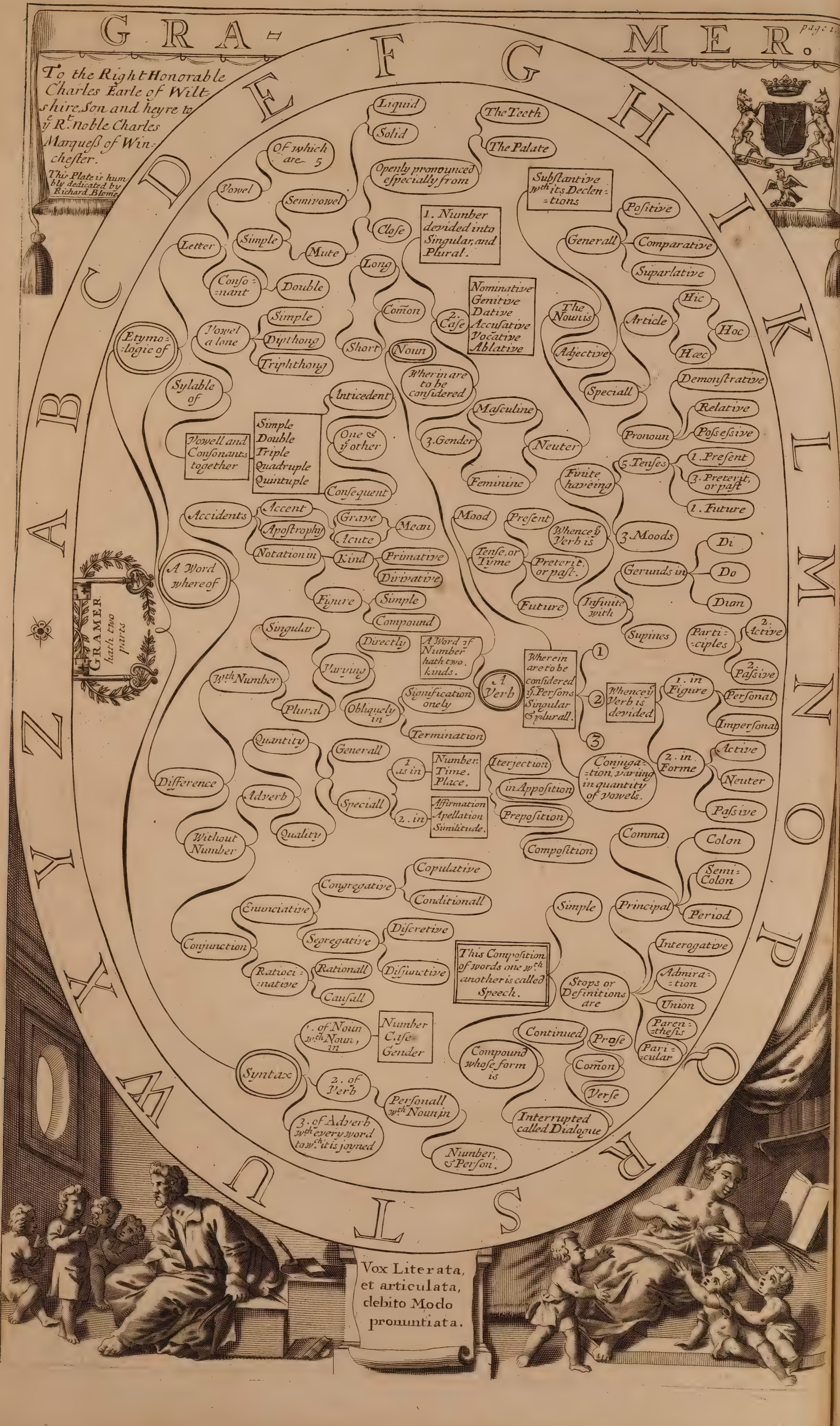
BOOK the Third.

A Compleat Body of all our Foreſt, Chace, and Game-Laws, &c. p. 1.

GRAMER.

To the Right Honorable
Charles Earle of Wilt-
shire, Son and heyre to
y^{e} R^{t}. noble Charles
Marqueß of Win-
chester.

This Plate is hum-
bly dedicated by
Richard Blome.



A
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I
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M
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X
Y
Z
Aymez Loyaulte
GRAMER hath two parts
Etymo-logie of
Letter
Vowel
Of which are 5
Semivowel
Liquid
Solid
Simple
Mute
Openly pronounced especially from
The Teeth
The Palate
Close
Conso-nant
Double
Long
Comon
Short
Noun
1. Number devided into Singular, and Plural.
2. Case
Nominative Genitive Dative Accusative Vocative Ablative
Wherin are to be considered
3. Gender
Masculine
Neuter
Feminine
Substantive wth its Declen-tions
The Nounis
Generall
Positive
Comparative
Suparlative
Adjective
Article
Hic
Hoc
Hæc
Speciall
Pronoun
Demonstrative
Relative
Possessive
Vowel a lone
Simple
Dipthong
Triphthong
Sylable of
Vowell and Consonants together
Simple Double Triple Quadruple Quintuple
Inticedent
One & ye other
Consequent
Accidents
Accent
Apostrophy
Grave
Acute
Mean
Notation in
Kind
Primative
Dirivative
Figure
Simple
Compound
A Word whereof
Mood
Present
Whence ye Verb is
Tense, or Tyme
Preterit, or past.
Future
Finite haveing
5. Tenses
1. Present
3. Preterit, or past
1. Future
3. Moods
Gerunds in
Di
Do
Dum
Infinite with
Supines
Parti-ciples
2. Active
2. Passive
Singular
Directly
Varying
Wth Number
Plural
Obliquely in
A Word of Number hath two kinds.
A Verb
Signification onely
Termination
Wherein are to be considered ye Persons Singular & plurall.
1
2
3
Whence ye Verb is devided
1. in Figure
Personal
Impersonal
2. in Forme
Active
Neuter
Passive
Conjuga-tion, varing in quantity of vowels.
Quantity
Generall
Speciall
1 as in
Number. Time. Place.
2. in
Affirmation Apellation Similitude.
Iterjection
in Apposition
Preposition
Composition
Adverb
Quality
Difference
Without Number
Comma
Colon
Semi-Colon
Principal
Period
Simple
Copulative
Congregative
Conditionall
Enunciative
Segregative
Discretive
Disjunctive
Conjunction
Ratioci-native
Rationall
Causall
This Composition of words one wth another is called Speech.
Stops or Definitions are
Interogative
Admira-tion
Union
Paren-thesis
Pari-cular
1. of Noun wth Noun, in
Number Case Gender
Continued
Prose
Comon
Verse
Compound whose form is
Syntax
2. of Verb
Personall wth Noun in
3. of Adverb wth every word tow.ch it is joyned
Number, & Person.
Interrupted called Dialogue

Vox Literata,
et articulata,
debito Modo
pronuntiata.

GRAMMAR.

PART I.

G*RAMMAR* is the Art of Speaking purely and correctly, and it has for this Reaſon been always in Eſteem in all Countries where the *Sciences* flouriſh'd, it being that which ſerves to introduce all the others, and is as the *Key* to them all.

The moſt *Learned* Men among the *Greeks*, particularly *Plato* and *Ariſtotle* were the firſt that Cultivated or broke up the Ground. Others after them endeavour'd to bring what they had done to Perfection, and when the Method of it was carry'd to *Rome*, after the Second *Punick* War, the Greateſt of the *Romans* did not diſdain to make it one of their Principal Studies.

Aulus Gellius tells us of a Diſpute which happen'd at *Rome* among Four of the moſt Famous *Lawyers* of that *Common Wealth*, to determine whether a Word was of the Preterimperfect or the Future Tenſe. This Word was in the *Atinian* Law, and no leſs Men than the Father of *Quintus Scævola*, *Brutus*, *Manilius* and *Nigidius Figulus*, buſy'd themſelves to find out what *Tenſe* it was of, which is a Proof that *Grammar* is by no means ſo Inconſiderable a Study as thoſe who Learn it only at the *College* imagine. *Voſſius* condemns ſuch as have ſo mean an Opinion of it, and pretend to decide eaſily all the Difficulties of the *Latin* Tongue, which was ſo difficult to the Greateſt of the *Latins* themſelves.

The ſame *Aulus Gellius* reports that when *Pompey* was the Third Time Conſul, and wou'd have Notice taken of his Third *Conſulate*, by an *Inſcription* on the *Temple* of *Victory*, 'twas diſputed whether it ought to be *Tertium* or *Tertio*, and the Moſt Learned Men being Conſulted upon it were divided in their Judgments; and *Cicero*, not to determine the Matter by his own Opinion, gave his Advice that the Word ſhould be abridg'd and put *Tert.* That thoſe who thought *Tertium* beſt might ſo read it, and thoſe who were for *Tertio*, Cuſtom juſtifying both of 'em, might read *Tertio* if they pleas'd.

Thus we ſee that what ſome Modern *Pædagogues* wou'd take upon them to decide as to the *Grammar* of a *Dead* Language, puzzled the Learned Men who ſpoke it when *Living*; and that *Grammar* is not ſo mean a Study as ſome imagine who do not underſtand it. *Cæſar* Himſelf when he was in the midſt of his Expedition in *Gaul*, wrote Two Books of the *Analogy* of *Words*. The Conſul *Meſſala* wrote alſo Entire *Books* upon *Words* and *Letters*; and *Quinctilian* ſays it do's no Injury to the one's *Glory* nor the other's Reputation.

Of LETTERS.

THERE are Two Things to be conſider'd in Letters, the *Sound* or *Pronunciation*, and the *Character* or *Figure*. The *Sound* belongs to Letters as Pronounc'd, the *Character* as they are written: And ſince we are to ſpeak of the former but as the Means of the latter; or rather that as in Muſick one can give no *Idea* of *Sounds* but by Means of the *Signs*, we ſhall in the Firſt Place treat of *Letters*.

There are in our Language Four and Twenty, *a, b, c, d, e, f, g, h, i, k, l, m, n, o, p, q, r, ſ, t, u, w, x, y, z*, Of theſe Letters Five *a, e, i, o, u*, are call'd *Vowels*, becauſe they form a *Sound* by themſelves without the help of any other Letters. The other Letters not being able to form any *Sound* but by the Help of a *Vowel*, are call'd *Conſonants*; of theſe there are Eighteen, *b, c, d, f, g, h, k, l, m, n, p, q, r, ſ, t, w, x, z*; as to *y* it is *Greek*, and rather a Vowel than *Conſonant*. Out of the Five *Vowels* variouſly diſpos'd, are compos'd Five *Diphthongs*, viz. *æ, au, œ, ei, eu*, beſides *Triphthongs*, compos'd of Three *Vowels* joyn'd together, as *eau*.

Of the *Conſonants*, Eight are call'd *Mutes*, viz. *b, c, d, g, k, p, q, t*; Seven are *Semi-vowels*, viz. *f, l, m, n, r, ſ, x, z*.

Of the *Semi-vowels*, ſome are call'd *Liquids*, as *l, m, n, r*; and ſome *Solids*, as, *ſ, x, z*.

The *Liquids* are ſo call'd, not as being never ſolid; but becauſe they are ſometimes liquify'd, and as it were diſſolv'd in their Sounds.

S is a *Letter* that has its proper Power.

The *Solids* are thoſe which are never *liquify'd*, as *F*, and alſo *J* and *V*, which often become *Conſonants* when they are ſet before other *Vowels* in the ſame *Syllable*, as *Juno*, *Voluntas*, &c.

The *Mutes* are ſo call'd, becauſe they begin by their own Power, and have the Sound of the *Vowel* after them, of which ſome are pronounc'd more open and from the *Teeth*, as *T* and *D*; others from the *Palate* as *K* and *Q*; and ſome more cloſe and from the *Lips*, as *B* and *P*. *H* is not properly a Letter, but a Note of Aſpiration before a *Vowel*, only ſometimes amongſt the *Poets* it obtains the Power of a *Conſonant*: and it never comes before a *Conſonant*, but always before one of the Five *Vowels* and *y*; as in *Habeo, Habes, Hiatus, Hora, Humus, Hydra*, &c.

The Letters of the *Alphabet* are written in greater or leſs *Characters*; and with the greater are generally begun all proper Names, every Sentence after a full Period, and each ſeveral *Verſe* in *Poetry*.

A *Syllable* is that which expreſſes one entire Sound in a *Word*, and conſiſts either of one *Vowel* only, or of *Vowels* joyn'd one with another, or of *Vowels* and *Conſonants* together, as *Simple*, *Double*, *Triple*, *Quadruple* and *Quintuple*.

A joyning together of Two *Vowels* is call'd a *Diphthong*, as *æ*, *ai*, *ei*, *œ*, *oi*, *ou*, and of Three a *Triphthong*; but this is never known in *Latin*, but ſometimes in *French*, as *aou*, *eau*, *jau*, *jeu*.

A *Syllable* is either long, and then it is thus mark'd ‒; or ſhort, which is thus mark'd ˘; or Common.

A *Word* conſiſts of one or more Syllables, and admits of *Accent*, *Apoſtrophe*, and *Notation*.

Accent is the Harmony of Language, and is otherwiſe call'd *Tone*, being either Acute, markt thus ´; or Grave or Mean, and markt thus `.

Apoſtrophe is a cutting off of any of the Five *Vowels*, eſpecially of the Four firſt, as *a*, *e*, *i*, *o*, when the following Word begins with a *Vowel*. This *Apoſtrophe* is ſeldom markt, in the *Latin*, but only intimated by a quick paſſing from one *Vowel* to the other, and that chiefly in *Verſe*.

Notation is that, by which the *Species* or *Figure* of a Word is diſtinguiſh'd. The *Species* denotes, whether it be Primitive or Derivative; the *Figure*, whether Simple or Compound.

Words are Signs invented by Men to expreſs their *Thoughts*, and are communicated one to another by *Speech* or *Writing*. It does not conſiſt with the Intended Brevity of this Undertaking to enter here into an Inquiry after the *Origin* of *Languages*. 'Tis ſufficient to obſerve that when ſeveral Tongues were ſettled, each Language kept it ſelf more or leſs free according as each Nation had Correſpondence and Intercourſe with others; and was more or leſs ſpoken according as each Nation that ſpoke it encreas'd its *Commerce*, its *Gout* for the *Arts* and *Sciences*, its *Religion* and *Empire*. Not to ſpeak of the Languages of the *Eaſt*; 'twas by theſe Means the *Greek* and *Latin* Tongues made a great Progreſs over all *Europe*, there being hardly one *European* Tongue or Language but what borrows from one or other of thoſe Languages the greateſt Part of its Terms of Arts and Sciences, and of Religion. And as the *Latin* Tongue, by the *Roman* Conqueſts Extended much farther than the *Greek*, in the *Weſtern* Empire, ſo from thence it comes, that not only all the *Languages* of *Europe* borrow abundance of Words from the *Latin*, but that it makes the Foundation of the Three Languages, which of all the *Living* Tongues have moſt Currency in this Part of the World, *viz.* the *Italian*, *Spaniſh* and *French*, whoſe Languages have been alter'd at different Times, according to the Genius of each Nation.

As to the *Engliſh* Tongue, the Reader is ſo nearly concern'd in it that he will doubtleſs be pleas'd with an Account of the Original and Progreſs of it, as we ſhall abſtract it from Dr. *Wallis*, [*Preface to his Grammar.*] We ſhall not take any Notice of what he ſays of the *Britiſh*, which was indeed the *Gauliſh* Language, not only becauſe 'tis not known among us, nor has been known in its Purity ſince the *Saxon* Invaſion; but alſo becauſe the preſent Language we ſpeak has no Relation to it.

“ When the *Engliſh* and *Saxons* (*according to the before-mention'd Author*) came into *Britain*, about the ſame time as the *Franks* poſſeſs'd themſelves of *France*, and after continual Wars ſubdu'd the greateſt Part of this *Iſland*, the *Britains* and their Language were both expell'd at once. The *Conquerors* call'd their New Country *England*, and the Tongue which they brought with them *Engliſh*; and this Tongue is commonly call'd by the Learn'd the *Saxon* or *Anglo-Saxon*, to diſtinguiſh it from the *Engliſh* us'd now among us. That Tongue was deriv'd from the Old *Teutonick*, as was likewiſe the *French* which was brought into *France* by *Pharamond*. So is the preſent *German*, *Dutch*, *Daniſh*, *Swediſh*, *Pruſſian*, &c. which bear Affinity with one another. This *Engliſh* Tongue remain'd in a manner pure and unmixt till the Time of the *Normans*, excepting that it receiv'd ſome *Welſh* Words, as on the contrary the *Welſh* receiv'd ſome *Saxon*.

“ When the *Normans* became Maſters in *England*, they did their utmoſt to introduce their Tongue, which was the *French* us'd in *Normandy*. *William* the Firſt order'd all *Edicts* and *Laws* to be written in the *Norman* Tongue, yet the *Engliſh* Language ſtill maintain'd its Ground in a great Meaſure. Several *French* Words, which however were of *Latin* Original, crept into the *Engliſh* Tongue. And ſeveral Old *Engliſh* Words were diſ-us'd. *The Doctor continues thus*; “ Nor do I think it lightly happen'd that the Names of Living Creatures are originally *German*, and yet when they are dreſt and ſerv'd up to Table, we call them by *French* Names, as for Inſtance, *Ox*, *Cow*, *Calf*, *Sheep*, *Hog*, *Boar*, *Deer*, &c. are *German*; but *Beef*, *Veal*, *Mutton*, *Pork* and *Veniſon* are *French*. The Reaſon of which I ſuppoſe to be that the *Normans* did not concern themſelves with *Paſtures*, *Sheep-folds*, *Parks*, and other Places where thoſe Living Creatures above-nam'd were look'd after (which therefore kept up their ancient Names) as with *Shambles*, *Kitchins*, *Tables* and *Feaſts* where Food was to be had, which got thoſe New Names they now go by. But from that time an Infinite Medley of Foreign Words has ſtoll'n into our Language; not that the *Engliſh* is of it ſelf Poor and Barren, for 'tis ſufficiently enrich'd with Words and Elegancies, and Copious almoſt to Exceſs. Nor does it want any thing which it cannot furniſh out of its own proper Store-houſe, as is plain from the Works of our Beſt Poets of Elder Times, which are full of Elegance and Variety of Phraſes, pure and unadulterated with *Foreign* Dreſs. However, a Mixture could not be avoided by reaſon of our Various Commerce with *Foreigners*, and eſpecially the frequent Marriages in Royal Families, partly out of an immoderate Affectation of Novelty, at leaſt in this laſt Age, which has introduc'd many *Foreign* Words without any manner of Neceſſity, there being too many, who fanſie nothing can be ſpoken Fine and *a Propos*, which has not a *French Turn*, and carries with it ſome new uncommon Sound. Thus the Old *Saxon* Tongue was Excluded by the Modern *Engliſh*, but it found Reception in the Chief Parts of *Scotland*, which I imagine happen'd at the time when the *Normans* Invaded *England*; for the *Engliſh* Royal Family, and ſeveral of the Nobility, with ſome of

“ the Common People, being driven out of *England*, “ retir'd into *Scotland*, and ſettled their Tongue there, “ which being improv'd by continual Commerce, “ prevail'd ſo far that the *Engliſh* and *Scots* Tongues “ are now the ſame, excepting that the latter may “ be ſaid not to be ſo much debaucht by *Foreign* “ Mixtures.—— To this may be added, that the *Engliſh* has made an advantageous Uſe of the Liberty it took, and ſhar'd all the Significant and Beautiful Words of her Neighbours which could be Incorporated with her own. This Digreſſion cannot but be thought equally pleaſant and uſeful in a Treatiſe of this Nature, to which we return, and to that Part of it that relates to Words.

A Word in all Languages is conſider'd by Grammarians as what makes or may make a Part of a Diſcourſe, and accordingly as the *Latin* Grammarians found Eight Words of a different Nature in that Tongue, they plac'd them in Eight *Claſſes* or different Diviſions, which they call Eight *Parts* of *Speech*; and moſt of the Modern Grammarians have done the ſame in treating of their own Languages, making them agree with the *Latin*, as *Noun*, *Pronoun*, *Verb*, *Participle*, *Adverb*, *Conjunction*, *Prepoſition*, *Interjection*.

The *Greeks* made the *Article* a *Part* of *Speech*, and rank'd the *Interjection* with the *Adverb*; and the *Latins* who did not uſe the *Article* commonly made the *Interjection* a Part of *Speech*. The Moderns, as the *Italians*, *French*, &c. who make great Uſe of the *Article* generally make their Eight Parts of Speech conſiſt of *Article*, *Noun*, *Pronoun*, *Verb*, *Participle*, *Adverb*, *Prepoſition* and *Conjunction*. But we in *England* follow the Diviſion of the *Latins*, as the *French*, *Italians*, &c. do that of the *Greeks*, making little or no Uſe of the *Article*, except *of* and *the*, which generally goes before the *Noun Subſtantive* in the *Nominative* and *Accuſative Caſe*, and *A* the Mark of a *Nominative* only when by itſelf; there will be no occaſion of ſpeaking more of it, ſo we proceed to *Nouns*.

A *Noun* is a Part of Speech that has Gender and Number; and becauſe all *Nouns* denote either Subſtance or an Attribution of *Quality*, they are divided into *Subſtantives* and *Adjectives*.

A *Noun Subſtantive* is that which ſignifies ſome Subſtance, and may be made uſe of in Diſcourſe without the help of any other *Noun*, as a *Man*, a *Woman*, a *Lyon*, an *Eagle*, *Heat*, *Cold*, &c.

A *Noun Adjective* is that which does not ſignifie any thing of itſelf, but only denotes what another thing is, as *Great*, *Little*, *Fair*, *White*, *Red*, &c.

Noun Subſtantives are divided into Proper Names and Appellative Names. Proper Names are ſuch as agree only to a particular Perſon or Thing, as *Cæſar*, *William*, *London*, *Briſtol*. Appellative Names or Nouns are ſuch as agree with ſeveral Perſons or ſeveral Things, as *Animal*, *Man*, *Beaſt*, *Bird*, *City*, *Province*, *River*, and generally all Names of Dignity, Employment, Profeſſion, Trade, *&c.* as *King*, *Prince*, *Duke*, *Biſhop*, *Doctor*, *Lawyer*, *Merchant*, *Mercer*, *Soldier*, *Poet*, *Painter*, *Orator*, and the like.

For tho', properly ſpeaking, there are no true *Noun Subſtantives* but thoſe that directly and by themſelves, without having occaſion of ſuppoſing a Subject which ſuſtains them, ſignifies a Subſtance, yet the Uſe of Language is ſuch, that the Names or Nouns before-mention'd are lookt upon and made uſe of only as *Noun Subſtantives*.

The *Nouns* which the Grammarians call *Appellative* may perhaps be better term'd *Common* or *Communicative*, becauſe Proper Names, as *Cæſar*, *William*, *John* and *Thomas*, are as much *Appellative* as *Man*, *City*, *Province*, but 'tis thought moſt convenient to accommodate our Method to receiv'd Uſages and Cuſtoms. *Appellative Nouns* are further divided into *Abſtracted* and *Collective*. *Abſtracted Subſtantives* are thoſe that denote a thing whoſe Exiſtence not being real, and in the Nature of Things ſubſiſt only in the Underſtanding, as *Humanity*, *Vigilance*, *Truth*, &c. all theſe *Subſtantives* are form'd of *Adjectives*, as *Humanity* of *Humane*, *Vigilance* of *Vigilant*, *Truth* of *True*. All *Nouns Subſtantives*, which being put but in the *Singular* Number, and yet give the Mind an Idea of ſeveral Things, as Collected and gathered together are term'd *Collective Nouns*, as *Army*, *Fleet*, *People*, &c.

A *Noun Adjective* ſerves only to Qualifie a *Noun Subſtantive* one way or other, according to the Idea we have form'd of it or conſider it in. Thus when we ſay ſimply a *Flower*, we only denote the Thing we ſpeak of. If we wou'd not only give a ſimple Idea but ſhew its Qualification, we add another Term to this *Flower*, as for Inſtance that of *Fair*, and this Term ſo added, in Conſtruing it with the *Gender* and *Number* of the *Noun Subſtantive* is what is call'd *Adjective*.

All *Nouns* may be conſider'd as *Simple* or *Primitive*, or *Derivative* and *Compound*, and further as *Abſolute* and *Derivative*.

Simple or *Primitive Nouns*, as well *Subſtantive* as *Adjective*, are ſuch as don't derive their Origin from another *Noun* in the ſame Language, but owe their Signification to the Firſt *Inſtitution* of that *Language* either borrow'd from others or originally its own, as *Law* which comes from *Loy*, and that from *Lex*, is as much *Engliſh* as *Town* and *Down*, which are *Saxon* Terms *Ton* and *Dun*, and 'tis the ſame with *Noun Adjectives*.

Derivative Nouns are thoſe that are form'd of ſome *Primitive* Word, as *regularly* from *Rule*; and when theſe *Nouns*, either *Subſtantive* or *Adjective*, are form'd of a *Verb*, as *Government* from *to Govern*; or of *Latin* Derivation, as *Donation*, *Apprehenſion*, or as the Adjective *Poſſible*, they are then by ſome Grammarians call'd *Verbal Subſtantives* and *Verbal Adjectives*, whether the *Verb* of which they were form'd be *Simple* or *Primitive*, *Derivative* or *Compound*.

Compound Nouns are ſuch as beſides their *Derivation* have ſome *Particle*, *Prepoſition*, *Noun*, &c. ſo prefix'd to them, that commonly they cannot be ſeparated from them without deſtroying their Signification when together, as *Immortality* and *Immortal*, *Irregularity* and *Irregular*, *Enterprize*, *Surprize*, *Enterprizing* and *Surprizing*, which are both *Derivative* and *Compound Nouns*. The *Latter* are alſo form'd of *Noun Subſtantives*, as *Wood green*, *Wood-houſe*, *Well-cloſe*, or of *Noun Adjectives*, as *Goodneſs*, &c. By *Abſolute* and *Relative Nouns* is underſtood in this Place a *Noun* whoſe Signification implies a ſimple Idea, as *Man*, *Birth*, *Earth*, *Air*, are Abſolute *Noun Subſtantives*; and *Great*, *Little*, Abſolute *Noun Adjectives*. On the contrary, *Father*, *Son*, *Husband*, are *Relative Subſtantives*; and *Better*, *Worſe*, *Equal*, *Unequal*, are *Relative Adjectives*.

As to *Augmentative* and *Diminutive Nouns*, they were frequent in the *Greek* and *Latin* Tongues; but no Language abounds with them ſo much as the *Italian*. In *Engliſh* we have very few *Diminutives*, and thoſe generally Names of Perſons, as *Harry*, *Jemmy*, &c. and almoſt all our *Augmentatives* are borrow'd from other Languages.

There are ſome *Nouns* that are ſometimes *Subſtantive* and ſometimes *Adjective*, as *Innocent*, the *Soveraign Good* or the *Good Soveraign*; but the *French* above all People make uſe of theſe *Nouns* in Writing and Speaking, Examples of which we have lately met with, as, *il n'y a rien de ſi beau que le vray, une accuſation de faux, le bon de l'affaire, le Mauvais de tout cela, le ſublime, dans le Style, Il y a du marveilleux dans ce que vous racontez, faire le Poſſible, tenter l'impoſſible.* Here *Vray True* is put for *Truth*, *Faux Falſe* for *Falſhood*, *Bon Good* for *Goodneſs*, *Mauvais* Wicked for *Wickedneſs*, *Sublime* for *Sublimity*, and this Phraſe we have made *Engliſh* as *The Sublime in Stile conſiſts of*, &c. The Word *Antique* is alſo *Subſtantive* in our Tongue, as a Beautiful *Antique*, a True *Antique*, but we have borrow'd it from the *French*.

A *Noun Adjective* admits of Three Degrees of Compariſon, *Poſitive*, *Comparative*, and *Superlative*. A *Noun Adjective Superlative* is a *Noun* one Degree above the *Comparative*, as the *Comparative* is a Degree above the *Poſitive*. But it may be better defin'd by ſaying 'tis a *Noun Adjective* which by itſelf or with the help of ſome Particle, denotes the greateſt Exceſs, the greateſt Amplification which the thing ſpoken of will bear. The *Latins* abounded with *Nouns Adjective Superlative* by themſelves, as moſt of the Words in *mus*, *ma*, and *mum*. In our Language we have *Noun Adjectives Superlative* by themſelves, without any Augmentation of the Termination, but rather a Decreaſe, as *Beſt* and *Leaſt*; but the general way of terminating theſe *Adjective Superlatives*, is in *Eſt*, as *Rude, Ruder, Rudeſt, Vile, Viler*, and *Vileſt*. Tho' generally in the *Engliſh* Tongue, *More* and *Moſt* are the Signs of the *Comparative* and *Superlative Adjectives*.

Of *Nouns* of *Number* there are *Five* ſorts. The firſt *Principal* or *Cardinal*, as *One, Two, Three, Ten, Twenty*, a *Hundred* a *Thouſand*. The ſecond *Nouns* of Order, as *Firſt, Second, Third, Fourth*, a *Hundredth*, a *Thouſandth*. The third *Collective*, as a *Dozen*, a *Score*, &c. The fourth of *Partition*, a *Third*, a *Fourth*, a *Fifth*. And the fifth of *Encreaſe*, as *Double, Treble, Quadruple*, &c. Of theſe *Five* ſorts of *Numeral Nouns*, the three laſt are always *Subſtantives*; the other two *Adjectives* of themſelves, however they are ſometimes us'd alſo as *Subſtantives*.

The *Gender* of *Nouns* has for its *Foundation* the difference of the two *Sexes*; and there being but Two in Nature, *Maſculine* and *Feminine*, there are but Two in *Grammar* in moſt Languages. The *Greeks* and *Latins* have another, which they diſtinguiſh'd from the other by the Name of *Neuter*; and the *Engliſh* make uſe of the ſame Term. Thus, *Homo* a Man, is *Maſculine*; *Mulier* a Woman, *Feminine*; and *Saxum* a Stone, *Neuter*. The *Latins* mark the difference of *Gender* by three Articles, *hic, hæc*, and *hoc*; but in our Language 'tis a hard matter to diſtinguiſh the *Gender*, for there's no Tongue in the World, except our own, which admits no difference of *Gender* in its *Articles* and *Nouns*; all the Diſtinction there is in our Language, for the *Maſculine* and *Feminine*, conſiſting in the *Pronouns*, *He* and *She*, which ſometimes anſwers to the *French Pronouns*, *Luy* and *Elle*, *He* and *She*; and ſometimes to the *Pronouns*, *Celuy* and *Celle*, *That* and *This*, *Maſculine* and *Feminine*. There's no difference in the Termination of the *Adjectives* of either *Gender* in *Engliſh*. *Good* is both *Maſculine* and *Feminine*. *Bonus, Bona*, and *Bon, Belle, Good*, in *French* and *Latin* ſhew how much our Tongue differs from others in the Termination of the *Genders*. 'Tis the ſame with *White*, which is *Maſculine* and *Feminine*, *Albus Alba, Blanc Blanche*, and ſo with all other Words.

We come now to the *Numbers*, Singular and Plural, which are generally diſtinguiſh'd in our Tongue by the Termination in *s*, and in the *French*, in *z*. But we have ſome Words that are both Singular and Plural, as *Sheep, Fiſh, Fowl*, &c.

The next thing to be treated of is the *Declenſion* of *Nouns*. The difference of the *Caſe* which is mark'd in *Latin* by the different Terminations of the ſame *Noun*, is not ſo diſtinguiſh'd, either in our Language, the *Italian*, *Spaniſh*, or *French*. From whence it has been pretended, that theſe Tongues have no difference of Caſe. This difference is only in its ſelf the Sign of different Relations, under which a *Noun* may be conſider'd; and theſe Relations being chiefly Six in Number, ſix Caſes are ſettled in all *Nouns*, including the Denomination of each; and in *Engliſh* are denoted by the Particles, *The, Of, To, Oh, From*, or *Of*, viz. *Nominative, Genitive, Dative, Accuſative, Vocative, Ablative*. Nominative, *the Lord*; Genitive, *of the Lord*; Dative, *to the Lord*; Accuſative, *the Lord*; Vocative, *oh the Lord*; and Ablative, *from*, or *of the Lord*. The Particles in *Engliſh* are the ſame both in the Singular and Plural Number. There's no difference alſo in the Declenſion, with reſpect to the *Gender*, *Maſculine*, and *Feminine*, having the ſame Particles.

There are ſome Grammarians, who don't look upon *Pronouns* as a Part of Speech diſtinct from the others, but place them among the *Nouns*. Of this Opinion was a Famous *Spaniſh* Grammarian, nam'd *Sanctius*, who flouriſh'd in the Fifteenth Century. And indeed, if one wou'd take the Word *Noun* in its full Extent, not only *Pronouns*, but *Participles* may be plac'd under the Claſs of *Nouns*: But not to enter into that Diſpute, in a Tract wherein we are circumſcrib'd to a narrow Compaſs, let us proceed to the Definition of a *Pronoun*.

The Word *Pronoun*, or *Prænomen* in *Latin*, does in ſome manner ſerve to define it, ſince it ſignifies a Word that ſtands inſtead of a *Noun*, or repreſents a *Noun*; but becauſe it cannot be always ſaid to repreſent a *Noun*, we will give the Definition of it from Learned *Voſſius*, in his *Analogy of the Latin Tongue*. He ſays, a *Pronoun is a Word, which in the firſt place relates to the Noun, and in the ſecond ſignifies ſome Thing*. There are [according to a Modern Grammarian] Five ſorts of *Pronouns*, *Perſonal, Poſſeſſive, Demonſtrative, Relative*, and *Indefinite*. *Pronouns Perſonal* are ſo call'd, becauſe they are us'd in Speech to denote Perſons, as *I* and *Me* for the firſt Perſon, *Thou* and *Thee* for the ſecond, *He* and *Him* for the third, with the *Feminine*, *She* and *Her*. *Poſſeſſive Pronouns* are deriv'd from *Perſonal*, and ſo call'd becauſe they denote that the Thing talk'd of belongs to the Perſon whom it ſerves to diſtinguiſh. The *Latin* and *Italian* Tongues have but One ſort of *Poſſeſſive*,

ſeſſive, but the *Engliſh* and *French* have more, as *My*, *Thy*, *Mine*, *Thine*; *Mon*, *Ton*, *Mien*, *Tien*.

Demonſtrative Pronouns are thoſe that are made uſe of when we wou'd point to a Thing, as if with one's Finger, as *This*, *That*, with their Plurals.

A *Pronoun Relative*, is that which has Relation to a preceding Noun, as, *He*, *Him*, *That*, *Which*, *Who*, with their Numbers.

Indefinite Pronouns, are ſuch as have a looſe and indeterminate Signification, and Grammarians differ as to their Number; ſome take in ſeveral Noun *Adjectives*, and others add even *Adverbs*. But as a Pronoun can never be reckon'd juſtly, but when it ſtands for the Name of a Perſon, or a Thing, which neither *Adjective* nor *Adverb* do; *Adverbs* and *Adjectives* muſt be excluded this Claſs. *Indefinite Pronouns Perſonal*, are, *Whoſoever*, *Whatſoever*, *Each*, *Other*. And *Pronouns Indefinite*, relating both to Perſon and Thing, are *None*, *Any*, *One*, and the *Other*; as for *Some* and *Ev'ry*, they being never to be us'd without a *Subſtantive* properly, they may be plac'd among *Noun-Adjectives*. A *Few*, *Several*, a *Great Deal*, a *Great Many*, are no more *Pronouns*, than other Nouns of Number. To theſe ſome add a ſixth ſort of *Pronoun*, by the Name of *Pronoun-Interrogatory*, as, *Why*, *Who*, *What*.

Pronouns are one of the moſt difficult as well as the moſt extenſive Parts of in *Grammar*; and whoever wou'd be Maſter of it, muſt be Maſter of them. Wherefore the Learner ſhou'd take great care in the choice of his Guide, and follow it carefully when he has ſo choſen. The next Thing to be ſpoken of, is the

Verb, and of all the Parts of Speech, there's none which has been ſo variouſly defin'd, each Grammarian that has treated of it, having given it a different *Definition*; ſome, as *Scaliger*, after *Ariſtotle*, have only conſider'd it with Reſpect to the different *Tenſes*, which it ſerves to denote. Others, as *Sanctius*, to the *Tenſes*, have added the difference of Perſons and Number. Others, as *Diomedes*, conſider'd it as 'tis moſt diſtinguiſh'd in its exterior Form, which is in its having no Caſe, ſaying 'tis a *Part of Speech without Caſe*. And *Voſſius* having to this Definition added, *Which ſerves to mark the Tenſe or Time*, propoſes one of his own, which is this, *A Verb is that which ſignifies to do*, *to ſuffer*, and *to be*. The *French* Academy, in their Dictionary, ſay, *'Tis a Part of Speech conjugated by Moods and Tenſes*. Which Definition wou'd have been more to their Honour if it differ'd more from what is in the common *Engliſh* Accidence, *A Verb is a Part of Speech declin'd with Mood and Tenſe*, &c. All *Verbs* are in our, as well as other Languages, divided into *Perſonal* and *Imperſonal*. A *Verb Perſonal* is that which carries before it the mark of ſome *Perſonal Pronoun*, as, *I am*, *you are*, *we love*, *they hate*; and *Imperſonal* are thoſe that generally have no other Sign but that of the *Third* Perſon Singular, as, *It Snows*, *it Freezes*, *it Thaws*, *it Rains*, *it Thunders*, *it Lightens*. But this Diviſion muſt give way to one more common, and that is that of *Verbs Active*, *Paſſive*, and *Neuter*. By *Verb Active* muſt not here be underſtood a *Verb* which ſignifies *Action*, for that's not enough to make a *Verb Active*; it muſt further govern that Noun in the Accuſative Caſe, which is the Subject of the *Action* the *Verb* ſerves to denote. Thus, to *love*, to *ſuffer*, are *Verbs Active*, becauſe to *love ſomebody*, to *ſuffer ſomething*, are there in the Accuſative Caſe; whereas to *depart*, to *act*, tho' they ſignify *Action*, as well as to *love* and to *ſuffer*, are nevertheleſs *Verbs Neuter*, becauſe they can't govern the Noun in the Accuſative Caſe, we ſay *ſomebody departs*, but never *to depart ſomebody*. Further, theſe three ſorts of *Verbs*, *Active*, *Paſſive*, and *Neuter*, are thus defin'd. An *Active Verb* is a *Verb Perſonal*, which governs the Term or Subject of the Action and Impreſſion which it ſerves to denote, in the Accuſative Caſe, as to *love ſomebody*, to *ſay ſomething*, to *receive a Wound*. A *Verb Neuter*, is a *Verb Perſonal*, which compriſing in its ſelf the Term of Action, Impreſſion, or State it ſerves to denote, governs no Noun in the Accuſative Caſe, as to *act*, to *depart*, to *ſleep*. A *Verb Neuter Paſſive* is chiefly us'd in the *French* Tongue, and is that which governs only the *Pronoun*, as *ſe repentir*, *ſe ſouvenir*, to *remember* himſelf, to *repent* himſelf, by which it appears that the *Pronoun* in *Engliſh* is govern'd by it without governing. Theſe ſort of *Verbs* are very frequent in the *French* Tongue, for *ſe* before any *Verb*, almoſt makes it *Neuter Paſſive*. In our Languge 'tis very rare. As to the Verb *to be*, beſides its own Signification, it is in our Tongue put to a uſe which diſtinguiſhes it entirely from all other *Verbs*. *Verbs Paſſive*, which are ſo well known in the *Greek* and *Latin* Tongues by their Terminations only, as Φιλέω, Φιλέομαι, *amo*, *amor*, I love, I am beloved, are entirely loſt in ours, and all Modern Languages; and the *Verb Subſtantive*, as 'tis call'd, *to be*, ſupplies it with the *Paſſive Participle* of each *Verb Active*: By which means this *Verb* is of much greater uſe in our Tongue, than 'tis in *Latin* or *Greek*. As is alſo the Verb *to have*, which being joyn'd to the *Paſſive Participle* of each *Verb Active*, ſerves to mark ſeveral *Tenſes* with an *Active Signification*, as, *I have lov'd*, *I have made*. It will not be improper to obſerve, that the firſt Perſon in the *Preſent Tenſe* of the *Indicative Mood*, and the *Preſent Tenſe* of the *Infinitive Mood* of a *Verb Active*, have, in *Engliſh*, the ſame Termination, with the difference of *I* and *To* before it, as *To love* and *I love*; whereas the *Infinitive Mood* is diſtinguiſh'd in the *Preſent Tenſe* by its Terminations in other Languages as well as the other *Moods*, as *Jaime* I love, *Aimer* to love, &c.

This brings us to the *Moods* of *Verbs*, and it muſt be obſerv'd that every thing that relates to the different Variations of *Verbs*, is term'd *Conjugation*, a Word taken from the *Latin* Grammarians; ſo that to *Conjugate* a *Verb*, is to carry it thro' all the Variations of which it is ſuſceptible.

There are Four Principal Things to be conſider'd in the Conjugation of *Verbs*, *Moods*, *Tenſes*, *Perſons* and *Number*. *Moods* are the different Uſes that are made of *Verbs*, either directly and poſitively, or indirectly and conditionally, or after a looſe and indeterminate manner. Grammarians do not agree among themſelves as to the Number of *Moods*; not only becauſe of the Difference in Languages, ſome of which are ſuſceptible of more different Variations than others, but alſo on account of the Diverſity of Ideas under which they were conſider'd by them.

The *Greek* Grammarians have eſtabliſh'd Five *Moods* in their *Verbs*, and the greateſt part of the *Latins* have follow'd them. The Names they gave them were *Indicative*, *Imperative*, *Optative*, *Subjunctive*, and *Infinitive*.

They call'd that Mood *Indicative*, which ſerves to indicate or declare a Thing, as *I Love*.

The *Imperative Mood* ſpeaks alſo directly and poſitively, but either by way of *Command* or *Demand*, as *Love, Do*.

The *Optative Mood* is that which ſpeaks indirectly only, and by wiſhing, as *Grant I Love*.

The *Subjunctive Mood* ſpeaks alſo indirectly, and is joyn'd with ſome Conjunction, as *When I Love*.

The *Infinitive Mood*, is that which does not determine the Signification of the *Verb* but imperfectly, as *To Love*. Several *Latin* Grammarians have added other *Moods* to theſe *Five*, looking on the different Variations that are made uſe of, to *Submit*, to *Promiſe*, to *Exhort*, to *Ask*, as ſeveral *Moods* of the ſame *Verb*. And others, as *Sanctius*, that the Diſtinction of *Moods* in *Verbs* is uſeleſs, becauſe not Eſſential, and have made no difference in them, only as to the *Tenſe* and *Perſon*. But as ſome, by adding too many *Moods*, occaſion more Confuſion than Order; Others, by ſuppreſſing all of them, wou'd deprive Grammarians in all Tongues of a very uſeful Diſtinction. The *Potential Mood*, us'd in our Vulgar Grammars, ſeems to be of the kind of thoſe that may be ſpar'd, the *Optative*, *Potential*, and *Subjunctive*, having the ſame Terminations in *Latin*. The Opinion of the Great *Voſſius* will warrant what has been ſaid; for in his Grammar he makes but One *Mood* of the *Optative* and *Subjunctive*, for that very Reaſon, that their Variations are the ſame. And the *French* have but Four *Moods* in their Beſt Grammar, the *Indicative*, *Imperative*, *Subjunctive*, and *Infinitive*. As to the *Engliſh* Tongue, it accommodates itſelf both to thoſe who are for more *Moods*, and to thoſe who are for leſs; but we having no *Eſtabliſh'd Grammar*, the moſt Correct one that has yet been Publiſh'd, being nothing more than an *Eſſay*, 'twill not be expected that we, who can have no greater Ambition than to Copy faithfully, and as judiciouſly as we can, from what has been ſaid by the beſt Authors already on this Subject, ſhould pretend to decide in ſo difficult an Affair.

The next Thing to be treated of, is the *Tenſe* of *Verbs*. And as there is in the *Compaſs* Four Cardinal Winds, which are ſubdivided into others, ſo there are in *Grammar* Three *Tenſes*, the *Preſent*, the *Paſt*, and the *Future*; which, at leaſt Two of 'em, are ſubdivided in all other *Tenſes* in other Languages; and one of them the *Paſt*, in our own, as well as the *Latin*, may bear a threefold Diviſion, *viz.* into *Preterimperfect Tenſe*, *Preterperfect Tenſe*, and *Preterpluperfect Tenſe*. The *French* divide the *Paſt* into *Five* Parts, *Preterit Imperfait*, *Preterit Indefini*, *Preterit Perfait*, *Preterit pluſque Perfait*, *Preterit Indefini Compoſé*; and the *Future Tenſe*, with them, has alſo Two *Variations*, as the *Simple Future* and *Compound Future*; inſomuch, that there are Eight *Tenſes* in the *Indicative Mood* of their *Verbs*. The *Imperative Mood* has but One *Tenſe*, which is commonly call'd the *Preſent Tenſe*: But there are ſome able *Grammarians*, who will not allow that *Tenſe* to have that Name, and call it the *Future Tenſe*. If what they alledge is a ſufficient Reaſon, let others determine. They ſay that, where the *Imperative Mood* is made uſe of to command or deſire, the Things that it ſpeaks of are *to be done*, and conſequently cannot be look'd upon as *Preſent*. The Grammars in uſe make Five *Tenſes* in the other *Moods*. The *French* add One in the *Optative*, making it conſiſt of Three *Simple* and Three *Compoſite*, which is only obſerv'd to mark the difference between them and the Latin, and other Languages. But let Grammarians tell us what they pleaſe on this Matter, it were to be wiſh'd, for the Eaſe of Learners, that *Tenſes*, as well as *Moods*, were either leſs in Number, or more Certain. For we may often meet with one *Tenſe* employ'd for another, and almoſt all Languages make uſe of the *Preſent* for the *Future Tenſe*. There are ſeveral Examples of it in the Latin Tongue; *Cicero* himſelf ſupplies ſome of them, as when he ſays, *Antequam pro Muræna dicere inſtituo, prius quam de Republica dicere incipio. Before I undertake to ſpeak for Murena, before I begin to ſpeak of the Common-wealth.* For in both theſe places, *inſtituo* and *incipio*, which are in the *Preſent Tenſe* of the *Indicative Mood*, without doubt denote the *Future Tenſe*, which is alſo deſign'd by *Violo* and *Reſolvo* in this Verſe of *Virgil*,

Ante pudor quam te violo aut tua jura reſolvo.

If ſuch was the Uncertainty of the Uſe of the *Tenſe* in the *Latin* Tongue, 'tis yet much greater in all the Moderns, none of 'em having a Grammar ſo well Eſtabliſh'd, eſpecially the *Engliſh*, which of all the Languages worth learning, is moſt in want of one; Whether the Labour and Science of one Man will ever be able to effect it, at leaſt without great Encouragement from the Publick, is a Matter of ſtill much more Uncertainty.

A *Verb* may be us'd in the *Singular* Number, as *I love*, *You love*, *He loves*; or in the *Plural*, as *We love*, *Ye love*, *They love*. The putting a *Pronoun* before the *Verb*, makes it *Perſonal*, it being what is call'd the *Perſon* of the *Verb*.

Gerunds of *Verbs*, as they are chiefly in the Ancient Tongues, ſo the Word ſhews it to be of Latin Original, *Gerere*, to *make*, *adminiſter*, *govern*; and in that Tongue the *Gerund* ſerv'd to denote a Thing to be done according to the Signification of each *Verb*, as *Pugnandum eſt*, *We muſt Fight*. But there is no need of entring farther into the Nature and Properties of *Gerunds* in *Latin*, ſince this Diſcourſe is intended rather to give a general Idea of Grammar, than a particular Account of the Grammar of any particular Language. The Termination of the *Gerund* in *Engliſh*, is *Ing* or *Ed*; and if the latter, is diſtinguiſh'd by the Verb *to be*, or its Participle *being*, as *to be lov'd*, or *being lov'd*. Further, it muſt be obſerv'd, that in our Tongue, the Termination of the *Participle* and *Gerond* is the ſame, and the latter is commonly diſtinguiſh'd from the former by the Particle *in*. In ſhort, a *Gerund* is thus defin'd; 'Tis a part of a *Verb*, which admits of no *Variation*, and governs the ſame as the *Verb*, but has neither *Tenſe*, *Number*, nor *Perſon*, as *in doing*, *in loving*, *in ſpeaking*.

A *Participle* is a *Part* of *Speech* deriv'd from a *Verb*, and partaking of the Qualities of a *Noun* and *Verb* together, having *Tenſe* and *Signification* as a *Verb*, and *Gender*, *Caſe* and *Declenſion* as a *Noun*; but this Definition agreeing only to the *Latin* Tongue, in all the Parts of it, we muſt take Notice here that in *Engliſh*, *Participles* and *Gerunds* are the ſame in Termination, and have no other Diſtinction but the *Particle* and *Noun Subſtantive*, which always follow and precede the one and the other;

for *Loving* is both a *Gerund* and a *Participle*, when thus written, *in Loving him*, *a Loving Man*; the *Participle* in our Language anſwering the Uſes of a *Noun Adjective*. The *Termination* of the *Engliſh Participle* alters in the *Tenſe*, as *Loving* is the *Preſent Tenſe*, and the *Preter Tenſe* ends in *d*, *t*, or *n*, as *Lov'd*, *Taught*, *Slain*.

As to the *Conjugations* of *Verbs* in thoſe Tongues where the *Termination* varies often, as in the *Latin*, the *French*, and all other Tongues deriv'd from the *Latin*, great Care muſt be taken by the Learner throughly to acquaint himſelf with all thoſe Variations than which nothing is more uſeful in *Grammar*. In *Engliſh* the Variation is perform'd only by the *Particles Eſt*, *Eth* and *Ed*, and the *Conjugation* of the *Auxiliary Verb to have*, as *I love*; *thou loveſt*, *he loveth*, *I loved*, &c. But lately all who underſtand any thing of Cadence, or Harmony of Language, leave out the *Eth* and put in *Es*, as *he loves*, and make *'d* ſerve inſtead of *Ed*, as in the *Preterimperfect Tenſe*, *I loved*, *Belov'd* with an Apoſtrophe to note the cutting off of the *E*. The Learner will know little of *Conjugation*, and the Nature of it by the Practice in *Engliſh*, wherefore we ſhall keep to the *Latin*. *Conjugation* in that *Tongue* is a fit Varying of *Verbs* by their Final *Termination* in both *Numbers*, and every *Perſon* in each *Mood* and *Tenſe*, as *Amo I love*, *Amas thou loveſt*, *Amamus we love*, &c. *Amabam I lov'd*, *Amabamus we lov'd*, &c. The *French* alter the *Termination* in *Conjugating Verbs* as well as the *Latins*, but not ſo often making uſe of the Word *Avoir to have*, as well as the *Engliſh* in many of their *Tenſes*. The *Declining* a *Verb* is the Rehearſing of the Firſt and Second *Perſons* of the *Preſent Tenſe* of the *Indicative Mood*, as *Amo Amas*, with the Firſt *Perſon* of the *Preterperfect Tenſe* of the ſame *Mood*, *Amavi*; the *Preſent Tenſe* of the *Infinitive Mood*, *Amare*; the *Gerunds Amandi*, *Amando*, *Amandum*; the *Supines*, *Amatum*, *Amatu*; the *Participles*, *Amans*, *Amaturus*. The *Forming* or *Conjugating* a *Verb* is, the Varying of the *Termination* according to *Perſon*, *Mood* and *Tenſe*, as has been hinted already.

This is what our Compaſs will allow us to ſay of *Verbs*, to which muſt be added *Adverbs*.

An *Adverb* is a *Part* of *Speech* which admits of no Variation, and ſerves to modifie a *Noun Adjective*, a *Verb*, or a *Participle*; that is, to mark ſome Quality, Manner, or Circumſtance of what is ſignify'd by the one and by the other, as in theſe Phraſes, *to be extreamly happy*, *to be often ill*, *to ſpeak well*, *to write ill*, *A Man very much fearing God*, *He has always done his Duty*; *theſe Seven*, *extreamly*, *often*, *well*, *ill*, *very*, *much*, *always*, are there all *Adverbs*, which mark the different Manners and Circumſtances of what is ſignify'd by thoſe *Nouns*, *Verbs* and *Participles*. We may conſider *Adverbs* either with Reſpect to their *Form*, or with Reſpect to their *Signification*. As to their *Form* they may, like all other Words, be diſtinguiſh'd into *Primitive* and *Derivative*, *Simple* and *Compound*; but the former having no Relation to the Uſe of *Adverbs*, we ſhall only ſpeak of the latter. By a *Simple Adverb* is underſtood one which of itſelf, or by long Uſe in a Language makes but one Word, as *Yes*, *No*, *When*, *How*, *Never*, *Always*, *Wiſely*, *Senſibly*. And by a *Compound* One, an *Adverb* form'd of ſeveral Words which uſe Separates in Writing, as, *at preſent*, *at firſt*, *at laſt*, *by little and little*, *as ſoon*, and the like. As to the Signification of *Adverbs*, they may in that Reſpect be divided into almoſt as many different Claſſes as there are different Phraſes in a Tongue. But to prevent the Confuſion of too many Diviſions, let them be diſtinguiſh'd by *Time*, *Place*, *Situation*, *Order*, *Rank*, *Quantity*, *Number*, *Quality*, *Manner*, *Affirmation*, *Negation*, *Doubt*, and *Compariſon*. For there's hardly any *Adverb* but may be plac'd under one or another of theſe *Diviſions*. *Adverbs* of *Time* relate to what is *Paſt*, *Preſent*, *Future*, or *Undetermin'd*. As for the *Paſt*, *Yeſterday*, *Formerly*, *Laſtly*, *Newly*, *Lately*, &c. For the *Preſent*, *To Day*, *Preſently*, *for the Preſent*, &c. For the *Future*, *To Morrow*, *Suddenly*, *In a little while*, &c. For the *Undetermin'd*, *Often*, *Sometimes*, *Rarely*, *Never*, *Always*, *Inceſſantly*, *Commonly*, *Ordinarily*, *Late*, *Since*, &c. *Adverbs* of *Place* belong to all ſorts of Places indifferently, and ſerve only to mark the Difference of *Diſtances* and *Situations*, with Reſpect either to the Perſons *Speaking*, or the Things *Spoken* of, as *Here*, *There*, *Near*, *Far off*, *Before*, *Behind*, *Within*, *Without*, *Above*, *Below*, *Elſewhere*, *Every-where*. *Adverbs* of *Order* are of two ſorts, one relates both to Place and Order, as *Before*, *Behind*, *at Bottom*, &c. and the other to Order only, as *Firſtly*, *Secondly*, *In the End*, *Together*. And under the Name of *Adverbs* of *Quantity* are here Comprehended, not only all *Adverbs* of *Numeral Quantity Definite*, but alſo all thoſe that ſerve to denote either any Quantity whatſoever, or the Price and Value of Things. There are as many *Adverbs* of *Numeral Quantity Definite*, as there are Numbers with which the Word *Times* is joyn'd, as *Three Times*, *Six Times*, *Ten Times*, *Fifty Times*, &c. All other *Adverbs* have an Indefinite and Relative *Signification*, as *too much*, *too little*, *enough*, &c. As to *Adverbs* of *Quality* and *Manner*, there are few *Noun Adjectives* in our Language, out of which theſe ſort of *Adverbs* are not form'd, *Wiſe*, *Juſt*, *Prudent*, *Conſtant*, *Strong*, *Great*, *Aſſured*, *Infinite* and *Abſolute*, of which are form'd *Wiſely*, *Juſtly*, *Prudently*, *Conſtantly*, *Strongly*, *Greatly*, *Aſſuredly*, *Infinitely* and *Abſolutely*. This Termination in *ly* ſerves for almoſt all the *Adverbs* which ſignifie *Quality* and *Manner*. The next Thing to be treated of are *Adverbs* of *Affirmation*, *Negation* and *Doubt*. There are not many of theſe, and moſt of them are form'd of a *Noun Adjective* or *Participle*. As thoſe of *Affirmation*, *Aſſuredly*, *Infallibly*, *Certainly*, *Willingly*, &c. *Yes* is the Firſt in the Number of the *Affirmative Adjectives*, and *No* of the *Negative*; to which may be added, *Not*, *Not at all*, *Neither*, *In no wiſe*. As to the *Adverbs* of *Doubt*, *Perhaps*, *Perchance*, and two or three more are all that come under that Head. *Adverbs* of *Compariſon* are ſuch as denote different Degrees in Perſons and Things, as *More*, *Leſs*, *Worſe*, *Better*, *Very*, *Almoſt*. In Speaking of Simple *Adverbs* under their different Forms we have been oblig'd to mention ſome, as *Perhaps*, *Perchance*, which are Compound, but having been long join'd by Cuſtom are look'd upon as One Word, and ſo are many others of the ſame Kind. Compound *Adverbs* ſo eſteem'd at this time relate to all the Denominations of *Time*, *Place*, *Quantity*, &c. as before mention'd, *In a little while*, *In Time*, *Far off*, *A-ſhoar*, *In Order*, *At Six Times*, *Never ſo little*, *A-thwart*, &c.

Prepoſitions are diſtinguiſh'd from *Adverbs*, inaſmuch as *Adverbs* govern no *Caſe* and *Prepoſitions* do. That *Adverbs* govern no *Caſe* is a Rule receiv'd among almoſt

moſt all Grammarians in all Languages, and that *Prepoſitions* do. With reference to the former ſome Learn'd *Latin* Grammarians have been ſo wedded to that Rule, that when we read in the Beſt *Roman* Authors, *Satis Eloquentiæ, Sapientiæ parum, Enough of Eloquence, very little of Wiſdom* (we leave out the *of* in *Engliſh*) and ſome other ſuch like ways of Speech. They pretend that *Satis* was an old Word, which being no more us'd as a *Noun* was turn'd into an *Adverb*, and ſtill govern'd the *Genitive Caſe*. Others imagin'd that in theſe Two Examples the Word *Res* or *Negotium* ſhould be underſtood, and ground it upon the ſame Words being ſometimes us'd with the like *Genitives* in Ancient Authors. *Scioppius* when he talks of the *Syntax* of *Adverbs*, after having Quoted theſe Two Examples, *Satis Eloquentiæ, Sapientiæ parum*, ſays that in thoſe Places the *Genitive* is not govern'd by the *Adverb*, but by a *Noun Subſtantive* not expreſs'd, which is either *Res* or *Negotium*, ſome Authors having heretofore ſaid *Res Fraudis* for *Fraus*; *Res cibi* for *Cibus*, &c. Though this relates only to the *Latin* Tongue, yet it clears the Difference between *Adverbs* and *Prepoſitions* ſo well, that 'twill not be look'd upon as a needleſs Digreſſion.

There are ſome *Adverbs* in *Engliſh* as well as in *French*, that always govern ſome *Caſe*, and are never us'd without it, as *Dependently, Independently, Preferably, Relatively, Agreeably* and *Conformably*. The Three firſt of which are conſtru'd with the Article of the *Ablative Caſe*, and the reſt with that of the *Dative*; for in both Languages the *Caſe* is diſtinguiſh'd by the Article. As to the Uſe of *Adverbs* Cuſtom is the Judge, but generally they are plac'd before *Noun Adjectives* and *Participles*, and behind *Verbs*, as *extreamly Happy, greatly Good, extreamly Loving*, &c. As to *Engliſh*, the *Adverb* ſometimes goes before the *Verb*, particularly in Poetry and Eloquence, *He's greatly Enrag'd, ſenſibly Touch'd, ſtrongly Acted*, &c. There remains Three other Parts of Speech to be handled, *Conjunction, Prepoſition, Interjection.*

Conjunction is an Indeclinable Part of Speech, which is as the Knot that ties the ſeveral Members of the Diſcourſe together. In the common way of dividing *Conjunctions* there are Twelve of this Kind, *Copulative, Diſjunctive, Diſcretive, Cauſal, Conditional, Exceptive, Interrogative, Illative, Adverſative, Redditive, Elective, Diminutive. Conjunctions Copulative* are ſuch as ſerve to gather and Couple Two *Terms* together, as *And, Alſo, Neither. Diſjunctives* joyn the Parts of Diſcourſe together ſo that they at the ſame time mark Partition and Diſtinction in the Senſe of the Things ſpoken of, as *Either, Or*, and the like. *Diſcretive* are ſuch as lightly divide the Parts, as *But, Truly. Cauſals* are thoſe that always go before the *Reaſon*, and mark the Cauſe why, as *For, Becauſe. Conditional* are ſuch as in joining One Part of a Diſcourſe to another, put between the Senſe which they join a Condition, in which what is expreſs'd in the Two Principal Members of a Diſcourſe ceaſes to have its Effect, as *If, So that, According as, In caſe that*, &c. *Exceptive* Excepts againſt ſomething going before, or from ſomething following, as *Except*, the Word made uſe of, *Unleſs*, and the like. *Interrogative* asks a Queſtion as the Word implies, as *Whether, Why*, &c. *Illatives* bring in ſome Concluſion or ſhew ſomething, as *Wherefore, Therefore. Adverſatives* mark ſome Diverſity of Things, as *Tho', So be it. Redditives* anſwer to the *Adverſatives*, as *Notwithſtanding. Elective* may be alſo term'd *Comparative*, as the *French* call them, ſuch are *As, Than. Diminutive* leſſen the *Proportion*, as *At leaſt.* And we may add *Augmentatives*, as *Yet, Beſides, Moreover, Furthermore.*

Prepoſitions come next and are with *Conjunctions*, the Nerves and Sinews of a Diſcourſe, and without underſtanding them both very well, 'twill be impoſſible to arrive at the Knowledge of any Language. All the other Terms are like Materials prepar'd for a Building, *Prepoſitions* are like the Mortar which cements them together. True it is, Conjunctions by their Name and Nature ſeem to have the Chief Part of the Binding of the Members of a Diſcourſe together: However, *Prepoſitions* have a great Share in it, not only thro' the frequent Uſe we are oblig'd to make of them, and the Importance of knowing how to place them, but becauſe they are often employ'd as *Conjunctions.* What is here ſaid of *Prepoſitions* don't relate to ſuch as are inſeparable from Words which indeed are not, properly ſpeaking, *Prepoſitions* in our Language, nevertheleſs it will not be improper to take Notice of ſome of them, as *Abandon*, which is a very good Word borrow'd by us from the *French*, and by them in Part from the *Germans*. There is the *Prepoſition* to *a, Ban*, the High *Dutch* Word ſignifying *Baniſhment*, and *Donner* the *French* Word *to Give*, as *Abandon* in our Language; as alſo *Declare, Abuſe, Refuſe, Adjoyn, Subjoyn*: But 'tis to be obſerv'd, that almoſt all thoſe Words are taken from the *French* by us, and from the *Latins* by them; for 'tis not likely that we ſhould go ſo far as an Ancient Language for them, when our bad and good Fortune have given us ſo much Commerce with our Neighbours. Almoſt all the Words beginning with *Eſſ, Eff, Em, En, In, Enter, Inter, Contra*, &c. are of the ſame Extraction, as *Eſſence, Efficacy, Embrace, Encounter, Enterprize, Interrogate, Contraband, Contradict*, &c. But as to the Words beginning with *Mis*, notwithſtanding what Dr. *Wallis* ſays in his *Grammar*, that we borrow'd that *Particle* from the *French Mes*, they themſelves confeſs they are indebted to the *Saxons* for it. The Reader will not be diſpleas'd to ſee what the *French* Academy, in the *Grammar* Publiſh'd by their Secretary, ſay of it, [*Amſt. Edit.* Pag. 577.]
" The Learn'd M. *du Cange*, in his Gloſſary on
" the Word *Miſdicere, Meſdire*, to *Revile*, obſerves
" expreſly that *Mis* in the Signification of *Failing*
" or *Fault* is of very Ancient Uſe in the *Northern*
" Languages. And to this Purpoſe he quotes the
" *Gothick* Gloſſary of *Ulphilus*, who ſays that *Miſſa*
" in the *Daniſh* Tongue ſignifies *Failing* or *Defect.*
" Further, on the Word *Miſdocere*, after having ci-
" ted the Third Chapter of *Alfred*'s Laws and *Go-*
" *din*'s, where it is ſaid, *Si Presbyter Populum ſuum*
" *miſdoceat de feſto vel de jejunio, reddat triginta ſo-*
" *lidos, If the Prieſt fails to give his Congregation*
" *Notice of a Feaſt or Faſt-day he ſhall pay thirty*
" *Pence*, He obſerves that the *Saxon* Edition proves
" that *Miſpiſſian* to *Ill-inſtruct* comes from *Piſſian*
" to *Inſtruct*, and *Miſ* which ſignifies *Ill*. Thus
" alſo *Miſſe* in the *Engliſh* Language, which is de-
" riv'd partly from the *Daniſh* and partly from
" the *Saxon*, ſignifies *want* of or *Fault*, from the
" *French Faillir* to *Miſs*. For which Reaſon I be-
" lieve

“lieve the Famous *Wallis* is miſtaken, when treating of *Etymology* in his *Engliſh Grammar*, He ſays that *Mis* which the *Engliſh* make uſe of in ſeveral Words as we do of *Mes* is taken from us. 'Tis very true, they have borrow'd ſeveral Words from us, in which we uſe the Particle *Mes*, and their Neighbourhood to Us, and the *Norman* Conqueſts may probably have carry'd thoſe Words into *England*: But there's no Likelihood that the *Engliſh* ſhould take a *Particle* from us, which, when alone, is of no Signification in our Language, and which in theirs has ſo diſtinguiſh'd a one, and is either Original in their Tongue, or which is more probable, comes to them from the *Saxons* and *Danes*, who Reign'd a long time in *England*.

Tho' there are ſome Things in this Conceſſion of the *French* Academy, as to the Particle *Mis*, in our Favour, yet they ſeem to be great Strangers to our Tongue; for what can they mean by *Original* in our Language, ſeparate from the *Saxon*, unleſs 'tis *Welſh*? and they might know by their own *Gauliſh* Tongue whether this Particle was ſo Ancient. As to our borrowing it from the *Danes*, what has been ſaid already out of Dr. *Wallis* concerning that Tongue and ours, is ſufficient to prove we did not admit of many of their Words; and beſides, the Word *Miſdoceat* before-mention'd us'd by King *Alfred*, ſhews, that *Mis* was rather of *Saxon* than *Daniſh* Original, for the *Danes* had not then ſettled themſelves here long enough to Innovate any thing in Language. 'Tis not unlikely but this Particle may be both *Daniſh* and *Saxon*, for the Two Tongues were nearly related, and both of the ſame *Deſcent*. To return to our Subject, from which we ſhould not have digreſs'd, but to let the Reader ſee that *Mes*, which introduces no Inconſiderable Number of Words into the *French* Language is *Engliſh*, and will help a little towards paying the vaſt Debt we owe it.

Præpoſitions that are ſeparable, which indeed are the true *Præpoſitions*, come next to be treated of. 'Tis a Part of Speech Indeclinable, which being added to another Part of Speech governs it, and ſhews the ſeveral Relations it has with the others. Every *Prepoſition* governs the Term to which 'tis joyn'd, whether it be *Noun*, *Pronoun*, *Verb* or *Adverb*. It governs the *Noun* and *Article* at the ſame time thus, *With the Help of his Friends*. The *Noun* only thus, *To act by Conſtraint*. The *Pronoun* thus, *He's out of himſelf*. The *Verb* thus, *After he had talk'd*. Thus the *Adverb*, as, *From whence it comes to paſs*. Sometimes the *Præpoſition* follows the Term it governs, as *A little while after*. It ſerves to ſhew the different Relation, as is ſaid before, becauſe it determines the Senſe, and ſo ſtrongly, that if it was taken away, there wou'd be no Meaning in the Phraſe. *Præpoſitions* may be conſider'd either with Reſpect to their *Form*, their *Uſe* or *Signification*. As to their *Form* they admit of a Sub-diviſion into *Simple* and *Compound*. As to their *Uſe*, they may be diſtinguiſh'd into *Præpoſitions* that do govern and thoſe that do not govern. And as to their *Signification*, they may be divided into as many different Kinds as there are different Relations which they ſerve to denote. Theſe following are reputed *Simple Præpoſitions*, as *To*, *From*, *At*, *Between*, *Within*, *Without*, *Far*, *Near*, *Under*, *Over*, *Towards*, *Before*, *After*, *With*, *Againſt*, *Behind*, *Since*, *About*, *Except*, *Till*, *Amongſt*, *According*, &c. for tho' *within* may be reckon'd *Compound*, being Compos'd of *With* and *In*, yet Uſe makes one Word of it, and ſo of others of the like Nature, as *Notwithſtanding*, *Nevertheleſs*. *Compound Præpoſitions* ſpeak what they are by their Name, thus, *Over-againſt*, *In the mean while*, *Very ill*, as *Very ill ſatisfy'd*, and the like, are of this ſort, becauſe Compos'd of ſeveral Words. As to the *Uſe* of *Præpoſitions* and their *Governing Caſes*, in thoſe Languages wherein *Caſes* are diſtinguiſh'd by *Terminations* and not by *Articles*, as in the Modern, eſpecially our own, 'tis very neceſſary for the Young *Grammarian* to be well acquainted with the ſeveral *Regimens* of *Prepoſitions*, as that *Ad* in the *Latin*, *Apud* and *Ante* Govern an *Accuſative*; but in *Engliſh*, *Ad Cæſarem To Cæſar*, *Apud Londinum At London*, *Ante Diem Before Day*, can only be known to be the *Accuſative Caſe* by the *Præpoſition*, there being no Alteration in the *Termination*, it will therefore be very hard to diſtinguiſh thoſe that have a *Regimen* from thoſe that have not.

Præpoſitions are ſometimes *Comparative*, as *Near*, *Nearer*, *Next*, &c.

The *Interjection*, according to the uſual Diviſion of the Eight Parts of *Speech*, is the Laſt. And ſome *Grammarians* do not allow it to be one of them. Theſe place it among the *Adverbs*, in which they follow the *Greeks*, who did not aſſign it a Place by itſelf. *Sanctius* before-mentioned, is at the Head of the Moderns of this Opinion; but the Number is not great: And the *Latin Grammarians* aſſigning it a Place among the Eight Parts of Speech, have been follow'd by almoſt all that come after them. Nay, *Julius Cæſar Scaliger* lookt upon it as the Firſt and Principal Part of Speech, becauſe 'tis that which ſhews the Paſſions moſt. Both the one and the other have their Reaſons, and the Difference of their Sentiments proceeds only from the different Ways after which each of them conſider'd the *Interjection*; for with reſpect to Nature, 'tis perhaps the Firſt Articulate Voice which Man made uſe of; but with reſpect to *Grammar*, it ſerves ſo little by itſelf towards the Connexion of Diſcourſe, that it may be taken away, and the Senſe not ſuffer by it. To this may be added, in Favour of ſuch as will not have *Interjections* to be a particular Part of Speech, that there's ſo ſmall a Number of 'em 'tis hardly worth while to ſeparate them from *Adverbs*. An *Interjection* is nothing but an Expreſſion which ſerves to ſhew a ſudden Emotion of the Soul: and as the greateſt Part of thoſe Expreſſions are taken from Nature only, the true *Interjections* in all Languages conſiſt generally of One Syllable. The *Latin* Tongue borrow'd moſt of her's from the *Greek*, and the Moderns deriv'd theirs from the *Latin*. We in *England* have ſome of our own, but very few. As among all the Emotions of the Soul thoſe which moſt ſuddenly are outwardly diſcover'd are *Grief*, *Joy*, *Deſire*, *Fear*, *Averſion*, *Admiration*, *Wonder* and *Surprize*, ſo the ſudden Expreſſions which they cauſe include all the *Interjections* that are to be found in any Tongue: And as the ſame Word, according as it is differently Pronounc'd, may have different Significations, ſo the ſame *Interjection*, according as 'tis ſpoken, may expreſs the ſeveral Sentiments of *Grief*, *Joy* or *Admiration*.

The *Interjections* that denote *Grief*, are *Ah*, *Oh*, *Alas*, *Oh Heaven*, &c. The *Interjections* of *Joy* and *Deſire*, are *Oh Good*, &c. The *Interjections* of *Fear*, *Averſion*, and *Deriſion*, *Hah*, *Fi*, *Haha*, &c. Of *Admiration* and *Surprize*, *Oh*, *How*. &c. There are others which are not ſettled, but are the Effects of the ſudden Emotion of the Soul, and various, according to Perſons and Things. There are alſo ſome *Interjections* in our Language, as well as others, by which we endeavour to excite the ſame Emotions in others as we feel in our ſelves, as *Courage*, *Joy*, &c. To theſe we muſt add ſuch as do not ſhew any particular Emotion of Mind, but are made uſe of by way of *Appellation*, as *Hem*, *Ho*; and others, to impoſe Silence, *Huſh*, *Silence*; or to forbid a Thing, as *Hold*. There are ſome Grammarians, who extend the *Interjection* as far as to whole Phraſes, as *Ah*, *how fine it is*, and the like, but that will not be a ſufficient Warrant for others to imitate them.

It muſt be confeſt, that there are very little Helps in our Language to any one that wou'd Treat of *Grammar*, with reſpect to the *Eight Parts of Speech* only, but as to the *Syntax* and *Proſodia* we have ſtill leſs; therefore ſuch as wou'd know any thing of thoſe Parts of *Grammar*, muſt underſtand it chiefly with Reference to the Ancient Tongues, which give all the Rules for both the one and the other.

Next follows *SYNTAX*, which is the Second Part of *Grammar*, teaching the *Conjunction* of Words one with another, as to Concord and mutual Propriety; as of a *Noun* with a *Noun*, in *Number*, *Caſe* and *Gender*; of a *Noun* with a *Verb Perſonal*, in *Number* and *Perſon*; of an *Adverb* and *Præpoſition*, with the reſpective Words which they attend upon.

This *Conjunction*, or Intercourſe of *Words* one with another, is call'd by *Grammarians*, *Oratio*, or *Speech*, being either Simple or Compound, the Form whereof is either continu'd or interrupted, which laſt is call'd *Dialogue*; and theſe two manners of *Speech* are indifferently us'd both in *Proſe* and *Verſe*. Right diſtinguiſhing of *Sentences* are very neceſſary in *Grammar*; and there are three *Notes* of Diſtinction generally in uſe, but receiv'd from the *Latins*, as *Sub-diſtinction*, the *Middle-diſtinction*, and the *Plenary* or *Full-Diſtinction*; but known by their *Greek Appellations*, viz. *Comma*, *Colon*, and *Period*.

The *Sub-diſtinction*, or *Comma*, is only a very ſhort Pauſe of Reſpiration, or Breathing time; and is expreſs'd by this Note or Mark (,).

The *Middle-diſtinction*, or *Colon*, is that which ſtops the *Career* of a *Sentence* much about the Mid-way, leaving as much of the Senſe behind, as has been already paſt over, and this is thus Mark'd (:).

A *Full-diſtinction*, or *Period*, is that which comes after the perfecting or finiſhing of a *Sentence*, and is Mark'd only with one ſingle Prick (.)

To theſe ſome add a *Semi-Colon*; which indeed is much the ſame with a *Colon*, or at leaſt but a ſmall diminution of it, only differently Mark'd, as thus (;).

There are alſo ſome other Diſtinctions of *Grammatical* Obſervations in Sentences, as firſt, *Interrogation*, or asking of a *Queſtion*, the Note whereof is thus (?). Secondly, *Admiration*, or denoting a Wonder at a Thing, the Note whereof is thus (!) Thirdly, *Union*, or the joyning of two *Syllables* together for the making up of a Word, being one of them at the end of a *Line*; and this is thus Mark'd (-) Fourthly, *Parentheſis*, which is the including of one *Sentence* within another; the ſaid *Sentence* being ſo entire of it ſelf, that it may be wholly taken away, without ſpoiling or doing any great Prejudice to the reſt of that which remains.

There is alſo belonging to *Grammar* that which is call'd *Proſodia*, which may alſo be reckon'd an Introduction to *Latin* and *Greek Poeſie*, becauſe it directs to the Knowledge and Compoſition of *Latin* and *Greek Verſe*, in order to which it Treats of the quantity of *Syllables*, of the various Denomination of *Feet* in Verſe, of the Diſtinction and Names of Verſes; and generally, what belongs to the ancient Poetry, conſider'd only as Numbers.

Of *Syllables* ſome are long, ſome ſhort, ſome doubtful or common, that is, either long or ſhort at pleaſure. Long and ſhort *Syllables* amongſt the *Latins* and *Greeks*, are known Eight ſeveral ways. Firſt, By *Poſition*, that is, when two *Conſonants*, viz. a *Mute* and a *Liquid*, or a double *Conſonant* follow a *Vowel*. Secondly, By a *Diphthong*; a *Diphthong* is long among the *Latins*, except a *Vowel* follow, but among the *Greeks* it varies. Thirdly, By *Præpoſition*, for the *Præpoſitions a*, *de*, *e*, *di*, *dis*, *pro*, and *ſe*, are long only in ſome few Exceptions, unleſs a *Vowel* follow. Fourthly, By *Derivation*, *Derivatives* follow generally their *Primitives*. Fifthly, By *Compoſition*, *Compoſites* follow the Rule of their *Simples*. Sixthly, By a *Vowel* before a *Vowel*, which in the ſame word is for the moſt part ſhort. Seventhly, By *Rules*, as *Diſſyllable Preterperfect Tenſes* are long except *Scidi*, *Fidi*, *Tuli*, *Steti*, *Dedi*. The firſt Syllable of a *Double Preterperfect Tenſe* is ſhort, as in *Momordi*, *Fefelli*, *Pependi*, *Totondi*. The firſt Syllable of a *Diſſyllable Supine* is long, as in *Satum*, *Cretum*, *Itum*, *Motum*. The final *Syllable* in *A* of the *Ablative Caſe* Singular of the firſt *Declenſion*, as *Petrâ*. The final Syllable in *O*, of the *Dative* and *Ablative* Singular of the ſecond *Declenſion*, as in *Animo*. The final Syllable in *I* of the *Nominative* Plural, as in *Animi*; In *Is* of the *Dative* and *Ablative* Plural of the ſame *Declenſion*, as in *Animis*. The final in *As* of the *Accuſative* Plural of the firſt *Declenſion*, as in *Menſas*; of the *Nominative* Singular of acute Creſcents of the third *Declenſion*, as in *Bonitas*; and the final Syllable in *Es* in moſt Words are all long. The final Syllable of Words in *B*, *C*, *D*, and *T*, are ever ſhort. The final Syllable in *Us* of moſt Words is ſhort. The final Syllable in *U*, for the moſt part is long. Eightly, By Examples and Authority of the Ancients; thus the firſt and middlemoſt *Syllables* of Words are known by the frequent Reading, and Obſervation of Authors, as *Ma* in *Mater*; *Mu* in *Muſa*; *No* in *Nobis*; *Pa* in *Pacis*, *Pu* in *Pudor*, &c. are long. *A* in *Aqua*, *E* in *Equus*, *Pa* in *Pater*, *O* in *Opus*, are ſhort.

From *Syllables* of various *quantity*, various *Feet* ariſe, which are of two ſorts, *viz.* Simple, and thoſe compounded of the Simple: The *Simple Feet* are either *Diſſyllable* or *Triſſyllable*; the *Diſſyllable* a *Spondee*, conſiſting of two long *Syllables*, as Mūſās; a *Pyrrichius*, conſiſting of two ſhort, as Sămŭs; a *Trochee*, conſiſting of one long and one ſhort, as ārbŏr; an *Iambus*, conſiſting of one ſhort and one long, as Mĕōs; the *Triſſyllable* are the *Moloſſus*, conſiſting of three long, as Prædīcō; *Tribrachys*, conſiſting of three ſhort, as ănĭmŭs; a *Dactyl*, conſiſting of one long and two ſhort, as Cārmĭnă; an *Anapæſtus*, conſiſting of two ſhort and one long, as Dŏmĭnī; *Bacchius*, conſiſting of one ſhort and two long, as Quĕrēlă; *Antibachius*, conſiſting of two long and one ſhort, as Mōrtālĕ; *Amphibrachys*, conſiſting of one long in the middle and two ſhort, *viz.* the beginning and end, as Prŏtērvŭs; *Amphimacrus*, conſiſting of one ſhort in the middle and two long at the beginning and end, as Vīrgĭnēs. The *Double* or *Compound Feet* are *Diſpondees*, conſiſting of two *Spondees*, as Cōntūrbābānt; *Proceleuſmaticus*, conſiſting of two *Pyrrichius*'s, as Vĕnĕrĕŭs; *Diiambus*, conſiſting of two *Iambus*'s, as Mĭnōrĭtās; *Ditrochæus*, conſiſting of two *Trochees*, as Trānsĭĕrĕ; *Antiſpaſtus*, conſiſting of an *Iambick* and a *Trochee*, as Rĕpēntīnŭs; *Choriambus*, conſiſting of a *Trochee* and an *Iambus*, as Sōllĭcĭtī; *Ionicus Minor*, conſiſting of a *Pyrrichius* and *Spondee*, as Prŏpĕrāntēs; *Ionicus Major*, conſiſting of a *Spondee* and *Pyrrichius*, as Clārĭſsĭmŭs; *Pean* firſt conſiſting of *Trochee* and *Pyrrichius*, as Sūſtĭnĕŏ; *Pean* ſecond, conſiſting of *Iambus and Pyrrichius*, as Ĭmāgĭnĕ; *Pean* third, conſiſting of *Pyrrichius* and *Trochee*, as ănĭmātŭs; *Pean* fourth, conſiſting of *Pyrrichius* and *Iambus*, as Mŏnŏcĕrōs. Theſe *Feet* are common to *Greek* and *Latin* Verſe.

Latin Verſes are variouſly denominated, either from the ſort of *Feet* of which they are compos'd, from the *Inventor*, or from the kind of *Poem* to which they are moſt proper, and in which they are moſt us'd, and ſometimes from the Number of *Feet* or *Syllables* whereof they conſiſt, as *Iambick* or *Trochaick* Verſes, from the *Iambick*'s or *Trochees* of which they are compos'd: *Sapphick* from *Sappho*, who invented that kind of *Verſe*; *Pindarick* from *Pindar*; *Heroick* and *Elegiack* from *Poems* of that Nature; *Hexameter* and *Pentameter*, from the Number of the *Feet*, the one ſix, the other five; *Hendecaſyllable*, viz. *Eleven.*

The moſt uſual ſorts of *Latin* Verſes, are theſe that follow, the *Hexameter*, the *Pentameter*, *Iambick*, *Sapphick*, *Adonick*, *Phaleucian* and *Aſclepiadean.*

The *Hexameter* is compos'd of ſix Feet, *Dactyl* and *Spondee*, only variouſly diſpos'd at pleaſure; but in the fifth place a *Dactyl*, and in the ſixth a *Spondee*, as *Virgil*,

Incipe Mænalios mecum, mea Tibia, Verſus.

Yet not always, for ſometimes, though very rarely, a *Spondee* is found in the fifth place; as in *Ovid*,

Hanc decet ornari teſtudine Cyllenea.

This kind of *Verſe* is alſo call'd *Heroick*, as being commonly us'd in *Poems* of an *Heroick* kind.

The *Pentameter* is ſo call'd, as conſiſting of five Feet, reckoning the two long *Syllables* in the middle and end, which put together, make a *Spondee*,

Nonâ ſigna dabunt exoriente Lyra.

This ſort of Verſe is ſeldom or never us'd alone, but ſtill following an *Hexameter*; as,

Ex ego non paucis quondum munitus amicis,
Sic flavit velis aura ſecunda meis.
Cùm fera nimboſo tumuerunt æquora vento,
In mediis lacer naveâ relinquor aquis.

The *Iambick*, ſo call'd from the *Iambick* Feet, of which it chiefly conſiſts, is the moſt various of all other ſorts of *Verſe*, being either *Diameter*, *Trimeter*, or *Senarie*; the moſt uſual of all is the *Senarie Iambick*, conſiſting chiefly of *Iambick* Feet, but now and then a *Spondee*, or a *Trochee*: The moſt Genuine is only compos'd of *Iambick* Feet; as,

Suis & ipſa Roma viribus ruit.

Diameter is ſeldom us'd, but with other Verſes; but the *Trimeter* is a lofty ſort of *Iambick*; as,

O carminum dulces notæ,
Quas ore pulchra melleo
Fundis, Lyræque ſuccinis.

The *Sapphick*, ſo call'd from the *Greek* Poet *Sappho*, who invented and us'd it, conſiſts of five Feet, a *Spondee* in the firſt and ſecond place, a *Dactyl* in the third, a *Trochee* in the fourth and fifth; as,

Nullus argento dolor eſt avaris.

The *Adonick* is a Verſe conſiſting only of *Dactyl* and *Spondee*, and is ſeldom or never us'd but with *Sapphicks*, that is, after every third Verſe; as,

Jam ſatis terris nivis atque diræ
Grandinis miſit pater, & rubenti
Dextera ſacras jaculatus arces,
Terruit Orbem.

The *Phaleucian* conſiſts as the *Sapphick* does of five Feet, made up of eleven *Syllables*, and therefore is call'd as the *Sapphick* alſo might be, *Hendecaſyllabum*; the Feet of the *Phaleucian* are in the firſt place a *Spondee*, in the ſecond a *Dactyl*, in the third, fourth and fifth a *Trochee*; as,

Paſſer deliciæ meæ puellæ.

The *Aſclepiadean* conſiſts of four Feet, a *Spondee*, a *Choriambus*, and two *Dactyls*; as,

Sublimi feriam Sydera vertice.

This ſort of Verſe and the *Sapphick* are very much us'd by *Horace* in his *Odes*, as the *Phaleucian* by *Catullus.*

It follows in the next Place to give the Reader a ſmall Eſſay on *Poeſy*, not only as it includes Number and Meaſure, but Fable, Moral, Figure, and ſeveral kinds of Poems.

POETRY.

IT is not Pretended here to Enter into a Critical Diſſertation on the ſeveral ſorts of *Poeſy*, nor to Copy what *Ariſtotle*, *Horace*, and their *Commentators* have ſaid upon it; but only to hint at ſome of thoſe Things which are moſt Plain, Eaſy, and Obvious to Gentlemen whoſe Chief Delight is the Study of *Poetry* and *Eloquence*: In Treating of *Rhetorick* and *Logick* we muſt neceſſarily Treat of *Eloquence*, and ſhould have plac'd *Poetry* after theſe Two Sciences; but having touch'd on the *Proſodia* of the *Greek* and *Latin Poeſy*, we thought it more for the Connection of the Deſign to let *Poetry* have the next Place in it.

Of SYLLABLES.

THE Difference of Time in Pronunciation, which forms the Cadence in *Verſe* and *Proſe*, is moſt diſtinguiſhable in the *Greek* and *Latin* Tongues, and very little in the Living Languages, tho' 'tis not ſo generally undiſtinguiſhable, as a Late Author ſays, *Dans Les Langues vivantes on ſ'arrête egalement ſur toutes les Syllables, ainſi les Temps de la Pronunciation de toutes Les Voielles ſont egaux; In the Living Languages we ſtop equally upon all Syllables, thus the time of Pronouncing all Vowels are equal.* We ſhall prove the contrary in *Engliſh*, whatever may be ſaid of the *French* Tongue, tho' even in that we ſhall find all the *French* Criticks are not agreed. *Syllables* are term'd long or ſhort, long when they take up ſome time in Pronouncing, ſhort when they are Pronounced faſt. This Cadence is remarkable in *Proſe* as well as *Verſe*, but there can be no *Verſe* without it ſhines in it. In Complacency to thoſe who make *Poetry* conſiſt wholly in the Fable, we have been cautious not to uſe that Word, but to put *Verſe* in its Place; for theſe *Intrigueing Poets* muſt allow that there can be no *Verſe* without Cadence if there may be *Poeſy*. As to the Meaſure of the Ancients, we muſt not imagine that we Pronounce *Greek* and *Latin* as the Ancient *Greeks* and *Latins* did; they diſtinguiſh'd the Quantity of each Vowel in ſpeaking it. When we Pronounce a *Latin* Word we only mark the Penultimate Vowel of that Word. We have no other way of Pronouncing a ſhort Final than as we Pronounce a long; and yet St. *Auguſtin* (for the Fathers it ſeems Study'd the Heathen *Poetry* as well as their own *Theology*) ſays, that whoever in Pronouncing this Verſe of *Virgil*,

Arma Virumq; cano, Trojæ qui primus ab Oris.

ſhould Pronounce *primis* for *primus*, *is* being long and *us* ſhort, wou'd ſpoil all the Harmony of the Verſe, which does not appear to be a very extraordinary Piece of Criticiſm; for in the *Latin Poeſy* a Syllable out of Time is like a Note out of Tune in Muſick. *Meaſure* is a certain Number of Syllables which the Ear diſtinguiſhes and hears ſeparately from another Number of Syllables. The Union of Two or more Meaſures make a Verſe, a Word taken from the *Latin*, *Verſus*, which ſignifies properly placing in Order or Ranks. Each Meaſure in the *Latin Poeſy* is heard ſeparately, and term'd Feet on Account of the Cadence. The *Romans* kept Time in reciting their Verſes, *Plaudendo recitabant, Pedis pulſus ponebatur tollebaturq*; We have treated already of the different Meaſures and Feet of Ancient Verſe, in the ſhort *Proſodia* preceding this Eſſay. We ſhall here take Notice only of ſomething relating to it, which may ſerve to Explain what has been there ſaid. The Chief Harmony of Verſe conſiſts in the Variety of the Meaſure; and this Variety is ſo neceſſary to prevent the Diſguſt we are apt to take at the moſt agreeable things, that *Muſicians* who ſtudy ſo carefully the Proportion and Conſonance of Sounds, affect from time to time ſome Diſſonance in their Concerts. When *Poets* break thro' the Settled Rules of Meaſure and Feet in their Works, if any ſuch Rules are ſettled, they are far from being blameable, for the Change of the Meaſure is often one of the greateſt Charms of the Harmony.

A Pacing Pegaſus on Carpet Ground,

is very apt to throw the Reader into an Untimely Slumber. Not to ſpeak of the Ancients, we have the *Alexandrine* in our *Heroicks* to vary the Meaſure, as indeed in all our *Pentameter* Verſes, which are better known with us by the Term of *Heroicks*, tho' that Meaſure ſeems by the Term to be adapted to *Dramatick* and *Epick Poetry*, yet we uſe it in almoſt all Sorts, the *Lyrick* hardly eſcaping. This *Alexandrine* conſiſts of Two Syllables more than the Common *Heroick*,

The ſame the Fate of Arms and Arts you'll find,
They roſe with equal Pace, with equal Pace declin'd.

Sometimes the Meaſure is Four Syllables longer than the *Pentameter*.

Thou leapſt o'er all Eternal Truths to thy Pindarick Way.

But this is not to be done often, nor by any Injudicious *Poet*; for where the Senſe does not as it were ſtart beyond its due Bounds, nor is too ſtrong to be confin'd to any, and where the Ear do's not require ſuch an Excurſion, the *Alexandrine* will be found to be long enough.

The *Latins* in the Meaſure of their Verſe made uſe of the *Cæſura*, which is a cutting off ſome Syllables of a preceding Word, to form a Foot with thoſe that begin the next, as in this Example, *Ille meas errare boves,* &c.

Cæſure comes from *Cædo* to cut. The Syllable *as* in *meas* is a *Cæſure* with the Syllable *er* in *errare*, forming together a *Spondee*; but how theſe *Cæſures* were form'd will be beſt ſeen by cutting off the Syllables mutually as in the following Verſes.

Ille me|as er|rare bo|ves ut | cernis & | ipſum
Ludere | quæ vel|lem cala | mo per | miſit a|greſti.

A Verſe without *Cæſure* wou'd not be taken for a Verſe; becauſe the equality of Meaſures is not ſenſible, and, is that which makes all the Beauty of it. One would read the following Verſe as if it was none, becauſe it has no *Cæſure.*

Urbem | fortem | cepit | nuper | fortior | hoſtis.

But this *Cæſure*, tho' 'tis to be diſtinguiſh'd in our Language, is not a Rule as it is in Latin, and indeed it wou'd be a hard matter for us to accommodate our Poetry to the Latin Rules as to the *Proſodia.* Mr. *Dryden* talk'd of giving us an Engliſh *Proſodia,* but he never did it; and whoever of leſs Authority ſhall undertake it, will find it very difficult to have his Rules eſtabliſh'd.

What *Dryden* obſerv'd has been the Obſervation of all who know any thing of the *French* and *Italian* Poeſy, that their Poets are unacquainted with *Feet* and *Quantity*, and ſome have been ſo weak as to imagine we have none in *Engliſh*; but we ſhall find by a very little Alteration that the Harmony of the ſweeteſt Verſe is ſpoil'd, which ſhews that the meaſure of *Feet* and *Quantity* truly obſerv'd makes the Muſick, as for inſtance;

When Man on many multiply'd his Kind.

Read——*When Man multiply'd his Kind on many.*

And from an harmonious Verſe you ſpeak nothing but plain Proſe. *Ben Johnſon*, who wrote good Verſes for his *Day*, knew the variety and force of our Numbers ſo well that he thought he might write Hexameters as well as the *Latins*

Arma virumq; cano Trojæ qui primus ab oris.

Benjamin, *Immortal* Johnſon, *moſt highly renowned.*

To which has been added,
Immortal Johnſon, Benjamin, *highly renown'd.*

Harry Stephens, the *French* Critick, was of the ſame Opinion with reſpect to his Tongue, and gives us this Example;

Phoſphore redde diem, cur gaudia noſtra moraris,
Cæſare venturo, phoſphore, redde diem.

Aube rebaille le jour: pourquoi nôtre aiſe retiens tu
Cæſar doit revenir, Aube rebaille le jour.

Upon which a more Modern Critick of the ſame Nation writes thus, "If we ſhould own that *French* Vowels might make different Meaſures, and that 'tis not by the Accent alone that the ſame Vowel may differ from it ſelf; but becauſe it may alſo be pronounc'd in a different manner, in a little time or in a longer time, no body would be able to deny that we almoſt always pronounce our Vowels equally, and make 'em almoſt all ſhort, ſo that there are not long Vowels enough to form different Meaſures. *Latin* Verſes are not to be made of ſhort Vowels only, and we are oblig'd to give harmony to our Words after a manner different from the *Greeks* and *Latins.* The Art which we follow is very much the ſame with that of all Nations in the World. For theſe ſeveral Ages here in *England* we muſt oppoſe him, for we certainly have our Feet, Quantity and *Cæſure* as well as the *Latins.*

What follows is a Truth which this *French* Gentleman ſaid when he did not deſign it, *Notre Poeſie ne conſiſte que dans une certaine nombre de Syllables & dans les Rhimes.* Our Poetry conſiſts only of a certain Number of Syllables and Rhimes. He is not talking of the Senſe of it, but if he will except *Corneille*, *Racine*, *Boileau*, and Two or Three of their Lyricks, what he ſays will ſerve for both Number and Meaning. As for our dividing the *Engliſh* Numbers into *Dactyles*, *Spondees*, *&c.* that it can be done with great certainty we fear is not to be prov'd, nor that that which is a *Dactyle* or *Spondee* in one Verſe ſhall be the ſame in all. In this and the different Meaſures of our Vowels we do not differ ſo much from the *French* as ſome imagine, tho' we do indeed differ for the better. We have ſaid as much as conſiſts with the Brevity of theſe Eſſays on the Article of Quantity and Feet. We ſhall add ſomething on *Rhimes* which are generally thought to be a Modern Invention; but others are of a contrary Opinion, and *Le Clerc*, ſays *Dryden*, *has made it out that* David's *Pſalms were written in as errant Rhime as they are tranſlated into.* However it be, Mr. *Skinner* thinks the *Arabians* firſt brought it into Europe; but he muſt place the Time much higher than the Invaſions of the *Saracens*, for 'twou'd not be hard to give inſtances of *Rhimes* in the *Saxon* Poetry long before the *Arabians* made ſuch a Figure in the World. Whoever introduc'd 'em they are of ſo much importance in Modern Poetry that it may be ſafely affirm'd nine Parts in ten of it have no pretence to that Title but for ſake of the Rhimes.

That Rhimes are eſſential in Poetry none will pretend, becauſe the beſt Poem in our Tongue, *Milton's Paradiſe Loſt*, is without Rhime, and where the Poet pleas'd to exert his Art in the Part of Harmony no Numbers are finer either in the high Tone or the low. My Lord *Roſcommon*, our beſt Judge of Numbers, becauſe our beſt Poet and beſt Critick, was of the ſame Opinion, and his excellent Tranſlation of *Horace's Art of Poetry* is in blank Verſe. *Milton* ſhook off the ſlavery of *Rhimes* firſt, and *Dryden* [*Pref. to Æneids*] who had certainly the beſt Ear ever *Engliſhman* cou'd boaſt of, confeſſes, *He who can write well in Rhime can write better in Blank Verſe.* Our Dramatick Poets have lately entirely thrown off this conſtraint, unleſs when to pleaſe the Actors they let 'em go off with a Rant and a Rhime, which one of the moſt Eminent of 'em calls a *Clap-Trap*. In a Word, we have ſeen ſeveral Modern Poems of the firſt Rank without *Rhime,* and if any Poet values himſelf on rhiming, 'tis to be fear'd he has not many greater Qualities to ſhine with in his Poetry. Some Verſes as Satyrs, Elegies, Paſtorals,

ſtorals, and all the *Lyrick* Poetry may bear Rhimes, and perhaps want 'em; but *Epick* Poetry and *Dramatick* will always maintain their Character of Sublime much better without than with 'em. 'Tis not a little Advantage which our Language has over the *French* and *Italian*, that the *Engliſh* Poetry does not ſtand in need of the *Gothick* Ornament of *Rhimes*, whereas, the *French*, in all parts of their Poetry, and the *Italians* in moſt, have hardly any other way of diſtinguiſhing their Proſe from their Verſe. It may be ſaid without vanity, that whatever ſuperiority they have over us in *Judgment*, we have much more in *Genius*. *Regularity*, according to Mr. *Dryden*, *is the Excellence of the* French *and* Italians, *Strength and Elevation ours.* Some People we know are very fond of the *French* Poetry, and fanſie there's ſomething very harmonious in their Numbers. Their long winded Lines run off, with 'em, without the *Cæſure*.

Je chante cette guerre | en cruanté feconde
Oû Pharſale jugea | de l'Empire du Monde.
Bræbœuf.

Now let us ſee what the *Italians*, a Language ſo much boaſted of for Harmony by all that have paſt the *Alps*, produce in their Heroicks.

Fummo (io n' ol nego) in quel conflitto vinti
Pur non mancò virtute al gran penſiero,
Hebbero i più felici allor vittoria
Rimaſe à noi d'invitto ardir la Gloria.
Taſſo.

We need not have recourſe to our Modern Poets to ſhew the Harmony of our Numbers. *Shakeſpear*, who wrote a hundred Years ago, ſhall ſerve for an Example of the Dignity of Verſe, and the Muſick of Poetry without the Ornament of *Rhime*,

Are you not mov'd when all the ſway of Earth
Shakes like a thing unfirm. Oh Cicero!
I have ſeen Tempeſts, when the ſcolding Winds
Have riv'd the knotty Oaks, and I have ſeen
Th' Ambitious Ocean ſwell, and rage, and foam,
But never till to Night; never till now,
Did I go through a Tempeſt dropping Fire.

Again ſpeaking of *Brutus*:
Oh he ſits high in all the Peoples Hearts.

There's no body ſo little acquainted with our *Engliſh* Poetry, but can tell we might bring inſtances enough of the Harmony of our Language out of *Milton*, *Waller* and *Dryden*, nay even out of old *Fairfax*.

Waller—*By the loud Trumpet which our Courage aids*
We learn that Sound as well as Senſe perſwades.

By Sound here is not meant that *vox & præterea nihil*, which is the Eſſence of our Modern *Opera's*; but the martial Harmony that fires the Soldiers in Battle. Nor can it be ſuppos'd that Mr. *Waller*, when he went to ſee a Dramatical Entertainment wou'd have been perſwaded with *Sound* inſtead of *Senſe*. The Cadence of Numbers as well as of Note, is certainly perſwaſive. And Mr. *Waller* was a great Maſter of the former, to whom Mr. *Dryden* was very much indebted, as *Waller* to *Fairfax*.

Fairfax—*A Foreſt thick of Spears about us grew,*
And over us a Cloud of Arrows flew;
Thus conquer'd Godfrey, *and as yet the Sun*
Div'd not in Silver Waves his golden Wain;
But Day-light ſerv'd him to the Fortreſs won
With his victorious Heart to turn again.
His bloody Coat he put not off, but run
To the High Temple with his noble Train;
And there hung up his Arms, and there he bows
His Knees, there pray'd, and there perform'd his Vows.

Let any one compare theſe Verſes with the Poetry ſo highly commended in King *Charles* I's. Reign, and perhaps with Sir *William Davenant's*, and he will find that as to the Numbers, *Fairfax* who was contemporary with *Shakeſpear*, had as good an Ear as thoſe who wrote fifty Years after him. We might aſcend as high as *Chaucer*, who has in ſome places prov'd that even the *Saxon* Poetry, which is thought barbarous by the polite World, was capable of the Harmony of Numbers.

Up roſe the Morn, and up roſe Emily.

But *Chaucer*, whoſe Wit was too abounding to be confin'd to Feet, was not always equal in his Verſe, and 'twill be a hard matter to ſhew one Poem of his wherein Equality of Meaſure is obſerv'd, tho' in thoſe kinds of Poeſie where Equality is inſeparable from the Perfection of Numbers, unleſs in ſome places where the Senſe drives out the Meaſure, which is lengthen'd to expreſs the ſtarting of the Thought, as has been already hinted. We will now look into Mr. *Dryden's* Verſes and we ſhall there find the Harmony to be the moſt ſhineing part of his Poetry, and of all his Verſes the *Georgicks* of *Virgil* tranſlated by him are thought to be his Maſter-piece. The Poet is treating of the Souls in Animals.

Not that, I think, their Breaſts with heavenly Souls
Inſpir'd as Man, who Deſtiny controuls;
But with the changeful Temper of the Skies
As Rains condenſe, and Sun-ſhine rarifies.
So turn the Species in their alter'd Minds
Compos'd by Calms, and diſcompos'd by Winds.
From hence proceeds the Birds harmonious Voice,
From hence the Cows exult, and friſking Lambs rejoice.

Theſe Verſes were choſen not only becauſe they are muſical and well turn'd, but ſhew how great Poets are confin'd by Meaſure ſometimes as well as Rhime; for 'tis plain Mr. *Dryden* wou'd have ſaid as *Rain condenſes* had he been able to have accommodated the ſingular Number with the Feet of the Verſe. The ſecond Verſe of theſe Two.

Not that, I think, their Breaſts with heavenly Souls
Inſpir'd as Man, who Deſtiny controuls.

ſeems to be at beſt obſcure. Does Man there controul Deſtiny, or Deſtiny Man? If the latter, as agrees with common Senſe as well as Religion, it ſhould be *whom Deſtiny controuls* to make it Grammar; but this is not a place for Reflections of this Nature, we may perhaps meet with a better opportunity in a little time. We are now only to ſay as much of Poetry, and eſpecially our own, as will give a Gentleman a convenient Notion of the Art: So we continue our Obſervations on Numbers and Rhimes. In the ſame Tranſlation of Mr. *Dryden*, we find a great many Verſes, the Harmony of which can only be match'd by the Original.

When Winter Rage abates, when chearful Show'rs
Awake the Spring, and Spring awakes the Flow'rs.

His *Fables* are full of Harmonious Verſes, and it may be modeſtly affirm'd, there are none in the *Heroick* or *Lyrick* kind, in any Modern Language, that can be compar'd to 'em for Majeſty, and ſweetneſs of Verſe; in a word, for all the Charms which, by pleaſing the Ear, affect the Soul, and give that Delight which no Words, however rang'd, in a round Period in Proſe, ever gave. We have had another great Poet, who ſometimes was happy in his Numbers, we mean Sir *John Denham*, whoſe *Cooper's Hill* is reckon'd one of the beſt Poems in our Tongue; and Two of his Verſes, the moſt Muſical in our Poetry. He ſpeaks of the *Thames*.

Tho' deep yet clear, tho' gentle yet not dull,
Strong without Rage, without o'erflowing full.

Mr. *Dryden* pretended there was a Secret in the diſpoſition of theſe Words and Feet, which made the Harmony, and valu'd himſelf on his finding it out; we believe all the Myſtery, conſiſted in that happy Chance, which in all the Arts, is often ſo kind to Artiſts, as to make 'em light upon what they never thought of. 'Tis too common with them to make a Myſtery of their Fortune, and to be loath to own that to be the Gift of ſo blind a Goddeſs, which they aſcribe to the Inſpiration of the God of Light, *Apollo*. We muſt not forget the Immortal *Milton*, and refer the Reader to that Simily of his which begins thus,

As when the Sun new riſ'n,
Looks thro' the Horizontal miſty Air,
Shorn of his Beams, &c.

Shorn of his Beams, is a Phraſe we take the more Notice of, becauſe Mr. *Dryden* was ſo fond of it, and *Aghaſt* another Antique Word, reviv'd by Mr. *Milton*, that he borrow'd 'em in one Sentence in his *State of Innocence*.

Lucifer ſpeaks,

I am become ſo monſtrous, ſo disfigur'd,
That Nature cannot ſuffer my Approach,
Or look me in the Face, but ſtands Aghaſt;
And that fair Light which guides this new-made World,
Shorn of his Beams, ſhrinks, Oh accurs'd Ambition.

Excepting the Gift of Numbers, which *Dryden* poſſeſs'd in a Soveraign degree, there's certainly as much difference between him and Mr. *Milton*, as between the Verſes quoted out of the *State of Innocence*, and thoſe out of *Paradiſe Loſt*.

By what has been ſaid, it will appear we want no Advantage of Harmony in our Language for the forming a Poet; and tho' Rhimes may be very well ſpar'd, yet ſuch of the *Engliſh* Poets as have Rhim'd well, have excell'd the *French* and *Italians* in that too. The *French* particularly tire the Reader by their Rhiming eternally with Words of the ſame Sound, as in *Boileau*,

Nette,
Pierre, Ete,
Pierre, Net,
Net.

Such as our

Preſerve, Reſtrain,
Serve, Conſtrain,

which we avoid in *Engliſh* as much as poſſible; but in *French* we meet with 'em almoſt in every Page two or three times, not only in ordinary Poets, but their *Racines*, *Boileaues*, *Corneilles*, &c. We have ſeveral ſorts of Meaſures in *Engliſh* Poetry as various perhaps as thoſe of any Language, Ancient or Modern; but the *Heroick* is that which is generally made uſe of, and having ſaid enough of that, we ſhall add ſomething of the greater Parts of Poetry.

The firſt in order is *Heroick*, or *Epick Poetry*; for we ſhall not undertake to decide the difference between ſuch as prefer *Dramatick* to *Epick*, or *Epick* to *Dramatick Poetry*, but take 'em both in the order the Criticks generally place them.

An Epick Poem, therefore according to *Boſſu*, *is a Diſcourſe invented with Art, to form the Manners of Men by Inſtruction, diſguis'd under the Allegories of ſome important Action, which is related in Verſe after a probable, diverting, and wonderful manner.* To which, if we follow *Ariſtotle* and *Dacier*, we may object, that 'tis not Eſſential for an *Epick* Poem to have the Narration in Verſe. *Ariſtotle* ſays, *Epick Poeſy makes uſe of Diſcourſes in Verſe and Proſe.* And *Dacier*, in his Comment, adds, *Ariſtotle* has very well compriz'd under *Epick* Poeſy, Diſcourſes in Proſe, becauſe they are in effect true *Epick* Poems. What elſe are our Romances? Thus we ſee that the greateſt Criticks do not always accord, but *Boſſu's* Definition agrees with our Idea of an *Epick* Poem. We have no Notion of the Grand *Cyrus*, or Sir *Phillip Sidney's Arcadia's* being *Epick* Poems. We muſt have all our Poetry in *England* in Verſe at leaſt, if not in Rhime; and for that reaſon muſt beg Monſieur *Dacier* and his Maſter *Ariſtotle's* Pardon if we rank Diſcourſes in Proſe, notwithſtanding there's the Texture of a Fiction in them, among what we call *Fables*, and allow nothing to be *Epick* Poetry, but what, as *Boſſu* defines it, is related in Verſe. It agrees alſo with his general Definition of a Poem, *A Poem is a Diſcourſe in Verſe, and a Verſe is part of a Diſcourſe meaſur'd by a certain Number of long and ſhort Syllables, repeated with an agreeable Cadence, and the Repetition continu'd without ceaſing.* An *Heroick* Poem may be divided into theſe ſix Parts; 1. The *Fable*, 2. The *Action*, 3. The *Narration*, 4. The *Characters*, 5. The *Machines*, and 6. The *Thoughts* and *Expreſſions*.

The *Fable* is the principal Part or Soul of the Poem. The firſt thing a good Poet thinks of in forming a Fable, is the Inſtruction he would give by the Moral; which Moral muſt be afterwards reduc'd duc'd into Action: And this Action, which is preſented by the Recital, muſt be Univerſal, Imitated, Feign'd, and the Allegory of a Moral Truth. It muſt be alſo Simple; but by Simplicity is not to be underſtood that it ſhould be ſo entirely One, as not to admit of an inferior Action; for when any part of the Story is ſo ſingular, as that of *Niſus* and *Eurialus* in *Virgil*, as to form an Action of it ſelf, dependent on the main Action, 'tis very juſtifiable and very beautiful; and ſuch *Under Actions*, as we more intelligibly call them in *Engliſh*, are term'd *Epiſodes*. We are not now writing to ſuch as are very well acquainted with *Ariſtotle*, *Horace*, *Dacier*, and *Boſſu*, for theſe will expect a long Diſſertation on the Fable and Moral; as alſo on the Unity and Properties of Action; but what we ſay, is addreſs'd to thoſe, who reading *Virgil*, *Taſſo*, or *Milton*, may deſire to underſtand of what their Art conſiſts, and diſtinguiſh one part from the other. The Action of an *Epick* Poem ſhould have a Plot and Cataſtrophe, as well as that of Tragedy. As to the Unities of Time and Place, they are not obſerv'd in *Epick Poeſy*; *Ariſtotle* declares *it has no ſettled Time, and in that is different from the Dramatick*. Neither the Unity of Place is obſerv'd, becauſe 'tis not neceſſary; the Poem being read as a Hiſtory, which may be left off when the Reader pleaſes. The Time of *Homer's Ilias* is Forty-ſeven Days only; that of the *Odyſſes*, Eight Years and a half; that of *Virgil's Æneis*, Six Years and ſomewhat above half. The Action muſt always be important, that the Dignity of the Subject may engage the Attention of the Reader, by giving the Poet an opportunity to introduce ſuch Characters as may concern him in all their Fortunes.

'Tis too common for the Criticks to run their Rules of Art into unneceſſary Diviſions; they affect it out of a Vanity to be thought Learn'd, and underſtand to the very bottom of a Thing. The third Part of an *Heroick* Poem is term'd the *Narration*; and that *Boſſu* divides into, 1. The *Title*, 2. The *Propoſition*, 3. The *Invocation*, and 4. The *Body* of the Poem or *Narration*, properly ſo call'd. There is too much Myſtery made of this Diviſion by that famous Critick. As to the Title, we ſhall only ſay, ſome call their Poem from their Hero, as the *Æneis*, and *Cowley's Davideis*; ſome from the Place of Action, as the *Ilias*, or *Taſſo's Jeruſalem Deliver'd*. The Propoſition is the naming the Subject the Poet intends to treat of.

Arma virumque cano Trojæ qui primus ab oris,
Italiam fato profugus, Lavinaque venit
Littora: Multum ille & terris jactatus & alto,
Multa quoque & bello paſſus.

The next part of the Poem is the *Invocation* which all Poets, in Imitation of *Homer*, have begun their Poems with. *Homer* join'd his *Invocation* with his *Propoſition*, *Virgil* ſeparates them.

Arma virumque, &c.
Muſa, mihi cauſas memora,
Inſignem Pietate Virum.

Again, in his Seventh Book, wherein he begins a new Matter, and in other Places.

Nunc age qui Reges, Erato, quæ tempora rerum,
Quis Latio Antiquo fuerit ſtatus, &c.
Quis Deus, O Muſæ, tam ſæva incendia Teucris
Avertit; tantos ratibus quis depulit ignes,
Diſcite. Priſca fides facti, ſed fama Perennis.

Homer doubtleſs thought this Invocation wou'd give a ſort of Sanction to what he ſhould ſay, as coming from a Divine Inſpiration; and *Virgil*, and thoſe that have come after him, either for the ſame Reaſon, or to imitate his Example, have done the ſame. This is enough for the Criticks to eſtabliſh it as a particular part of *Epick* Poetry; and our little Poets think it ſo conſiderable a one, that every Ten or Twenty Lines we are accoſted, thus, *Say Muſe*, *Proceed my Muſe*, and ſuch like pleaſant Invocations to Nothing: For the poor Gentlemen have generally no Muſe to ſpeak for 'em. The other part of the Poem, is the Narration or Body of the Poem, which expreſſes the Action, Paſſion, and Sentiments. This Narration ſhould contain a juſt Mixture of Pleaſure and Inſtruction; which depends not on the Beauty of the Verſe, the Diction and the Thoughts, but the Manners and Paſſions of the Perſons introduc'd, and the Things treated of. We might enter farther into the ſeveral Qualities of Narration, as handled by the Criticks, but ſhall obſerve only what is obvious to an *Engliſh* Reader. The Narration ſhould every where agree with the Subject,

Fall where it falls, and where it riſes riſe.

As the Lord *Roſcommon* ſaid on tranſlated Verſe. It ſhould be Great and Sublime when the Things or Perſons ſpoken off are of that kind: Nothing Mean or Proſaick muſt be admitted. It ſhould be Warm and Pathetick when Paſſion is to be ſhew'd, flowing and elegant in Deſcriptions, and in all Places free from any thing flat and vulgar. The Narration is that part of *Epick* Poetry which every one thinks he's able to judge of. Who is there that will confeſs he does not know when a Thing is well or ill ſaid? Who is there that is not ready to ſay ſuch a Poem, ſuch a Play is fine, and immediately repeats two or three Couplets to prove that he has Judgment? Do our common Judges commend any thing for the Greatneſs of the Deſign, for the Fable and Action, for the Moral that may be deduc'd from it? No, they cry, that's a fine Line! What Verſes are there! The Diction comes the neareſt to their Senſes; it ſtrikes their Ears, and what reaches ſo far as that has often a better Effect than what ſhou'd go farther. For, when the Underſtanding is to be pleas'd when the Soul muſt be come at, before the Poet can move, How much Matter muſt be penetrated to make way for him? Who gives himſelf the trouble to look into the Excellence of a Fable and Moral, to diſtinguiſh the main Action from the Epiſodes? But a rumbling Verſe, a bald Expreſſion, a mean Word ſhock them immediately; a ſweet Cadence tickles, and fine Language charms them. We know very well that this is all falſe; What then? We know alſo that there never was a Poet who cou'd write harmoniouſly, who cou'd make a beautiful Narration, but he always did, what all Poets ought to do, take care to cultivate his Talent for Eloquence, and ſuch as have none, if they muſt write, let 'em retreat to

Proſe; for there's no Writer in any Art ſo deſpicable as he who pretends to write Verſe without Numbers, let him talk what he pleaſes of his *Deſign* and *Fable.* Not but that there never was a great Poet who did not in the firſt Place carefully form his Deſign, and expect his chief Glory from the Succeſs of it; but then thoſe Poets were bleſt with Genius's of that extent, that their Expreſſion was as wonderful as their Invention. *Homer, Virgil, Taſſo* and *Milton,* who are only worthy of the Name of Heroick Poets, were poſſeſt of both Qualities in an eminent Degree. All thoſe Poets had their different Talents. The Ancients, in their Deſigns, perhaps excell'd the Moderns; but *Milton*'s Painting the Sublimity and Brightneſs of his Images, qualify him to be put in the Balance with the beſt of them. And he knew the Power of Numbers ſo well, that where they were of abſolute neceſſity to anſwer the Beauty of his Ideas, who ever ſucceeded better? True it is; he is not ſo equal, and the choice of his Subject was ſuch, that he cou'd not maintain the Dignity of his Verſe in ſome Places, and the Softneſs of it in others every where alike. Tho' we have ſaid ſomething already of the Numbers, and ſhall ſtill add ſomething more in the Sequel, yet we cou'd not avoid making theſe Reflections as they came in our way.

The Manners comprehend all the natural or acquir'd Inclinations of Men by which they are carry'd to good, bad, or indifferent Actions. Theſe Manners are what form the Characters; and it muſt be the Poets great Care not to offend againſt them, but ſupport them alike from the beginning to the end of his Fable. An *Achilles* muſt be always Cholerick, an *Æneas* always Pious. The Manners of Man muſt be diſtinguiſh'd from thoſe of Women, and thoſe of Ages and Degrees from one another; a Prince muſt not have the Inclinations of a Peaſant, nor a young Man that of an old one, and ſo *vice verſa.* The Manners of different Nations, Times; in a Word, every thing which in Life diſtinguiſhes the Inclinations of ſome Perſons from others, muſt be obſerv'd by the Poet with the utmoſt exactneſs, according as the Fable requires it in all the Characters. He muſt never go out of them, nor amplify, nor exaggerate them beyond Nature. This is a difficult Task, and what moſt of the Modern Writers of *Epick* Poetry know little of. The Rules for *Epick* and *Dramatick* Poetry are the ſame in this, and 'twill be eaſie to perceive that the *French* Poets have eſpecially offended againſt the Manners in almoſt all the Plays wherein they have handled any ancient or foreign Subject. *Dryden* tells us, [*Pref.* to *Troilus* and *Creſſida*] That *the* Seraglio *and* Verſailles *are reconcil'd in* Racines *Bajazet,* and that his *Hyppolitus* in *Phædre* is a perfect Monſieur *Hyppolite,* which Charge is in many Places true in their other Poets; *Corneille,* who had ſtudy'd the Manners of the *Romans* induſtriouſly, is the beſt Poet they have for maintaining his Characters, and yet he is not always free from tranſgreſſions of this kind; even his famous *Don Rodrigo,* and *Donna Chimena,* in the *Cid,* may very well be term'd Monſieur *Rodrigue,* and *Madamoiſelle Chimene*; for they are the very ſame talkative gallant Perſons we meet with in *France.* We wonder why they ſhould err in this, becauſe they cannot complain of the Neceſſity they lie under to fill their Scenes with Buſineſs, ſince it is not difficult to inſtance *Soliloquies* of above 100 Lines, and other Speeches of 150 Lines long in their *Dramatick* Poems; of which we ſhall ſpeak next, becauſe there's no other Part of *Epick,* but what has been aſſum'd by the *Drama.* The Reader is not to expect a regular Treatiſe, but a true Eſſay on Poetry, in which the Writer is at liberty to ſay what comes into his Thoughts on this Subject, whether it be in its exact Place or not. *The Manners can never be evident where the ſurpriſes of Fortune take up all the Buſineſs of the Stage, and where the Poet is more in pain to tell you what happen'd to ſuch a Man, than what he was,* ſays *Dryden.* Who, however, has err'd as much againſt the Manners in all the Parts of 'em as ever Poet who knew what Error was, ever did; he adds, *Manners was* Shakeſpear's *Excellence.* In *Fletcher, they were either good, bad, or indifferent as the preſent Scene requir'd.* In *Ben: Johnſon, the Manners even of the moſt inconſiderable Perſons are every where apparent.* The Reader muſt not always take Mr. *Dryden*'s word in every thing. He will find *Shakeſpear's Lear* not ſuch a ſalvage *Britain* as our Iſlanders were two thouſand Years ago, and all the *Britiſh* Court at that time were not ſuch Perſons as *Shakeſpear* is pleas'd to paint them. Many more like Errors in the Manners might be inſtanc'd; but this is not intended for a *Critick* on Poets, but an Endeavour of one who wiſhes the Art well, to give thoſe who are deſirous to know ſomething of it, ſuch an Idea as they will meet with in this deſign of the other Arts, a ſlight and clear one as far as conſiſts with the Nature of any thing which Brevity obliges to be made ſlight.

Tragedy is an Imitation of one juſt, great, and probable Action, not told, but repreſented; which by moving terror and pity is conducive to purge theſe two Paſſions in our Minds. The Fable, or Deſign is the principal Part of *Dramatick* Poetry, of which Tragedy is Chief, and the Unity of Action the firſt of the three Unities appropriated to the *Drama*, *viz.* the Unity of Action, the Unity of Time, and Unity of Place. The Fable muſt not be the Story of one Man's Life, but one ſingle Action of the Hero. Two different independant Actions diſtract the Attention and Concernment of the Audience, and conſequently deſtroy the Intention of the Poet, whoſe Buſineſs is to move Pity and Terror. Mr. *Dryden* adds this, *If One of his Actions be comical, the other tragical, the former will divert the People, and utterly make void his purpoſe.* Of what ſignification is it for a Man to know the Rules of an Art, if he does not follow them. Pray what are *Torriſmond* and *Lorenzo, Leonora* and *Elvira,* in the *Spaniſh Fryar,* the Prince and Queen, the Colonel and Coquet, with all the variety of comical and tragical Intrigues.

Gomez. *No* Carnavals *nor* Chriſtmas *ſhall appear,*
But Lents *and* Ember-weeks *ſhall fill the Year.*

Torriſmond. *Alas thou know'ſt not what it is to Love.*
When we behold an Angel, not to fear
Is to be impudent—— No I'm reſolv'd,
Like a led Victim to my Death I'll go,
And dying bleſs the Hand that gave the Blow.

Elvira. *Pray, Wives and Virgins, at your time of need*
For a true Guide of my good Father's breed.
Leonora. *Go raiſe the Miniſters of my Revenge;*
Guide with your Breaſts this whirling Tempeſt round,
And ſee its Fury fall where I deſign.
At laſt a Time for juſt Revenge is given.
Revenge, &c.

The Action ought in Tragedy to be important, for the ſame Reaſon as in *Epick* Poetry. 'Tis not neceſſary there ſhould be Hiſtorical Truth, but always neceſſary there ſhould be Veriſimility or Likeneſs of Truth, and to preſerve this Veriſimility, and yet make it wonderful, is one of the moſt difficult Undertakings in Poetry. 'Tis certain, that the Three Unities before-mention'd, Eſtabliſh'd by Ancient and Modern Criticks in the *Drama*, are nothing but the Reflections of Men of great Judgment on the Art, to bring it as near Nature as poſſible; for the nearer Nature, Poetry, which is the Imitation of it, is, the more Perfect muſt it be; as a Picture, the more it reſembles what it imitates, is the more valuable. The Unity of Action is ſettled for the Reaſon mention'd already, and many others that might be added in both *Epick* and *Dramatick* Poetry.

The Unity of Time is the next. Mr. *Dryden* in his Eſſay on *Dramatick* Poetry, aſcertains the Unity of Time *to be twenty four Hours, one Act not to take up half a day, but the Time of every Act to be equally divided.* The Reader muſt be caution'd not to depend on this great Poet's Criticiſms in this Eſſay, or in his Prefaces to his Plays. For as 'tis ſaid of the *Examens* of *Corneilles*'s Plays, written by that Author, that every *Examen* was accommodated to every Play; ſo Mr. *Dryden* had ſeldom any thing more in his View than to vindicate the preſent Play; accordingly he made Rules, alter'd them, and claſh'd with his own Opinion, as it ſerv'd a preſent Turn. This is ſaid with all the deference in the World to Mr. *Dryden*'s Merit, as a wonderful Genius for *Verſification*, and a Man of Wit and Senſe, but as a *Critick* or *Dramatick* Poet, he ſeems to have been fonder of both theſe Names than ſome think he had reaſon to be. Where did he learn, that the Unity of Time was twenty four Hours, and every Act to be equally divided? *Ariſtotle* ſays, *The Time of Tragedy ought to be included in that which the Sun takes to perform his Career in, or very near it.* Now Mr. *Dryden* has got ten Hours upon him; but as to that, ſeveral Poets have miſtaken *Ariſtotle*, ſo far as to think he means a whole Day and Night. Let us hear what *Dacier* has to ſay on this Occaſion, " This is not only contradicted by the conſtant Practice of all the Greek Poets, whoſe Works are remaining, upon which *Ariſtotle* form'd his Rules, but is againſt common Senſe, which will not allow that a continu'd Action which ought all to be expos'd to our View, ſhould laſt ſo long. To have the Spectators amus'd a whole Day and Night, is againſt all Probability, is one of the principal Foundations of this Poem." He afterwards proves that *Ariſtotle* meant only the Courſe of the Sun in a Day, from Sun-riſe to Sun-ſet, fourteen or fifteen Hours time; but even that is too long: For, continues he, " The moſt perfect Pieces are doubtleſs thoſe which, like *Sophocles*'s, require no longer Time for the Action than the Repreſentation takes up. The Action of *Sophocles*'s fineſt Plays is not above four Hours in length." And *Boſſu* ſpeaking of the difference between *Epick* and *Dramatick* Poetry, with reſpect to this Unity, ſays, " 'Tis much more neceſſary that an Action which is to be ſeen, ſhou'd be continu'd without Interruption, than one that is to be read. 'Tis not natural for one to imagine we paſs whole Days and Nights without Sleeping, Eating, or Drinking, or are Tranſported from Place to Place without ſtirring off of ones Seat. From whence it comes that the Unities of Time and Place are neceſſary to the Theatre." Mr. *Dryden* complains that this is a difficult Rule to be follow'd; and yet he takes the Latitude of the Conſtruction of *Ariſtotle* no leſs than twenty four Hours, which however have ſeldom or never done his Buſineſs. For to keep to his *Spaniſh Fryar*, we begin in the Night.

Alp. Pedro, *How goes the Night?*
Ped. *She wears apace.*

That Day being over, and abundance of Buſineſs done, we come to another.

Dom. *Good Even*, Gomez.

This opens a way for another Night and Day, which are indeed little enough for the Revolutions that happen. We do not hint at theſe Errors, as thinking they are new to any one, or valuing our ſelves on a Diſcovery which has been made ever ſince the Play was acted, we might have nam'd ſome much more Enormous, but we choſe rather to keep to one of his *Dramatick* Poems; for 'twill be impoſſible to name any, where the Unities are obſerv'd in the leaſt degree of Regularity. Mr. *Dryden* had ſuch an excellent Talent for *Language* and *Verſification*, he thought it wou'd anſwer for any Fault in Conduct; and tho' he knew what was Regular, ſacrific'd his Knowledge to his own Eaſe, or the Taſte of the Town, which was never truly touch'd with the Severity of Rules. One Reaſon may be, becauſe ſuch as have ſtudy'd them moſt, have either neglected the Graces of Diction and Numbers, or had no Genius that way, an Ear being the Gift of Nature. But perhaps Regularity and Deſign may be acquired better by one who has no Genius for Poetry, than one who has. *Dryden*, like the Prince of the Britiſh *Parnaſſus*, ſet up for an Arbitrary Monarchy, a Government without Rules; thinking, like Princes of the ſame Principles, that a fair Outſide, and ſhining Court, wou'd dazzle, and make the Spectator blind to what was falſe. To excuſe himſelf, he ſays Unity of Time was not obſerv'd by the Ancients, and hints the *Heautontimoreumenos* of *Terence*, which took up two Days. The Reader will ſee that he does wrong to the Ancients, by what *Dacier* has ſaid of *Sophocles*, which has been already quoted in this Eſſay.

Unity of Place requires *that the Scene ought to be the ſame at the end as at the beginning of the Play. The ſame throughout.* This is Mr. *Dryden*'s own Rule, which he has broken in his *Spaniſh Fryar* almoſt as often as the Scene chang'd; ſometimes a Street, ſometimes the Court, ſometimes *Gomez*'s

Houſe, and as many Rooms of the Court as 'twas proper for Company to viſit. This Unity is indeed ſeldom obſerv'd in any of our *Taking* Plays: The Poets wou'd want *Intrigue-Room* if they were confin'd to it, and therefore change the Place as often as they pleaſe, the Audience very contentedly Travelling twenty or thirty Miles in a Scene, even in Comedy; and from *Covent-Garden* to *Cheapſide*, is ſo common, that one wou'd think they cou'd do it as eaſily as the young Fellows turn about in the *Pit* to face the *Boxes* between the Acts. The *French* generally obſerve this Rule in their Tragedies; as to their Comedies, *Moliere* himſelf has often broke the Unity of Place; and our *Engliſh* Poets find their Audiences ſo little concern'd about it, that they break it, and with the greateſt ſucceſs ſometimes.

What if the Ancients had not obſerv'd this or any other *Rule*, wou'd that juſtify the Moderns? Rules are nothing but the Obſervations of Criticks on Nature, and there's no Poet ſo ridiculous as to think he is not oblig'd to make Nature his Guide. Wherefore 'tis very plain, whoever breaks any one of theſe Unities, does it out of Ignorance or Idleneſs, and not out of Choice; and that ſuch as pretend to vindicate themſelves in it, do like thoſe Children, who having committed a Fault, endeavour to excuſe themſelves by a Lye, and commit a worſe to avoid Reproof. We have ſaid enough of the *Unities*, and ſhall in the next place ſpeak of the *Paſſions*, which are the moſt *ſhining* Part of *Dramatick* Poetry. Paſſion is neceſſary in all the great Poetry, as Admiration in an *Epick* Poem; Terror and Pity in Tragedy, and Joy and Surprize in Comedy. *Epick* Poetry is ſuſceptible of all of them, but Tragedy and Comedy are not. The one muſt never Weep, nor the other Laugh. The Paſſions muſt always correſpond with the Manners, and be always well Tim'd. *Longinus* tells us, nothing is more ridiculous than a great Paſſion out of ſeaſon. We have ſeen Plays in our own Tongue, as *Shakeſpear*'s and *Otway*'s, wherein the Paſſions have been as throughly touch'd as in *Sophocles* and *Euripides*. But our Poets commonly fall into Rants and Similies, which are the moſt unnatural Things in the World, Rants tranſporting the Perſon repreſented to Madneſs and Nonſenſe; and Simily unbends the Mind, which was before attentive to the Paſſion, to hearken to ſome fine Metaphor, or Poetical Deſcription.

> *Why trembles thus my Limbs? Why faints my Heart?*
> *Why am I thrill'd with Fear, 'till now unknown?*
> *Where's now the Joy, the Extaſy, the Tranſport,*
> *That warm'd my Soul, and urg'd me unto* Phædra?
> *O! had I never lov'd her I'd been bleſt.*
> *Sorrow and Joy in Love alternate Reign,*
> *Sweet is the Bliſs, diſtracting is the Pain.*

This is a paſſionate, tho' ancient Lover returning, after he had been thought dead, to the Arms of one he doated on almoſt to Madneſs. This is in a word, a Lover who is in the laſt Impatience, as appears by the Coolneſs of the Simily.

> *So when the* Nile *its fruitful Deluge ſpreads,*
> *And genial Heat informs its ſlimy Beds:*
> *Here yellow Harveſts crown the fertile Plain,*
> *There monſtrous Serpents fright the lab'ring Swain.*
> *A various Product fills the fatten'd Sand,*
> *And the ſame Floods,* &c.

We do not repeat theſe Lines for the abundance of the *Epithets*, tho' in Paſſion, perhaps *Epithets* are as unnatural as *Simily*; for ſo many of 'em can never come together without Reflection. And Mr. *Dryden* owns, *No Man is at leiſure to make Sentences and Similies when his Soul is in an Agony*. Which ſhews that no Man knew better how to keep within Bounds, yet no Man more often Tranſgreſs'd.

> *Deſpair, Death, Hell, have ſeiz'd my Tortur'd Soul.*
> *When I had rais'd his groveling Fate from Ground,*
> *To Power and Love, to Empire and to Me,*
> *When each Embrace was dearer than the firſt;*
> *Then, then to be contemn'd, then, then thrown off:*
> *It calls me old, and wither'd, and deform'd,*
> *And loathſome, Oh! what Woman can bear loathſome?*

Tho' there is not much Delicacy in this Paſſion, there's Rage. And whoever had heard Mrs. *Barry* labouring with theſe Lines, little thought the next would have been,

> *The Turtle flies not from his billing Mate,*
> *He bills the cloſer,* &c.

The *Rehearſal* has a Touch upon this ſort of Writing.

Prince *Prettyman* being fall'n aſleep in the fair *Cloris*'s Preſence, ſays,

Bayes, *Now here ſhe muſt make a Simily.*

Smith, *Where's the neceſſity of that, Mr.* Bayes?

Bayes, *Becauſe ſhe's ſurpriz'd. That's a general Rule, you muſt ever make a Simily when you are ſurpriz'd; 'tis the new way of Writing.*

> Cloris. *As ſome tall Pine which we on* Ætna *find,*
> *T' have ſtood the Rage of many a boiſterous Wind,*
> *Feeling without that Flames within do play,*
> *Which wou'd conſume his Root and Sap away,*
> *He ſpreads his* worſted *Arms unto the Skies,*
> *Silently grieves, all pale, repines and dies.*
> *So ſhrouded up, your bright Eye diſappears,*
> *Break forth bright ſcorching Sun and dry my Tears.*

Johnſon, *Mr.* Bayes, *methinks this Simily wants a little Application.*

Bayes, *No Faith, for it alludes to Paſſion, to Conſuming, to Dying, and all that, which you know are the Natural Effects of an Amour.*

If a Gentleman, when he hears or reads a Simily in a Play, will remember what is ſaid of Mr. *Bayes*, and what he ſays himſelf, he'll ſoon find out, that tho' there are not many *Johnſons*, there are many *Bayes*'s. For 'tis certain, moſt Poets are ſo fond of Similies, that they never conſider whether they are

Natural or Unnatural; they fanſie they ſhew'd their Wit, and too many of 'em are contented to be Fools to Wits, provided they can be Wits to Fools. For the Majority will be on their ſide; *Dryden* ſays, "The Roar of Paſſion may pleaſe an Audience, three parts of which are Ignorant enough to think all is moving which is Noiſe; it may ſtretch the Lungs of an ambitious Actor, who will die upon the Spot for a thundering Clap, but will raiſe no other Paſſion than Indignation and Contempt from the Judicious." Can any thing be more juſtly ſaid? And can any one think that Reflection, and the following Inſtances cou'd come from the ſame Perſon?

Anthony, *Dye—Rather let me periſh: Love and Nature*
Leap from its Hinges, ſink the Props of Heaven,
And fall the Skies to cruſh the nether World.

But this is in *All for Love*, which is, taken altogether, an excellent Play, at leaſt, for the moſt Charming Beauties of the Stage.

Alman. *I'll take his Heart by th' Roots and hold it faſt.*
Again, *At once beat thoſe without and thoſe within.*
Again, *Good Heaven, thy Book of Fate before me lay,*
But to tear out the Journal of this Day.
Again, *Thou ſhalt not wiſh her thine, thou ſhalt not dare*
To be ſo Impudent as to deſpair.
Again, *There's not a Star of thine dare ſtay with thee,*
I'll whiſtle thy Fame Fortune after me.

If ſuch Pathetick Strokes as theſe wou'd divert the Reader, we cou'd furniſh him with as many as he pleas'd; not only out of the *Jeruſalems*, the Heirs of *Morocco*, and Plays of that Rank, but out of Mr. *Dryden*, who knew better, which 'tis to be fear'd the reſt did not.

We hope what has been ſaid is ſufficient to convince every Man of Senſe, That the Similies of this Poet, the *Sentences* and *Speeches* of that, which have been the Chief Reaſon of their *Taking*, were the very thing that ſhould have damn'd their *Plays*. When an opportunity offers on which we may have more *room*, we ſhall ſearch farther into theſe Errors in *Poetry*, and bring our Examples down lower. Of all our Tragick *Poets* none ever touch'd the Paſſion of *Pity* more than *Otway*, nor indeed ſo much. *Shakeſpear* mov'd Terror like a true Maſter of this Art: His *Hamlet* and *Mackbeth* will always ſtrike the Audience with that Paſſion; His *Othello* ſeems to be carry'd too near the Confines of Horror, *Fletcher* in Mr. *Dryden*'s Opinion mov'd Compaſſion better than *Shakeſpear*, who, he ſays, *did not fail ſo much in the Paſſions themſelves, as in the manner of expreſſing them: He diſtinguiſh'd not the blown Puffy Style from true Sublimity.* Let any one compare the worſt things in *Shakeſpear* with what we have repeated out of Mr. *Dryden*, or with *Maximin*'s Rant to the Gods,

Keep You your Rain and Sun ſhine in the Skies
And I'll keep back my Oil and Sacrifice,
But by the Gods, By Maximin *I meant.*

and much more in the ſame Strain, he will hardly find any thing in *Shakeſpear* ſo far diſtant from true Sublimity. What *Boſſu* ſays of *Seneca*'s Conduct, with Regard to the Paſſions, will ſerve for moſt of the Moderns. After he has Prais'd *Virgil* for his Conduct he goes on thus; "*Seneca*'s Conduct is quite oppoſite; If he has any thing to ſay which ought to expreſs a great Paſſion, and touch the Audience ſenſibly with it, he deprives both the Perſons of his *Drama*, and the Audience of all the Diſpoſitions they may have to move or be mov'd. If they are in Sorrow, Fear, or Expectation of ſome Terrible Accident, he begins with a Fine and Elegant Deſcription of the Place, which only ſhews a fruitful Fancy and the Pointed and Florid Wit of an Injudicious Poet". Thus in his *Troades*; "*Hecuba* and *Andromache* being diſpos'd to hear the violent and barbarous Death of their Son *Aſtyanax*, whom the *Greeks* had juſt flung from a Tower: They were alſo to be inform'd that among thoſe who ran from all Quarters to ſee ſo dreadful a Sight, there were ſome who were plac'd on Stones that had fall'n in Heaps from the Ruin of Buildings: That the Legs of others ſhook becauſe they were plac'd too high; *Alta rupes cujus è cacumine erecta ſummos turba libravit Pedes*, Such as ſpeak or hear ſuch Trifles are very little diſpos'd to weep when they have occaſion for't; and, like thoſe who are hir'd to mourn at Funerals, muſt be told when to begin and when to leave off". If Gentlemen will remember this when they hear or read moſt of our Plays where the Paſſions are pretended to be beſt touch'd, they will know what is true and what is falſe. Too much Buſineſs of which thoſe who belong to the *Drama*, particularly the *Players* and *Pit* are very fond, is contrary to the Paſſions which cannot be throughly rais'd where the Intrigue is too thick, as Mr. *Boſſu* has declar'd; "To manage the Paſſions well and move the Audience, they muſt be brought into the Poem pure and diſengag'd from any thing that may hinder their Effect; wherefore *Polymythy*, or too many Stories, Fables and Actions muſt be avoided; as alſo Adventures too intricate and difficult to be remember'd, or Intrigues that cannot be eaſily comprehended, which embroil the Mind, and require ſo much Attention that there cannot be enough left for the Paſſions". What will become of all that Buſineſs and Buſtle which our *Dramatick Poets*, in Complacency to the deprav'd Taſte of their Audience, are ſo fond of? they think it enough if the Scene is crowded, and they can make a *full Stage*. The Paſſions are touch'd rarely, and when the Audience is mov'd, 'tis generally with Rants and the Roaring of the Actor. A Player never flung himſelf on the Ground, but the Spectators believ'd 'twas the Strength of the Paſſion which occaſion'd it, whereas 'tis generally done to help out the want of it. When the Poet can't raiſe it ſo high as is neceſſary by the Sentiments, which is a little difficult, he has recourſe to Words, and there his Task is Eaſy. But ſays Mr. *Dryden*, [*Pref. to Troilus and Creſſida*,] "Wiſe Men wou'd

“ be glad to find a little Senſe couch'd under all “ theſe Pompous Words; for Bombaſt is commonly “ the Delight of that Audience which loves *Poetry*, “ but underſtands it not, and has commonly been “ the Practice of thoſe Writers, who not being “ able to infuſe a Natural Paſſion into the Mind, “ have made it their Buſineſs to ply the Ears, and “ to ſtun their Judges by the Noiſe.

Cleop. *And bent the Globe on whoſe each Side we*
(Trod,
Till it was dented Inwards, &c.

This ſeems to be of the ſame kind, tho' the Bombaſt is rather in the Thought than the Expreſſion. There's nothing ſo prejudicial to the Art of Moving the Paſſions as the intermingling Comical and Tragical Intrigues, what one bends the other unbends, and this is the Cauſe that the Soul cannot attend enough to either. Tragi-Comedy is a Monſter in the *Drama*, and tho' there are ſome fair ones, if any thing monſtrous may be call'd ſo, as the *Spaniſh Fryar*, in which Play there are ſome Maſter Strokes worthy the Pen of the Firſt Poet of his Times, and the *Laureat* of *Britain*, yet that and all of that kind is

A Woman's Head join'd to a Fiſhes Tail.

The Author of that *Tragi-Comedy*, we mean the *Spaniſh Fryar*, in his *Eſſay on Dramatick Poetry*, has this Paſſage, *There is no Theater in the World has any thing ſo abſurd as the Engliſh Tragi-Comedy.*

Atq; Urſum & Pugiles media inter Carmina poſcunt,

which is juſt, and 'twill hardly be Credible to the Reader, when he is told that in the very ſame Eſſay there's another Paſſage as contrary to it as *Artick* and *Antartick*. *I cannot but conclude to the Honour of our Nation, that we have Invented, Increas'd and Perfected a more Pleaſant Way of Writing for the Stage than was ever known to the Ancients or Moderns of any Nation*, which is *Tragi-Comedy*. What has been ſaid before by himſelf and others will be an Antidote to this Poyſon, and theſe Sentiments will be more largely handled in a Tract on Purpoſe.

Figures are a very great Help in Touching the Paſſions in Tragedy, as well as Heroick Poetry, and the *Pathetick* of the *Drama* is the *Marvellous* of *Epick Poeſy*, according to *Rapin*. *Dryden* ſays *Metaphors are neceſſary to raiſe Paſſion*, which is true, becauſe they bring Objects before the Eyes; and, as a great Maſter of *Rhetorick* tells us, *Pour donc allumer les Paſſions dans le Cœur de l' Homme il fant lui en preſenter les Objects & ceſt aquoi ſervent marveilleuſement les Figures*; therefore to kindle the Paſſions in the Heart of Man, the Objects muſt be repreſented to them, and to that End Figures are of wonderful Uſe. But as this *Eſſay* is by no means intended to give any Directions to Poets who are all Criticks by Profeſſion, and every one, to a Man, a compleat Maſter of his Art in his own Opinion, we ſhall not enter far into our Poetical Speculations, but keep as cloſe to the Practice as is neceſſary to let Gentlemen ſee when they are in the wrong and when they are in the right.

We do not forget that there remain Two Parts of *Epick Poetry* to be treated of, *Machines*, *Thoughts* and *Expreſſions*; of the latter of which we have occaſionally ſaid ſomething in the foregoing Pages; but both *Machines* and *Expreſſions* having ſome Relation, according to the Practice of the Moderns at leaſt, to *Tragedy*, we ſhall firſt ſpeak a little of the Second Part of *Dramatick Poetry*, which is *Comedy*.

What has been ſaid of *Tragedy*, with Reſpect to the Unities of Time, Place and Action, will ſerve for *Comedy*, ſince as we are told by Mr. *Rimer*, unleſs there be Unity of Place, of Time, and of the Action, in the Great Poems, there can be no Veriſimility. Now tho' Mr. *Dryden* is pleas'd to ſay, [*Pref. to Evenings Love*] *I thing Comedy is in its own Nature Inferiour to all ſorts of Dramatick Writing*; yet, as 'tis a Part of the *Drama*, 'tis juſtly reckon'd a Part of the Great Poeſy. Beſides, being the neareſt Imitation of the Natural Life, it ought to come neareſt to the Rules; which, whatever Myſterious Names are giv'n 'em, are nothing but Guides to conduct the Writer to the Trueſt Obſervation of Nature, and by that to form his Imitation. And tho' that Famous Poet calls it in the above cited Place, *the moſt Inferior Part of Dramatick Poetry*, he is not always of the ſame Opinion.

Wild Gallant, *Of all Dramatick Writing Comick Wit,*
As 'tis the beſt, *ſo 'tis moſt hard to hit.*

To this we muſt add, Comedy will always be reckon'd Part of the great Poetry on Account of its End, which is Inſtruction as well as Pleaſure; for tho' notwithſtanding the ſame Author, objecting againſt the Law of Comedy, which is to reward Vertue and Vice, anſwers, *He knows of no ſuch Laws to be conſtantly obſerv'd in Comedy neither by Ancient nor Modern Poets*, yet we muſt not truſt too much to this Aſſertion; for *Boileau*, whom in another Place he calls the beſt Critick among the *French*, writes,

Le Theatre perdit ſon antique fureur.
La Comedie apprit a rire ſans aigreur,
Sans fiel & ſans venin ſut inſtruire & reprendre,
Et plus Innocement dans les Vers de Menandre.

The Theater its Ancient Fury loſt,
And Comedy then laught at no Man's coſt,
Without or Gall or Venom it inform'd,
And in Menander's Verſe reprov'd and charm'd.

This is not only true by the Confeſſion of *Boileau* and *Rapin*, and indeed by all who are Criticks in the *Drama*, but Common Senſe will tell a Man, that ſince Men are ſooner laught than beat out of their Follies, *Comedy* muſt ſooner arrive at the Principal End of *Dramatick Poeſy* than *Tragedy*. The Neceſſity of the Unities being granted from ſo good Authority, whoever errs in Time, Place or Action; that is, whatever Action is Compound, whatever Time above what is neceſſary for the Repreſentation, whatever Scene is remov'd from one Street to another, or one Houſe to another, break the Rules; or to ſpeak with leſs Offence, are againſt Nature. By a ſimple Action is not to be underſtood the baniſhing *Epiſodes* or *Under-plots*, as our *Play-Writers* call 'em, provided they are ſo much a Part of the Main Deſign that it cannot be carry'd on without 'em. This will give the Poet opportunity enough to fill his Play with *Buſineſs*. And as to the Two other Unities, if he ſtretches a little, 'twill be forgiven him; eſpecially if it appears that the Action neceſſarily requir'd it, and the Tranſgreſſion is not too obvious. This Licenſe is only to be pretended to by Maſters; the Common Writers, who are not to be diſtinguiſh'd from the *Maſters* by their Succeſs, unleſs 'tis that by pleaſing the Multitude they *take* more, will be ſure to abuſe this Privilege, and err as often as they Write. The Manners muſt be as well obſerv'd here as in *Tragedy*; What ſays *Boileau* on this Subject?

> *Que la Nature donc ſoit votre Etude unique Auteurs*, &c.

> *Te Bards, Pretenders to the Comick Bays,*
> *Let Nature be your Guide in all your Plays.*
> *The Heart of Man, whatever Mind did reach,*
> *Let him its Errors tell and others teach.*
> *Whoe'er a Prodigal or Miſer knows,*
> *A Prodigal or Miſer may Expoſe,*
> *A Fop, a Coxcomb*, &c.
> *All Things our Humours muſt to Time ſubmit,*
> *Its Pleaſures has each Age, its Ways and Wit.*
> *When Toung*, &c.

That which diſtinguiſhes our *Comick* Poetry from all others, and gives it the Advantage over both Ancients and Moderns, is *Humour*; which, according to Mr. *Dryden's* Definition, *is the Ridiculous Extravagance of Converſation, wherein one Man differs from all others:* He tells us, *Of late Tears* Moliere, *the Tounger* Corneille *and* Quinault *have been imitating afar off the Quick Turns and Graces of the Engliſh Stage*; in which he was probably very much miſtaken, for none can well imitate thoſe they do not underſtand; and the *French* had, and have ſo mean an Opinion of our Poetry, that 'tis to be queſtion'd whether ever one Man in *France* Study'd our Language to inform himſelf how our Poets Write. 'Tis true, Mr. *Dryden* us'd to ſay *Rapin* learnt *Engliſh* on purpoſe to underſtand his Poems; but he muſt tell us ſo by Hearſay, for *Rapin* no where condeſcends ſo far as to confeſs he underſtood them or any other *Engliſh* Verſes. As a Proof of the *French* deſpiſing our Poetry, let the Reader know what happen'd, on the Death of Mr. *Dryden*, at *Paris*. An *Engliſh* Gentleman, who is very much eſteem'd for his Politeneſs and Learning, being then there, paid a Viſit to Mr. *Boileau*, who entertain'd him, as he do's all who come to ſee him, with the *French* Poetry, particularly his own; and ſaid little elſe, but that *he was very glad to hear we had paid due Honours to the Memory of a Great Poet in* England, *whoſe Name he pretended at leaſt not to know*. And as to the Diſpute between the *Engliſh* and *French* Poets, he was pleas'd to allow *The* Engliſh *had moſt Wit, but the* French *were the better Poets*, wherein he did too much Juſtice to his own Nation; For who is there in *Tragedy* to match our *Otway*? Our *Etheridge, Wicherley, Congreve, Vanbrugh* in *Comedy*? Our *Roſcommon, Waller* and *Denham*, in Gallant Poetry, and for a fine Turn of Verſe? Our *Cowley* for *Pindaricks*; and for all ſorts of Verſification, our Immortal *Dryden*, whoſe Name Mr. *Boileau* affected not to know, which is ſo ridiculous a Vanity, he would never have been guilty of it had not he been paſt his Climacterick. Is it likely ſuch a Man as Mr. *Boileau*, who frequented the *Engliſh* Ambaſſadors in the Duke of *Montague's* Time as much as any *Hôtel* in *Paris*; and who knew ſo many *Engliſh* Gentlemen, ſhould never be ſo curious as to inquire what Poets we had in *England*, and would not Mr. *Dryden* have been firſt nam'd? Or is it to be believ'd that ſo many *Engliſh* Gentlemen, proud of Mr. *Dryden's* Merit in Poetry, would have ſuffer'd him to be Ignorant of the Reputation in which he flouriſh'd Forty Years? But the *French* were ſo vain before they were lately mortify'd, that they would triumph over the Wit as well as Liberty of Nations? Monſ. *St. Evremont*, with all his Great Qualities, had his National Vanity, and that Contempt for our Tongue, that tho' he liv'd Forty Years among us, he never learnt enough of it to help him out in a Converſation of three or four Minutes. However, their ſetting a low Price on our Poetry has not put us out of Countenance, nor made us have a worſe Opinion of our ſelves or a better of them. 'Tis a bad Sign of the Poetical Genius of a Nation when they have never produc'd One Heroick Poem, and a Glorious Sign of Ours, that can ſhew a Genius greater than either *Homer* or *Virgil* in the greateſt Part of *Epick Poeſy*. My Lord *Roſcommon*, who knew the *French* better than they know themſelves, ſays of 'em

> *The Weighty Bullion of one Sterling Line,*
> *Drawn to* French *Wire, wou'd in whole Pages ſhine.*

Mr. *Dryden* is of the ſame Sentiment. *We are as well able to vanquiſh the* French *with our Pens as our Anceſtors have been with their Swords*; or rather, as we have ſince done with our Swords. Again, *In the Precepts which* Ben Johnſon *has laid down in his Diſcourſes, we have as many and Profitable Rules for Perfecting the Stage, as any the* French *can furniſh us with.* Again, *Be it ſpoke to the Honour of the* Engliſh, *Our Nation can never want in any Age ſuch as are able to diſpute the Empire of Wit with any People in the Univerſe; and our preſent Poets have far ſurpaſt all the Ancient and Modern Writers of other Countries.* There would be no End of it if we ſhould ſet down all the Authorities we might produce on this Article, if what the *Engliſh* have ſaid themſelves may paſs for Authorities, and that is not to be doubted: For why may not we ſpeak as well of our ſelves, as the *French* do of themſelves on all Occaſions?

This will not be thought a Digreſſion in an *Eſſay on Poetry*, eſpecially in one wherein no Exactneſs of Method is pretended to; but Things are ſaid as the Author refreſhes his Memory, and recovers loſt Ideas.

As to *Comedy*, *Ariſtotle* wrote a whole Book upon it, which is loſt; but Mr. *Dryden* thinks *Horace* had ſeen it and made Uſe of it in his Art of Poetry. *Boileau* has giv'n Rules for Writing it and *Rapin* ſpeaks of it alſo; but there's no more Myſtery in it than to obſerve the Characters, the Unities and Decorum of the Stage. Some have imagin'd that the Excellence of a *Comedy* conſiſts in the Wit, others will have it confin'd to the Intrigue and Turns of Incidents, others to the Humour; whereas 'tis indeed in the juſt Mixture of the whole.

He who has not Wit, will run into Farce, and generally *take* as well for a *Time*, as he who has. Who does not know, that the Authors of the Comedy of *The Birds*, and *The World in the Moon*, once took as furiouſly as the Authors of Sir *Fopling Flutter*, and *Venice Preſerv'd*? *The Trip*, *The Yeoman of* Kent, have had their *Days*; *Phædra*, and *Appius* and *Virginia*, have not yet had theirs. What can we ſay of *Taking*, but that he who values himſelf upon the Applauſe of the Many, is as great a Fool as any that applaud him, and knows as little of true Merit. *Beaumont* and *Fletcher* had Three Plays damn'd before they wrote *Philaſter*; *Ben. Johnſon* had the like Fortune. The *Plain-Dealer* had much ado to keep up its Head, when 'twas firſt repreſented. Who wou'd be proud of the Praiſes of that Audience which has condemn'd the beſt Play that ever was written? *Taking* therefore is no ſure Sign of Merit, tho' 'tis a good Encouragement to a Poet to endeavour to deſerve; and the Player and Bookſeller, let the Criticks ſay what they pleaſe, will always prefer a *Taking Farce* to a *Damn'd Comedy*. They judge of Things by what they bring in, and they are in the right of it; for thoſe who are to live by their Buſineſs, will ever be fonder of thoſe by whom they get, than of thoſe by whom they loſe. Complacency will not agree with Intereſt; but the Poet who thinks he has done well, becauſe he has *taken*, will probably, if he writes long enough, live 'till he has the Fate of ſome *Taking* Authors before him, to have his Plays refus'd even by the Players.

The Two remaining Parts of *Epick* Poetry, the Machines, Thoughts and Expreſſions having relation to *Dramatick* Poetry, at leaſt to Tragedy, ſhall now be handled with our uſual Brevity. As to Machines or Divinities introduc'd into Poetry, there are three ſorts of 'em, as divided by *Boſſu*; the one Theological, and invented to explain the Nature of God; the other Phyſical, to repreſent Natural Things; and the third Moral, under which the Vertues and Vices are figur'd. Of the Theological kind, are *Jupiter*, *Juno*, *Venus*, and *Deſtiny*, with which *Virgil* opens his Tenth Book. Of the ſecond kind are *Æolus*, *Eurus*, *Zephirus*, &c. Of the third, the *Furies*, &c. They muſt never be made uſe of but when the Action neceſſarily requires it.

> *Nec Deus intercit niſi dignus vindice nodus,*
> *Inciderit.*
>
> Hor. Art. Poet.

And that eſpecially in *Dramatick* Poetry. For 'tis the Opinion of ſome Criticks, that in *Epick* Poetry, Machines may be brought in, even when there's no neceſſity to heighten the *Marvellous* or Admiration, which is the Perfection of *Heroick* Poeſy. Our Religion does not admit of the frequent uſe of theſe Divinities, if of any at all, and our Audiences are ſeldom mov'd by them as the Ancients were. Indeed, in Tragedy they are never made uſe of by any Judicious Writer, unleſs it be in the *Prologue*, as *Piety*, in *Racine's Heſter*. But a new unnatural ſort of *Dramatick* Poeſy, call'd *Opera*, requires the uſe of 'em. *La Bruyere*, who is far from approving that trifling way of Writing, ſays Machine is one of the greateſt Beauties of the Opera; and where every Thing is out of Nature, ſupernatural Things are moſt natural. Our Machines are ſo wretchedly contriv'd, that, like a *Dutch* Angel, with two Scollop-ſhells inſtead of Wings, faſten'd to the Shoulders of a brawny Skipper, we ſee the poor Mortal under his God-like Appearance; and when our Goddeſſes deſcend in their Bathing-Tubs, like the Children in their Chairs and Chariots at the Machine in *Moorfeilds*, 'tis all Bungle and Blunder, we hear the Wheels grate, the Pullies go like thoſe of a Jack, the Ropes as viſible as are the Rope-dancers; and what Foreigners have the Dexterity to hide, we expoſe ſo, that the Admiration is loſt, and the Audience have no more Reſpect for *Venus* in her Chariot, than for Mrs. *Lindſey* in a Hackney-Coach, or other more Amorous Vehicle. Our Managers cannot be at the Charge of good Machines, and People to conduct them; they give Eight Hundred Guineas to a Foreign Singer at one Time, Twenty Guineas a Night to other Singers at another; all the Money that can be ſcrap'd together beſides is not enough to pay for the Decoration of the Knights and Baroneſſes that Perform, and the Salleries to the Muſick, Houſe-Rent, and Contribution is another ſevere Article; by all which Machines have been driven out of our Theatre, and unleſs we underſtood 'em better, 'tis no matter whether they are ever reſtor'd again. Opera is an *Italian* Invention, from whence it paſt into *France*, and has now croſt the Water to viſit our Inclement Region, an utter Enemy to fine Voices. The Unities in Opera's are never obſerv'd, nor one Rule of the *Drama*; 'tis enough if the Poet can join a few Harmonious Sentences together, and pick out ſome Muſical Words to keep the Singers Mouths open. The *Compoſer* will, if he has a Genius, find *Paſſion* for them. Muſick muſt be own'd to be very neceſſary in the *Drama* for the greater Pleaſure of the Entertainment, and ſometimes to aſſiſt in moving the *Paſſions*. The Ancient Chorus's were all ſung, but then the Poets were the Muſicians alſo, and ſet their own Words. In our Times, *Dramatick* Opera's may be very juſtifiable, and a Fable ſo form'd as to render Muſick abſolutely neceſſary; but when Words are tack'd to Muſick, when an *Engliſh* Woman ſings *Italian*, and an *Italian* anſwers her in *Engliſh*, when half the Buſineſs is done in *Engliſh*, half in *Italian*, and the whole a Mungrel Performance, when you have Words without Senſe, Muſick without Air, Singers without Voices, Show without Machines, and Poets and Audiences without Judgment, that muſt be a Pleaſure unworthy the Character of a Nation which perhaps is as Polite as the politeſt in the World; 'tis a Dream that amuſes us at preſent, we ſhall wake and laugh at our Folly.

The Thoughts and Expreſſions are the laſt Part of *Heroick* Poetry, we muſt treat of the Thoughts in diſcourſing of Logick, and therefore ſhall only in this Place ſay, the Sentiments muſt be always ſuitable to the Characters; and ſuch as in *Epick* Poetry are moſt proper to raiſe Admiration, and to move Terror and Pity in Tragedy; they muſt be always Juſt and Natural. *Point* is ſo brillant that 'tis often miſtaken for Wit; but 'tis a falſe Luſtre, and tho' Poets is very fond of it, it vaniſhes like Vapour, and ſtrikes only Women and Fools. We have elſewhere ſpoken of Deſcriptions, Compariſons, and Metaphors, &c. to which we refer the Reader, and conclude this Part of our Eſſay with ſome further Obſervations on Expreſſion.

Let the Criticks and Others deſpiſe *Diction* as much as they pleaſe, it will always, in our Opinion, be one of the moſt charming Parts of *Poeſy*, which, without Numbers, is the moſt contemptible of all Writing.

The *Romances*, ſo much in faſhion Forty Years ago, are good Poems in the Judgment of the *French*. *Novels* may with the ſame Reaſon pretend to that Title. *Proſe Cadence* as the *French* term it, is a certain Meaſure of *Periods* which pleaſes the Ear, but is not ſo muſical as the Numerous Cadence of *Verſe*. *Rhime* has been treated of already, and Numbers alſo, but we muſt add a word or two of the latter. Mr. *Dryden* tells us, *Variety of Cadence is the beſt Rule, the greateſt Help to the Actors, and Refreſhment to the Audience.* He further recommends *the Pindarick Numbers in Tragedy.* Wherein he wrote too much by *Humour*, and too little by *Judgment*. The *Pentameter*, or what we call the *Heroick* Verſe, is the moſt *Muſical* of any in our Tongue; and we ſhall ſee preſently how Letters will vary the Harmony, and adapt the ſound to the Senſe.

The *French* always make uſe of their *Alexandrin*, which is the ſame with our *Heroick*, as to the uſe of it, except in two or three Plays, where *Corneille* uſes the *Pindarick* Meaſure in two or three Scenes. Moſt of their Comedies are in *Alexandrin*, for 'twas late before they knew how to write a *Play* in *Proſe*. *Moliere* lov'd *Rhiming*, and his beſt *Comedies* are in *Rhime*. Scenes of Argumentation and Diſcourſe, are proper for Rhime, if Mr. *Dryden*'s Opinion be of weight in this Caſe, who, in his Epiſtle to the *Rival Ladies*, defends *Rhiming* Plays. But in other Places, he is ſo far from the *Pindarick* Meaſure, Rhimes, or any Conſtraint, *That he will not have his Senſe a Slave to Syllables.* Yet he ſays elſewhere, *I dare confidently affirm, that very few Tragedies in this Age ſhall be receiv'd without Heroick Verſe.* However, he did not continue long in theſe Opinions; for,

Grown weary of his long lov'd Miſtreſs, Rhime,

he is again for *Blank Verſe*, or *Proſe Cadence*, becauſe a Man is not ty'd up to Equality of Meaſure, which Variation is ſo common in this excellent Poet, that we ſhou'd never have done did we pretend to give all the Inſtances of it. Such was his ſetting up for the *Quatrain*, or Stanza's of four *Heroick* Verſes, and alternate Rhime, out of Complacency to Sir *Robert Howard*; *I have ever judg'd them more Noble, and of greater Dignity for the Sound and Number, than other Verſe in uſe among us; in which, I am ſure, I have your Approbation.* Yet he hardly ever wrote *Quatrains* afterwards. In the ſame Place he adds, *The Drama, tho' it excludes not the quickneſs of Wit and Repartees, yet it admits not a too curious Election of Words, too frequent Alluſions, or uſe of Tropes, or in fine, any thing that ſhews Remoteneſs of Thought, or Labour in the Writer.* *Blank Verſe* is certainly moſt proper for *Heroick* Poeſy and *Tragedy*, and *Proſe* for *Comedy*; a *Rhiming* Play is as unnatural as a *Singing* Play or Opera. I can as ſoon believe the Perſons ſing to each other as ſpeak in Rhime; and yet the Town ran mad after *Plays* that were *Rhim'd* Thirty Years ago. Mr. *Dryden* oblig'd 'em as much as any one, for Poets are

Fond of Applauſe, and ever fed with Praiſe.

They will do what they can to *Take*, and as the Humour of the Town is, ſo is their *Way* of *Writing*. In other Poems, the *Couplet Verſe* is the moſt eaſy; and 'tis not to be imagin'd what an Effect the Power of Numbers has on the Ear, and by that on the Mind. Letters ſometimes form a Sound that expreſs the Paſſion: *Virgil* ſucceeded in this better than any Poet who ever wrote; and of the Moderns, none came ſo near him as Mr. *Dryden*. The former, by his *Cadence* only, gave Idea's of the Things he wou'd have ſignify'd. Who does not conceive an Image of *Dido*'s Fury, when ſhe mounted the Funeral Pile, into which ſhe intended to fling her ſelf, when he reads theſe words,

Et altos conſcendit furibunda rogos?

The Precipitation and Elevation of the Cadence expreſs the Thing.

The ſweetneſs of the Cadence in the following Verſes, gives us a ſenſible Image of Sleep.

Tempus erat quo prima quies Mortalibus ægris
Incipit, & dono divum gratiſſima ſerpit.

We have a Deſcription of Night and Sleep in *Engliſh*, which Mr. *Rimer* prefers, not only to *Virgil's*, but to all other Deſcriptions on the ſame Subject in any Language, Ancient or Modern.

All things were huſh'd, as Nature's ſelf lay dead;
The Mountains ſeem to Nod their drowzy Head;
The little Birds their Dreams in Songs repeat,
And ſleeping Flow'rs beneath the Night-dew ſweat.
Ev'n Luſt and Envy ſleep.

What cou'd be more proper to move Pity in the Souls of the *Trojans*, than the languiſhing Numbers of theſe Verſes.

Heu! quæ nunc tellus, inquit, quæ me æquore poſſunt
Accipere; aut quid jam Miſero mihi denique reſtat.

Of the ſame Nature is the Cadence in the following Verſe, and expreſſes the melancholy Tone of a Perſon in Miſfortune.

Partem Opere in tanto, ſineret dolor, Icare, haberes.

La Cadence des paroles fait ſouvent plus que les Paroles memes un ton ferme imprime la Crainte un ton Langueſſant porte a la Compaſſion, &c. The Cadence of the Words do's often more than the Words themſelves. He who wou'd make his Numbers conformable to the Senſe muſt conſult the Ear, and learn by that what is the Sound of all Letters, according to a very conſiderable Author, from whom we have borrow'd a Part of this Eſſay. They muſt alſo know the different Tones of Vowels, Conſonants, Syllables, and every thing that has relation to Words. There are ſome Authors who have apply'd themſelves to ſtudy the various Uſe of them in this Caſe, and obſerve for Example, that the Conſonant *F* expreſſes the Wind *Cum Flamma furentibus Auſtris*; the Conſonant *S* a Stream of Water or

RHE= TORICK.

To The Worſhipfull
William Stych
of Newbury in the
Pariſh of Barkin
in Eſsex Eſqr.
This Plate is
Humbly
Dedicated
By Richard
Blome.

Rhetorick hath two parts.
Elocu:tion
Trope or Modifica:tion:
1. Simple
Metonimia
1
of yͤ cauſe, for yͤ effect.
of yͤ effect, for yͤ cauſe.
2
of yͤ subject for yͤ circumſtance
of yͤ circumſtance for yͤ subject.
Ironie
Simple
Conti:nued
Præte:rition.
2. of
Compa:riſon, as
Metaphor of things
Divine
Humane
Diſtribu:tion, as
Synec:doche
of Parts for yͤ whole.
of yͤ whole for parts.
Catachre:sis
Allegorie
Hyper:bole
Rhythm or verſe made by yͤ obſerva:tion of
2 3 4 5 6 7 8 9 10 11 12 Sylables called Alexan:drins.
Poeticall
Metre
Oratorian
Figure
Diction, in
Dimention
Repetition of ſound
Like
Continuall in
yͤ ſame
Epizeuxe
Sentence
diverſe
Anadiploſis
Gradation
Seperate in
yͤ ſame
Anas:trophe
Epiſtro:phe
Sim:ploce
Place
Inter:mixt
Epanalipſis
Epanodus
unlike
Parono:maſia
Poliptoton
Sentence in
Logiſme
1
Exela:mation of divers Affections as of
Admiration, Optation, Irriſion, Indigna:tion.
Epiphonema
Licence
Revocation, or Recalling of ones ſelfe
Correction
Pauſing
2
Apoſtro:phus
Proſopo:pœa
Imperfect
Perfect
Dia:Logiſme
Interoga:tion
Delibera:tion
Adubitation
Comunication
Prolepſis
Occupation
Subjection
Anſwer
Permiſsion
Conceſsion
Pronoun:tiation in
Voice, which is of uſe in yͤ well putting forth.
Accent of Speech.
yͤ figures of
Diction
Sentence
Affec:tions of Speech full of
Anger, Complaints, Menaces, Ioy, Trouble.
Geſture. or Action, and good Mean.
of the whole body.
of ſeverall parts.

or Blood, & *plenos Sanguine rivos*; as alſo *Stormes.*

Luctantes ventos tempeſtateſq; ſonoras.

The Letter *L* agrees with ſoft Things.

Mollia lutteola pingit vaccinia caltha
—— eſt mollis flamma medullas.

Virgil makes uſe of ſeveral *M's* to figure a Noiſe and Confuſion.

——Magno cum murmure montis
Circum Clauſtra fremunt.

He was as careful to make the Feet agree with the Senſe as well as the Letters, and in this was happier than any other Poet.

————Illi æquore aperto
Ante notos, Zephyrumq; volant: gemit ultima pulſu
Thraca pedum.
Ferte citi Ferrum, date tela, ſcandite muros.

The *Dactyles* expreſs the Swiftneſs of the Action, and *Spondees* the Gravity.

———Magnum Jovis incrementum,
Tantæ molis erat Romanum condere Gentem.
Illi inter ſeſe magna vi brachia tollunt, &c.

The Greateſt Part of Poets among the Ancients, and almoſt all the Moderns, know nothing of this Art of making Feet, and even Letters conformable to the Senſe. They ſtudy'd only to arrive at a certain ſoftneſs of Verſe, which grows dull for want of Variety. The Joyful, the Afflicted, Maſters, Servants, all ſpeak in the ſame Tone; a Courtier has not more Harmony and Delicacy than a Peaſant. Theſe Poets did not perceive how *Virgil* made ſome Verſes harmonious by the rudeneſs of the Numbers of others, and ſtrengthen'd ſome by others ſoftneſs. Of the latter kind are thoſe Verſes, wherein he deſcribes the weak Blow old *Priam* gave *Neoptolemus*. The Verſe is languiſhing and weak, like the old King's Arm.

Sic fatus Senior, telumque imbelle ſine ictu
Conjecit.

Cicero and *Quinctilian* highly commend ſuch as make their Numbers agree with the Senſe. *Virgil* is inimitable in this Grace of Poetry. When he makes *Neptune* ſpeak in the Firſt Book of the *Æneis*, how Lofty and Majeſtick is the Cadence?

Tantane vos tenuit generis fiducia veſtri?
Jam cælum, terramque, meo ſine numine, venti,
Miſcere, & tantas audetis tollere moles?

How Pompous are the Verſes wherein he flatters the Emperor.

Naſcetur ex pulchra Trojanus Origine Cæſar,
Imperium Oceano, famam qui terminet aſtris.

Who can read his Deſcription of *Polyphemus*, without trembling at the Idea of that Giant?

Monſtrum horrendum, informe, ingens, cui lumen ademptum.

The Cadence of this Verſe, *Procumbit humi bos*, which falls all at once, imitates the Fall of that heavy Animal, as the following does the Heat of a mettleſome Horſe.

Quadrupedante putrem ſonitu quatit ungula campum.

Can Sorrow be better expreſs'd than in this broken Cadence?

O Pater, O hominum, divumque æterna poteſtas,
O lux Dardaniæ, ſpes o fidiſſima Teucrum.

The following Verſes are full of that Grief which one Friend expreſſes for the loſs of another.

————Te, amice, nequivi
Conſpicere, &c.
Implerunt rupes, flerunt Rhodopeiæ arces.

We might give many more Examples of this kind in *Virgil:* In the Moderns they are hard to be met with. Mr. *Dryden* ſucceeded in it beſt, and ſeem'd to form the ſoftneſs of his Verſes by affecting to let 'em roll off the Tongue with Words beginning with the ſame Letters, *The Mighty Monarch, The Sharpen'd Shears, The Beauteous Bride,* &c. And the ſame initial Letter repeated again in the Verb.

When Man on many multiply'd, &c.
Our Ships a Shelter on the Shores, &c.
The ſharpen'd Shears ſhall, &c.
For when a Father is too fondly kind.
Such Seed he ſows, &c.

Perhaps the *s* in *Engliſh* liſps too much, or rather whiſtles, and *ſh* is not without a ſhare of the ſame Fault. In other Caſes, this uſe of Words, whoſe initial Letter, or Syllables, are the ſame, when done without Affectation, has a good Effect, but when affected is ridiculous. A Poet of good Reputation in the Britiſh *Parnaſſus*, is eaſily to be known by his fondneſs of this Harmony, which is agreeable when 'tis not to be ſeen that the Poet ſought after it induſtriouſly, but deſpicable when us'd, as one who aſſumes that Name, did it,

Whoſe broad built Bulk, the boiſt'rous Billows bear.

Mr. *Waller* introduc'd this way, and Mr. *Dryden* profited himſelf of the Example.

He alſo ſhew'd us in many Places how the Numbers may be made agreeable to the Idea's, as in that admirable Poem of *Cimon* and *Iphigenia*, when the Nymph lay ſleeping on a River's Brink, and the Clown views her.

The fanning Wind upon her Boſom blows,
To meet the fanning Wind her Boſom roſe;
The fanning Wind and purling Stream continue her Repoſe.

We come now to the other Parts of *Poeſy*, and the Lyrick or Ode has been put next in order. Indeed the Ode is by ſome reckon'd part of *Epick*

Poetry, and ſo is *Paſtoral*, according to *Rimer* and *Rapin*; wherefore *Paſtoral* being the moſt Ancient of all *Poeſy*, we ſhall ſpeak of it firſt. *Paſtoral Poeſy*, ſays *Fontenelle*, *is apparently the moſt Ancient of all Poetry, becauſe a Shepherd's Life is the moſt Ancient of all Ways of living.* We ſhall not enter into his Speculations on this Subject, but agree with him in the main, that *Paſtoral* ſhould not be ſo Rude as the Country Convacation, nor ſo Polite as that of a Court. But, as *Boileau* ſays, appear like a Rural Nymph at a Sylvan Feaſt, fine with the Ornaments that ſhe took from the Fields.

Telle qu'une Bergere, au plus beau jòur de Fete,
De ſuperbes rubis ne Charge point ſatête.
Et ſans meler à l'or l'eclat des Diamans,
Cueuille en un Champ voiſin ſes plus beaux Ornemens.
Telle, &c.

Of the Ancients, *Theocritus* and *Virgil*; of the Moderns, *Taſſo* and *Spencer* ſucceeded beſt in this Way. We have hardly ſeen any Poem, later than *Spencer*, of this kind worth remembring. And were it allow'd us to have freedom of Speech on this occaſion, we might venture to ſay, that *Spencer*'s Shepherds are often too Ruſtick, and yet ſometimes too ſpeculative. Mr. *Dryden*, who did ſo well in every other Way, ſeem'd to have been no Maſter of the *Bucólick* manner. Shepherds ſhou'd never go out of their Woods; all the Similes in *Paſtoral* ſhou'd be taken from them; all the Sentiments be Tender and Natural, Soft and Eaſy, which ſhould alſo be the Character of the Stile and Numbers, unleſs where the Fable is ſo contriv'd, as to admit naturally of an old Swains talking of higher Things than Sheep and Herds, to teach or inform the younger. The *French* have had abundance of Writers endeavour to excel in the *Eclogue*, but all of 'em have miſcarry'd, except *Segrais*, who tranſlated *Virgil*; and even he, will hardly bear an Exception, ſo difficult is it for a Nation, who are diſtinguiſh'd by Vanity and Affectation, to keep to Nature in any Thing. *Blank Verſe* agrees very well with *Paſtoral*, and being a nearer reſemblance of the Natural way of Speech than *Rhime*, muſt be moſt agreeable to that *Poeſy*, which comes neareſt to Nature, as *Paſtoral* does; we mean that will leaſt admit of *Licence* in the *Imitation.*

The Shepherd Thyrſis *ſitting by a Stream,*
Which with ſoft Murmur glided thro' the Plain,
Call'd ſage Menalcas *from his Flocks which graz'd*
On the green Banks of the delicious Brook,
And ſpeaking thus, perſwaded him to ſing.

The *Ode* makes more Noiſe, her Tone is high, her Sentiments bordering on Enthuſiaſm, her Numbers various, as occaſion requires; Harmony and Dignity are Eſſential in every thing relating to the *Ode*. *Pindar* and *Horace* are Patterns not eaſy to be imitated. The *French* have produc'd ſeveral Poets fond of writing in the *Ode*; but they ſeem to know no diſtinction that it has from other Poems but the Stanza, and might more reaſonably have kept to the *Italian* modeſt Name of *Stanze*. *Cowley* fell into the *Pindarick* way in *England*, and ſucceeded in it; but Mr. *Dryden*, in his *Ode* upon *Cecilia*, has excell'd all the Writers in the *Ode* ſince *Horace's* Days. Perhaps there's not an *Ode* in *Pindar* himſelf that can be compar'd to it for the Variety of the Numbers, the Harmony of the Cadence, and the Conformity of both to the Sentiments, a very difficult Task on ſo nice a Subject as Muſick. We ſhall only inſtance in one Stanza, where the Hero, by the Power of Harmony, is wrought up to believe himſelf a God.

Timotheus *plac'd on high,*
Amidſt the tuneful Quire,
With flying Fingers touch'd the Lyre,
The trembling Notes aſcend the Sky,
And heavenly Joys inſpire.
The Song began from Jove,
Who left his bliſsful Seats above,
(Such is the Power of mighty Love.)
A Dragon's fiery Form bely'd the God,
Sublime on radiant Spires he rode,
When he to fair Olympia *preſt,*
And while he ſought her ſnowy Breaſt;
Then round her ſlender Waiſt he curl'd,
And ſtamp'd an Image of himſelf, a Sov'reign of the World.
The liſtning Croud admir'd the lofty Sound,
A preſent Deity they ſhout around,
A preſent Deity the vaulted Roofs rebound.
With raviſh'd Ears
The Monarch hears;
Aſſumes the God,
Affects to Nod,
And ſeems to ſhake the Spheres.

There are ſofter Numbers in the following Stanza's, but not ſo much Majeſty and Variety as in this. The *Ode* is not always confin'd to what is great and ſublime, it deſcends ſometimes to Gallantry and Pleaſure.

Elle peint les Feſtins, les Danſes, & les Ris.

It paints the Feaſts, the Dances, and the Sports.

Theſe are by many call'd *Anacreonticks*, and in our Tongue are generally confin'd to the Meaſure of ſeven Syllables, or eight at moſt. The ſeven Feet Meaſure is the ſofteſt.

Phillis, *why ſhould we delay*
Pleaſure ſhorter than a day? Waller.

A charming *Anacreontick* by the Author of

Anger in haſty Words or Blows,
It ſelf diſcharges on its Foes.

a famous Poem on Love in the eight Syllable Meaſure. The Sonnet, or Song, varies its Numbers or Feet at the pleaſure of the Author, but commonly 'tis a *Quartrain* of Alternate Rhimes; the firſt Verſe of eight Feet, the ſecond of ſix.

Her Eyes are like the Morning bright,
Her Cheeks like Roſes fair,
Her Breaſts like water'd Lillies white,
Like Silk her flowing Hair.

Elegy is a Poem invented to complain of Miſfortunes of all kinds, but eſpecially to mourn the Death of Friends, or the Cruelty of a Miſtreſs. The Paſſions of Grief and Deſpair ſhould predominate.

nate. The Numbers and Sentiments ſhould be ſoft and ſweet, the Meaſure, *Heroick Verſe* as moſt ſolemn. *Point* the diſtinguiſhing Character of *French* Wit, ſhould be baniſh'd as being contrary to *Paſſion.* *Ovid* and *Tibullus* are the Patterns of this kind of Writing. *Voiture* and *Sarraſin* in *France* wrote Elegies with Succeſs. In *England* we have none that deſerves naming, but ſome few Tranſlations, as this taken out of the Elegy of *Gallus.*

Henceforth farewell the Lovers ſoftning Joys
The Warbling Lute, ſoft Pipe and mellow Voice,
Farewell! Tho' Muſick be the Food of Love
No Tuneful Numbers can my Paſſion move.
The Sparkling Juices tho' by Beauty Crown'd
Are hurtful grown, and muſt no more go round,
Nor Artful Meaſure beat the burthen'd Ground;
The Savage Game no more Delight can yield,
Farewel the Manly Pleaſures of the Field.

By Elegy the moſt underſtand Verſes written on the Death of People only; but any Poem made to complain of any Misfortune or Trouble whatſoever is of this Kind, which is Beautiful and Perfect only when it touches the Heart.

Il faut que le Cœur ſeul parle dans l'Elegie. Boileau.

The *Rondeau* is a ſort of Poem of as mean a Character as our *Anagram*, 'tis of *French* Original. A very great Wit of *France* [*Benſerade*] having turn'd *Ovid's Metamorphoſes* into *Rondeaus.* Ballad by the Name ſhould be of the ſame Deſcent; as alſo the Madrigal, which we know only by the Name of *Song.* The Epigram is more valuable, becauſe its diſtinguiſhing Character is Wit, and the Chief Beauty of it *Point.* 'Tis a meer lucky Hit if it proves well, and *Rimer* ſays that's ſo rare, that 'tis ſufficient to have made one in a Man's Life. *Point* is hardly tolerable in any ſort of Poetry but this,

As Old as the World, yet an Infant is Love;
Tho' the leaſt of the Deities greater than Jove.
He fills with his Fire, the Earth, Seas and Skies;
Yet Cloe *contains the whole God in her Eyes.*

This hopping Meaſure is not ſo proper for *Epigram* as for

Satyr, which brings us to that Part of Poetry. By Satyr is not meant thoſe wretched Libels and Lampoons which ſome Infamous Scriblers diſperſe daily againſt the Reputation of Particular Perſons without Reaſon or Provocation; but that juſt Reſentment of Publick and General Follies and Crimes, which, according to Mr. *Rimer, may make Satyr of great Advantage to the State when taught to keep within Bounds.*

Fools and Knaves hate to ſee their Pictures; and tho' Knavery and Folly be drawn abſtractedly, yet each Fool and Knave takes a Cap to himſelf, which makes it dangerous to meddle with this Muſe.

A Man ought not to write *Satyr* but with his Sword in his Hand, and that's not often enough; for Aſſaſſinating has been heard of out of *Italy.* Truth ſtrikes too cloſe, and he who is a Friend to her muſt be an Enemy almoſt to every thing elſe. *Horace, Juvenal* and *Perſius* are the Satyriſts of the Ancients; *Boileau* the moſt Famous among the Moderns. The Lord *Rocheſter* had a fine Genius for Satyr, and had he Cultivated it, he wou'd have been too hard for *Boileau.* *Oldham* got a great Reputation by his *Satyrs*; but he did not come near *Dryden*, whoſe *Abſalom* and *Achitophel* is a Maſter piece. *Dryden* was as Good a *Satyriſt* as ever wrote, and laſh'd home when he took the Rod in his Hand, for which he was himſelf drubb'd, it being much eaſier for a Coxcomb to hire a Parcel of Fellows to beat a Man, than to vindicate himſelf againſt Juſt Satyr, which is only Juſt when 'tis General; or if Particular, ſo contriv'd as to be of General Uſe. It muſt be True or 'tis a Libel, and accountable to the Law: It ſhould be ſtrong to ſtrike powerfully, and the Stile and Manner be Manly and Smooth, as theſe following Verſes by Mr. *Dryden* againſt Popery.

Such Sav'ry Deities muſt needs be good
As ſerv'd at once for Worſhip and for Food.
They rak'd for Converts even the Court and Stews.
——————— *but who can know*
How far the Devil and Jebuſites can go.
If Written Words from Time are not ſecur'd
How can we think have Oral Sounds endur'd.
Abſ. *and* Achit.

Mr. *Dryden* againſt the Church of *England.*

A Lyon Old, Obſcene and Furious made
By Luſt Compreſt her Mother in a Shade,
To Foreign Lands no Sound of her is come
Humbly Content to be deſpis'd at home.
Hind *and* Panther.

We might carry on theſe Inſtances much farther, but we are not fond of ſhewing our Reading or Induſtry when there's no immediate Occaſion. No Gentleman can have a Judgment of a Thing any way ſo well as by Example, which was the Reaſon we have made ſo many Quotations. Beſides, we live in an Age which, perhaps like other Ages before, will not endure Opinion to paſs for Authority, unleſs it has the Sanction of ſome Illuſtrious Name. There's none of greater Luſtre than Mr. *Dryden's*, notwithſtanding the Inconſtancy both of his Judgment and Principles. He was the beſt Poet for Verſification in any Age ſince the *Auguſtan*, and his Faults were not ſo much Error in Knowledge as in Fancy and Humour.

We have another ſort of Verſe very proper for Satyr call'd *Burleſk*, a Word borrow'd of the *Italians.* *Butler* the Author of *Hudibras* brought it to Perfection: In his Mock Heroick Poem his Rhimes are ſo odd that they contribute to the Jeſt, and in that our Language is inimitable. 'Tis impoſſible to tranſlate

When Pulpit Drum Eccleſiaſtick
Was beat with Fiſt inſtead of a Stick.

A Man can't read that Couplet without Laughing at the Waggery of it if he Rhimes it; for when 'tis read *Inſtead of a Stick*, the Jeſt is loſt and the Verſe a miſerable one. There have been ſeveral Mock Heroick Poems, as the *Secchia Repita*, the *Lutrin*, &c. but the Meaſure was Heroick; whereas not only *Hudibras's* Fable, but his Rhimes, his Feet are Humorous and Comical. Of all his Imitators, My Lord *Dorſet* came neareſt to him in ſome ſhort Things of his Doing. Thouſands have endeavour'd to imitate him but cou'd never come up to him. If they cou'd make a Pitiful double Rhime or two jumble together at the End of Verſes they thought they had done well. Mr. *Cotton* of *Derbyſhire* attempted ſomething in this Kind and came off pretty well; but Nobody ever reach'd *Butler*, at leaſt in ſome Parts of his *Hudibras*, for 'tis far from being equal in e'ery *Canto*. One may ſay of him, what *Dryden* ſaid of *Milton*, That he's heavy for two or three hundred Lines together ſometimes; and if ever we ſhould ſee the Manuſcript Poem of his that is in the Hands of a Gentleman of the Inns of Court, we may probably be diſappointed in our Expectation of it. We have been told by Perſons who have ſeen it, that he wrote it in Diſguſt, and turn'd the *Satyr* on the Party who were his Heroes in *Hudibras*; for *Butler's* Fate was like that of his Brethren of Merit, to be applauded and yet neglected. *Dryden* ſays of him, by way of reflecting on the Church,

Unpity'd Hudibras, *Your Champion Friend,*
Has ſhewn how far your Charities extend.
Hind *and* Panther.

Several Men of Quality have written ſome little Papers of Verſes in this way with Succeſs, as the late Mr. *Walſh* and others, both dead and living; which Verſes are to be met with in the Miſcellany Collections. *Burleſk* is proper for Lampoon, if Lampoon may be at any time proper; but 'tis a Gift of Verſifying, which is harder to be acquir'd than the moſt Harmonious and Beautiful. The more the Feet hobble in moſt Places the more Perfect is the Meaſure. We can't ſay the Harmony, for whoever write Burleſk think that the leaſt Part of their Poetry.

Thus we have gone thro' all the ſeveral Kinds of *Poetry* in Uſe among us, except what ſome Old Faſhion'd Bards and ſome Boys at the College are fond of, *Acroſtick* and *Anagram*, which however are not much viler than the *French Bouts-rimer*, a Diverſion, that took up the Court Wits of *France* Fifty Years ago, ſo much that we have *Bouts-rimer* of *Voiture* and *Sarraſin*, tho' the latter wrote a Mock Heroick Poem againſt them, call'd *Dulot Vaineu*. The Way was to give Ten, Twelve or more Rhimes for Couplets, and the Poet was to fill them up, as ſuppoſe

Love *Fair* Cloe *you believe I* | *Love*
Move *And yet I can't your Pity* | *Move,*
Coy *Weary at laſt of being* | *Coy*
Joy *You'll covet when you're paſt the* | *Joy.*

But in this Trifling way of Verſifying the Myſtery was to make the Words have as little Agreement with one another as poſſible, as

Cold — Tho' Your Heart be ne'er ſo — Cold
Gold — He'll heat it 'till it melts with — Gold.

As much as we have trifled in *Engliſh* Poetry we have had nothing like this, for *Anagram* and *Acroſtick* were in Vogue abroad as well as here, and no where us'd but by mean Poets, and no where lik'd but by the Rabble.

We are very ſenſible that this Treatiſe might have been more *Regular* and *Perfect*. As to the *Regularity*, 'tis the Nature of an *Eſſay* not to require it; and as to *Perfection*, beſides Incapacity to reach it, Room was wanting, and we thought *Rules* might be better ſpar'd than *Examples*.

'Tis a hard Task to write on Poetry or in Poetry, it being a Science in which almoſt every Mortal living thinks himſelf a Judge, tho' he dares not paſs his Opinion on a Piece of Clock-work, or any much meaner Performance in Mechanicks. All Men pretend to Wit, and think they are Entitled to judge of what they poſſeſs. They taſte, 'tis true, only as directed by Party, Intereſt, Friendſhip or Malice, by which only they like or diſlike.

'Tis eaſy to find fault, but difficult to diſcover Beauties; he who can do it muſt have a Part of the Genius which produc'd them. By this means the World is crowded with Criticks, who can tell when they ſee a Blot; but when any thing is happily executed, they paſs it over thro' Envy, but oftner thro' Ignorance, for the Ignorant are, and ever were the Majority, and thoſe who know leaſt muſt ſevere, as Mr. *Dryden* aſſures us by Experience.

For he more fears like a preſuming Man
Their Votes who cannot judge, than theirs who can.

RHETORICK.

RHETORICK.

RHETORICK, as the Word ſhews, which is originally *Greek*, ſignifies *The Art of Speaking*. The Common Idea of Rhetorick is, that thoſe who underſtand it are capable of Perſwading, that is, to ſpeak ſo that they may engage ſuch as hear them to think as they do. For this reaſon there are ſome who define Rhetorick to *be the Art of well Speaking for Perſwaſion*. But the *Art of Speaking* ſeems to be ſufficient to define it, and the Addition of *for Perſwaſion* to be uſeleſs. We have treated of Words in our Diſcourſe of Grammar, and ſhall therefore ſay nothing of 'em here, tho' they are to be conſider'd as the Foundation of Rhetorick; which Art is divided into Five Parts, *Invention*, *Diſpoſition*, *Elocution*, *Memory*, and *Pronunciation*. That is, in order to perſwade, the Perſon who wou'd engage thoſe that are of contrary Sentiments to embrace his, muſt put his Thoughts in order; and after having made this Diſpoſition of what he invented in his Mind, make uſe of proper Words to communicate the Thoughts he has conceiv'd; he muſt retain in his Memory what he writes down, to pronounce it afterwards. When one defends a Truth, if it were not for Intereſt, Paſſion or Humour, there wou'd be no need of any thing but good Proofs, the Light of which diſperſes all the Obſcurity that hides it: But ſince Mankind generally are no great Lovers of Truth, at leaſt thoſe who are byaſs'd by Humour, Paſſion and Intereſt, if we wou'd perſwade them againſt any thing that ſhocks their Inclination, Reaſon only will not ſuffice, we muſt make uſe of Addreſs. In the firſt place we muſt ſtudy that Inclination and Humour to engage them to hearken to us; In the ſecond place, ſince every one judges according to his Paſſion, that a Friend is always in the right, and an Enemy in the wrong, we muſt raiſe thoſe Emotions in them that may incline them to our ſide. To which, the Maſters of this Art aſſign three Means in order to perſwade, Arguments or Proofs, Manners and Paſſions. They teach, that Proofs muſt be found out, that one muſt ſpeak conformably to the Inclination of thoſe we would gain over to us, that ſuch Paſſions ſhould be mov'd in them as are proper to incline them to that ſide whither we wou'd lead them, which brings us to

Invention, which is the firſt Part of Rhetorick. Clearneſs is the diſtinguiſhing Character of Truth; none can doubt of a Truth that's clear; no Body dares deny that the Whole is not greater than its Part, and that all the Parts are not equal to the Whole: Sometimes Men may turn away their Eyes not to ſee the clear Truths that ſtrike them, but when their Luſtre, in ſpite of all their Endeavours, reaches them, they muſt own it, and the Tongue cannot bely the Underſtanding. To convince thoſe that diſpute any Propoſition with us, becauſe it ſeems doubtful and obſcure, we muſt make uſe of ſeveral Propoſitions which admit of no difficulty, and then ſhew that the Propoſition in diſpute is the ſame with thoſe that are indiſputable. The Judges at *Rome* were doubtful, whether *Milo* had committed a Crime in killing *Clodius*, but did not doubt at all whether it was lawful to expel Violence with Violence. *Cicero* therefore, to prove the Innocence of the Perſon accus'd, did it only by theſe two Propoſitions, *One may kill him, who wou'd take away our Lives from us.* Milo *might kill* Clodius, *who wou'd have taken away his Life.* The one is clear, the other obſcure; one conteſted, the other receiv'd, and by conſequence the one being inconteſtable, the other ought to be the ſame. The Matter of the Art of Perſwaſion is not limitted; it appears in the Pulpit, at the Bar, in all Negotiations, in all Converſation; in a word, the End that we propoſe to our ſelves in the Commerce of Life, is to perſwade thoſe with whom we converſe, and bring 'em to our Sentiments. Wherefore, to be a Perfect Orator, and ſpeak to the purpoſe on all Subjects whatſoever, a Man muſt be Maſter of almoſt all ſorts of Knowledge, eſpecially every thing that relates to the Matter he has in hand. For the help of *Invention* in Oratory, the Orators have found out certain, ſhort and eaſy Methods to ſupply them with Arguments to diſcourſe properly on all Subjects, even ſuch as are entirely unknown to them. They diſtribute theſe Methods into certain Claſſes, which they call *Common Places*, and which the Logicians make a part of what they call *Topicks*. Common Places are general Advertiſements, which help all that conſult them, to remember all the Ways by which any Subject may be conſider'd. There may be a hundred ſeveral ways of conſidering a Thing. However, the Authors of the *Topicks* have been pleas'd to ſettle ſixteen *Common Places* only.

The firſt is the *Genus*, that is, one muſt conſider in any Subject what there is in it common with all other ſuch like Subjects; if we were to talk of a War againſt the *Turks*, we may conſider War in general, and draw Proofs from the generality.

The ſecond *Place* is *Difference*, one muſt examine what there is Particular in every Queſtion.

The third is *Definition*, that is, we ſhould conſider all the Nature of the Subject; for every Diſcourſe which expreſſes the Nature of a Thing, is the Definition of that Thing.

The fourth *Place* is the *Diviſion* or *Diſtribution* of the Parts contain'd in the Subject treated of.

The fifth is the *Etymology* of the Subject, ſhewing the Original and Signification of its Name.

The ſixth is *Conjugation*, which are Words that have Relation to the Name of the Subject, as that of Love has Relation to all theſe other Words, as to Love, Lovely, Loving, Loved, &c.

The ſeventh is *Similitude*, or the comparing two or more Things together.

The eighth, *Diſſimilitude*, or the diſagreeing of two or more Things in particular.

The ninth is *Contraries*, or Things which cannot both at the ſame time agree with one and the ſame Thing.

The tenth is *Oppoſites*, or Things which cannot agree alone.

The eleventh is *Compariſon*, or comparing one Thing with another. 'Tis of great importance to examine well all the Circumſtances of the Matter propos'd, what went before it, what are join'd to it, and what came after, diſtinguiſh'd in this Art by the Terms of *Antecedents*, *Adjuncts*, and *Conſequents*, which are the twelfth, thirteenth, and fourteenth Common Places. All the Circumſtances of an Action are generally compriz'd in this Verſe,

> *Quis*, *quid*, *ubi*, *quibus Auxiliis*, *cur*, *quomodo*,
> *quando.*

That is, we muſt examine who was the Author of the Action, what the Action was, where it was done, by what means, why, how, and when.

The fifteenth *Common Place* is the *Effect.*

The ſixteenth the *Cauſe.*

We muſt have regard to the Effects, of which the Thing treated of was the Cauſe, and to the Thing, of which it was its ſelf the Effect.

Theſe *Common Places* wou'd doubtleſs furniſh one with ample Matter for a Diſcourſe. The different Conſiderations of a Subject, will produce ſeveral Proofs; and this Method is enough to make the Invention of the moſt barren Underſtandings fruitful. By this we are taught, that if one was to ſpeak againſt a Parricide, we ſhould firſt enlarge on Parricide in general, and then report what it has in common with the Criminal. After this, the Circumſtances of the Parricide muſt be laid open, and its blackneſs fully repreſented, by Definitions, Deſcriptions, Diviſions; ſometimes the Etymology of the Name of the Thing ſpoken of, and the other Words that have relation to it, will give an occaſion of ſpeaking, and finding out good Proofs or Arguments. As in Theology, a Divine may make a large Diſcourſe of the Obligations that Chriſtians lye under to live religiouſly, by making them remember the Name they bear. Great Diſcourſes are lengthen'd out by Similitudes, Diſſimilitudes, Compariſons, which illuſtrate a Thing that's obſcure; in a word, the Circumſtantiating one Action with Antecedents, Adjuncts, and Conſequents, are ſometimes uſeful, and ſometimes alſo will rather tire than perſwade the Auditors.

As there are *Common Places*, ſo there are *Proper*, that is, ſuch as are proper only to certain Subjects. Before we Treat of the latter, we muſt obſerve there are two ſorts of Queſtions or Diſcourſes, a *Theſes* and *Hypotheſes*. A *Theſes* is a Queſtion which is not determin'd by any Circumſtance, either of Place, Time or Perſon, as if we ought to make War. An *Hypotheſis* is a Queſtion determin'd and circumſtantiated, as if we ſhould make War with the *Turks* this Year in *Hungary*. Theſe Queſtions are divided into three kinds, *Deliberative*, *Judiciary*, and *Demonſtrative*. For we deliberate whether we ought to do a Thing, or examine what Judgment ought to be made of it, or praiſe, or condemn it, each of theſe kinds has its *Proper Places*. There are, as has been ſaid, certain Advertiſements for each of 'em. As for the *Deliberative*, if one wou'd adviſe another to undertake a Thing, or give it over, he ſhould ſhew that it is uſeful or unuſeful, neceſſary or unneceſſary, poſſible or impoſſible; that the Event will be advantageous or prejudicial, that the Undertaking is juſt or unjuſt.

A Queſtion in the *Judiciary* kind, may be conſider'd in one of theſe three Conditions; either we do not know the Author of the Action treated of, and then becauſe we endeavour to diſcover that Author by Conjecture, that Condition is call'd the Condition or State of *Conjectures*: If the Author is known, we examine the Nature of the Action; as for Example, a Thief ſteals a Trunk out of a Temple, depoſited there by a private Perſon; we examine whether that Action ought to be call'd Sacrilege or a Theft, and ſeek for a Definition of the Crime: Thus this Condition is call'd the *State of Definition.* The third is call'd that of Quality, becauſe we examine the Quality of the Action, whether juſt or unjuſt.

As to the firſt Condition, we muſt conſider whether he, who we ſuſpect to have done the Action, cou'd do it, and whether we have any Token of it; then what his Diſpoſition may be, whether he had any Intereſt in doing it, his Power and Means to do it. One may find out whether he was really the Author of the Action propos'd, by the Circumſtances of it, as if he was found alone in the Place where it was done; if before, or after the doing it, he did or ſaid any thing that might give reaſonable cauſe of Suſpicion. As for the ſecond Condition, we muſt only conſider the Nature of the Action; and Reaſon, Laws, Cuſtoms, Agreements, Equity, &c. are to direct one in the *Third.*

In the *Demonſtrative* kind, to praiſe or condemn, we muſt report the Good or Evil of the Subject in hand. In Man there are three ſorts of things that may come under the Denomination of Good; the one relates to the Body, the other to the Mind, the other depends upon Fortune. This Treatiſe might be enlarg'd by entring into the Detail of theſe and other Matters relating to *Rhetorick*, but it will not anſwer the Intention of this Deſign; which, as has been, and will be often hinted, is only to give Gentlemen ſuch Idea's of the Sciences, that they may know them when they ſee them, and diſtinguiſh the one from the other.

We come now to the ſecond Part of Rhetorick, which is *Diſpoſition*, in order to perſwade, the Auditors muſt liſten favourably to what they ſhall hear, which is the firſt Thing to be done; the ſecond is to give them ſome Knowledge of the Affair that is treated of, that they may know what we are upon. We muſt not only bring Proofs of our own, but deſtroy thoſe of the Adverſary; and in a Diſcourſe of length, 'tis neceſſary to ſum up all in a few Words at the end. Thus, an Oration is divided into five Parts; the firſt is call'd an *Exordium*, or Entrance; the ſecond, the Narration or Propoſition; the third, the Confirmation, or Proofs, to confirm the Truth of what has been ſaid; the fourth, Refutation, or deſtroying the Evidence brought by the Enemy againſt the Truth defended; the fifth, the Concluſion, or Recapitulation.

The Orator ought to propoſe three Things to himſelf by the *Exordium*, to gain the Favour, Attention, and Docility of the Auditory. The way to gain their Favour, is to give them evident Signs, that we talk out of a pure Zeal for the *Truth*, and a Love for the Publick Good; we draw their Attention by putting what is moſt noble and ſhining in the Subject we ſpeak of in the *Exordium*. An Auditor becomes docile when he likes the Speaker, and is attentive. When 'tis ſaid that an Orator ſhou'd draw the Attention of the Auditory by placing the moſt noble and ſhining Parts of his Subject in the *Exordium*, it muſt be done with Modeſty, and without Affectation. And he muſt be ſure not to take a Tone which he cannot hold in, nor one that's above the Subject; the Conſequences of which will be pernicious to his Diſcourſe, and ridiculous to himſelf.

Quid dignum tanto feret hic promiſſor hiatu?
Parturiunt Montes. Naſcetur Ridiculus mus.

Orators ſometimes come to the *Propoſition* without any *Exordium*, and that is to be done only when the Juſtice of the Cauſe defended appears in what is propos'd. If a Queſtion only is to be handled, 'tis ſuſpicious to propoſe it in a few Words. If 'tis an Action, it ought to be related with all the Circumſtances that are true, for falſe and invented ones will injure the Truth of the Action. As to the *Confirmation* or Proofs; The Rules for managing of them, are as follow: Firſt, the Orator ought to conſider the Subject he is to ſpeak of, throughly examining every part of it, that he may the better find out which way he may ſhew the Truth, or diſcover the Falſhood with moſt effect. This Rule requires a great Extent of Underſtanding to put it in Practice.

The ſecond relates to the Clearneſs of the Principles, on which he founds his Argument.

The third to the Connexion between thoſe Principles, and the Conſequences drawn from them. In managing of Arguments, the Rhetoricians generally adviſe us to place the ſtrongeſt firſt, the weakeſt in the middle, and reſerve ſome of the ſtrongeſt for the end: The natural Order that ought to be obſerv'd in the Diſpoſition of Arguments, is to place them ſo that they may ſerve for ſteps, by which the Auditors may arrive at the Truth.

Refutation does not require any particular Rules, when a Man knows how to prove a Truth, he will eaſily diſcover Error, and refute it. As to what has been ſaid concerning Principles and their Connexion, with the Conſequences drawn from them, it ought to be remember'd in examining the Falſhood of the Adverſary's Principles.

The *Concluſion*, or Epilogue, ſhould conſiſt of a Recapitulation of the Subſtance of the Diſcourſe, that it may be kept freſh in the Minds of the Auditors, who will often be diſtracted in their Thoughts by the Number and Variety of the Things they hear. The manner of ſumming up the Subject-Matter of an Oration, in a few Words at the Cloſe, will be beſt learn'd by reading the Orators, eſpecially *Cicero*, who particularly excell'd in his Epilogues, where he collected together, with the greateſt Art and Addreſs, what had been ſcatter'd up and down in his Orations.

There remain only three Parts of this Art to be diſcours'd of, as *Elocution*, or the manner of expreſſing Things after their Invention and Diſpoſition, *Memory* and *Pronunciation*. 'Tis true, ſome Rhetoricians, but of the weaker ſort, divide the Art of Rhetorick into *Elocution* and *Pronunciation* only. To which they add *Invention* and *Diſpoſition*. They might have as well divided *Heroick* Poetry into *Diction* and *Numbers*: To which it was not thought improper, as it has been phras'd, with Reſpect to Rhetorick, to add *Fable* and *Action*. The Elliptical Fables, publiſh'd in *France*, gave riſe to this notable Diviſion, but *Elocution* has ſince been reduc'd to a lower degree, and has now the honour only to ſtand foremoſt in the laſt Claſs of the Parts of the Art of Rhetorick.

However, *Elocution* is that which, like the *Diction* of *Poetry*, ſooneſt affects the Auditor; and he who cannot judge of the Invention and Diſpoſition, will determine as to the goodneſs or badneſs of the Expreſſion: For Eloquence is a Gift, which tho' few enjoy, there are few who think they want it.

The Perfection of *Elocution*, conſiſts in apt Expreſſions, and a juſt and beautiful Order of placing of Words: To which may be added an harmonious Ear to form a Muſical Cadence, which has no little effect on the Operations of the Mind. It will not be expected that we ſhould here enter into a Diſſertation on the Organs of the Voice, and the Formation of Words, or the Abundance and Variety of Terms in all Languages, and eſpecially in our own, more fruitful in the ſublime Parts of Eloquence, than thoſe that boaſt moſt of their Fertility, by the Confeſſion of Monſieur *Coſte*, in the Preface to his Tranſlation of Mr. *Lock*'s Eſſay upon Humane Underſtanding into *French*. Neither will it be neceſſary to ſay more of Grammar than has been ſaid. But as to the ordering and placing of Words, *Pere Lamy* in his *Rhetorick*, ſays, *Pour l' ordre des Mots, & les Regles qu il faut garder dans l' arrangement du diſcours*, &c. As to the Order of Words, and the Rules that are to be obſerv'd in the ranging of a Diſcourſe, natural Light ſhews ſo lively what is to be done, that thoſe who will follow it cannot err. This natural Light however is Genius, a Gift of Heaven, with which but few are endow'd; for without it there will be Diſorder, Poverty, or Stiffneſs, and nothing of that Elegance which Charms the Ear, and perſwades the Mind. Having mention'd this moſt ſhining part of *Elocution*, let us report what the abovemention'd *Pere Lamy* ſays upon it. " The fineſt Expreſſions become mean, when they " are prophan'd by the uſe of the Populace, who " apply them to mean Things. Thoſe who write " Politely, carefully avoid any Terms defil'd by " the Vulgar; and this is in part the occaſion of " the continual Change in Language.

Ut Sylvæ foliis pronos mutantur in Annos,
Prima cadunt, ita verborum vetus interit ætas,
Et juvenum ritu florent modo nata, vigentque.

" Perſons of Quality and Men of Learning raiſe " themſelves above the Populace, and avoid ſpeaking like them, *&c.* But beſides, the care of " keeping to the Laws of Cuſtom which reigns in " Language; and to ſpeak pure, it muſt be confeſt, that that which raiſes thoſe we admire above " the common ſort, is a certain Art, or rather a " Happineſs they poſſeſs of finding rich and ingenious Phraſes to expreſs their Thoughts." This Art, or rather Happineſs, what we call Tallent, which was never perfectly acquir'd without a Gift of Nature. For he goes on, " With a little " Care and Study one may eſcape the Cenſure of

“ the Criticks, but cannot pleaſe but by a Happi-“ neſs, which is very rare.” What fault is there to be found in the following Words, *'Tis to* Cadmus *that* Greece *owes the Invention of Letters; 'Tis of him that ſhe learn'd the Art of Writing.* We cannot find any thing blame-worthy in this Expreſſion, but we are charm'd to hear the ſame Thing expreſs'd in another noble and ſenſible manner.

From him we that ingenuous Art deriv'd,
Of painting Words and ſpeaking to the Eyes;
By him to trace thoſe various Figures taught,
Which Colour to our Thoughts and Body give.

This Choice of Rich and happy Expreſſions is what we call *Elegance*; but beſides this, to render a Diſcourſe Elegant, 'tis neceſſary we ſhou'd ſhew that Eaſineſs which is to be ſeen in Beautiful Statues, and in *Latin* is term'd *Elegantia Signa*. This Eaſineſs conſiſts in making uſe of Natural Expreſſions to avoid ſuch as ſeem affected, and diſcover the Pains the Orator was at to find them.

Theſe ſhort Reflections on *Elegance* can never be thought a Digreſſion in an Eſſay upon *Rhetorick*.

Elocution is generally divided into Two Parts, *Trope* and *Figure*. When we make Uſe of a Word to ſignifie a Thing which is not proper to it, and which Uſe has apply'd to ſomething elſe, That Manner of Expreſſion is Figurative, and thoſe Words which are carry'd from a Thing which they ſignifie properly, to another which they ſignifie but indirectly are call'd

Tropes, as much as to ſay Terms that are Chang'd and their Uſe Inverted. The Word *Trope* being deriv'd from the *Greek* τρέπω *Verto*. *Tropes* ſignifie the Things to which they are apply'd only on Account of the Connexion and Relation which thoſe Things have to thoſe whoſe Proper Names they are. For which Reaſon we may reckon as many ſorts of *Tropes* as we can denote different Relations; but the Chief *Maſters* of the *Art* have been pleas'd to Eſtabliſh a very few only, as a

Metonymie, which is put firſt becauſe 'tis a Trope of the greateſt Extent, and contains ſeveral other ſorts in it. The Word ſignifies one Name for another; every time that we make Uſe of any Name but that which is proper, ſuch an Expreſſion is a Metonymie, as Cæſar *ravag'd the* Gauls, *Every body reads* Cicero, London *is alarm'd*. 'Tis plain that *Cæſar* properly ſhould have been *Cæſar's* Army, *Cicero*, *Cicero's* Works, *London*, the Citizens of *London*. We ſhall give a brief Account of 'em all.

A *Synecdoche* is the Name of the Whole for the Part, or of the Part for the Whole; as when we ſay, *the Plague is in* England, *tho' it be but in* London, or, *'tis in* London, *tho' it be in all* England. To this Figure belongs the Liberty that is taken to Name a certain Number for an uncertain, as, *ſuch a Houſe has a hundred fine ways to it*, becauſe it has ſeveral; or when any one is ninety nine Years old and above, we ſay he's a *hundred*.

An *Antonomaſia* is a Kind of a Metonymie, as is a Synecdoche, as when we apply the Proper Name of One Thing to ſeveral others; or on the contrary apply a Name Common to ſeveral, to a particular one. Thus a Voluptuous Man we call a *Sardanapalus*, and ſay of *Cicero*, The Orator ſays ſo; Now Orator is a General Name, for all of that Profeſſion apply'd to a particular Perſon, and *Sardanapalus* to any Voluptuous Man, becauſe the King of that Name was ſo.

A *Metaphor* is when we put a Foreign Name for a Proper Name, borrow'd from ſomething like that we ſpeak of, as, *Kings are term'd the Head of their Kingdoms*, becauſe the Head is the Chief of all the Members of the Body.

An *Allegory* is when in Speeking we ſeem to ſay ſomething very remote from what we intend, as the Etymology of the Word ſhews, and this Example taken from a Deſcription of the Effects of Grace.

'Tis Grace that bound by her Eternal Laws
Sows in our Minds the Seeds of Saving Faith,
That gives it Root, and by her kindly Flames
New Buds produces in our Souls—— *'Tis ſhe*
That watches from on high and feeds its Wants,
That ever guards and makes it ever grow.
She's careful that no Weeds nor Storms ſhould hurt
The Growing Sprouts, nor choak the Seed Divine.
No Wind of Complaiſance, &c.

Let not the Reader think this Example too ſerious for him; It lay in our Way, and we could not have found a better.

A *Litotes* or Dimunution, is a Trope by which we ſay leſs than we think, as, *I can never praiſe you enough, I ſhall never be able to make you amends.*

An *Hyperbole* is a Trope by which Things are repreſented either Greater or Leſs than they are, as, *He goes ſwifter than the Wind, he creeps ſlower than a Snail.*

An *Irony*, by which we ſpeak the quite contrary to what we think, as when we ſay of a Known Rogue. *He's very honeſt*; and of a Woman of a Lewd Character, *She's wondrous chaſte.* The Tone of the Voice in Pronouncing Ironies, is generally the Chief Sign of this Trope.

A *Catachreſis* is the Freeſt Trope of all, as when we take the Liberty to borrow a Name quite contrary to the Thing we wou'd ſignifie, as a *Silver Inkhorn* in our Language, and *un Cheval ferrè d' Argent*, an Horſe Iron'd, as the *French* call it, with Silver, inſtead of Shoo'd. Theſe are the Chief *Tropes*, and it remains only to ſpeak a Word or two of the Uſe of them. 'Tis particularly in *Tropes* that the Riches of a Language conſiſt. And as too much Riches often breed Diſorders in Governments, ſo too many Tropes will occaſion abundance of Faults in a Diſcourſe. They ſhould never be employ'd but to expreſs ſomething which could not be ſo well expreſt in the Common Terms; and when Neceſſity obliges the Uſe of them, they muſt be clear and proportionated to the Idea of which one would give an Image. When Tropes are far fetch'd they are obſcure. As if we ſhould ſay, *A Brothel is the Syrtes of Youth*, we cannot find out the Senſe of this Metaphor, till we call to Mind that the Syrtes are dangerous Sands on the Coaſt of *Africa*. Metaphors ſhould be taken from Things which are ſenſible, which the Eye often meets with, and of which the Mind will form an Image without ſearching after it. Tropes ſhould not be us'd too often, for the multiplying 'em is a great Occaſion of their Obſcurity. The Neceſſity of uſing Tropes has been hinted before. If I would give an Idea of a Rock of an extraordinary Height, the Terms Great, High, Elevated, which are given to Rocks of a Common Height, will not do; but if I ſay Rocks which *threaten the Skies*, the Idea of the Skies, which are above all the reſt of the Productions of Nature; and the Idea of Threatning, which agrees with a Man that is above others, form an Idea of the Extraordinary Height of the Rocks, which could not be expreſt any otherwiſe than by this Hyperbole, in which we ſay too much for fear of ſaying too little. Great Care muſt be taken to temper your Expreſſions of this kind, and that there be always a Proportion between the Natural Idea of the *Trope*, and that which you wou'd infuſe into thoſe that hear or read it; eſpecially that the Trope does not beget one quite contrary to what you intended; by which, inſtead of pleaſing you provoke Laughter; as when a Metaphor gives ſuch a ridiculous Idea as this, *Morte Catonis Reſpublica caſtrata eſt*, The Common Wealth is gelt by *Cato*'s Death.

There are a thouſand ways of tempering any bold Expreſſion you have occaſion to make uſe of by adding ſuch ſoftning Terms as theſe, *If I may ſo ſay, To ſpeak more boldly.* Thus you prevent the Reader, by ſhewing you are careful of your Reputation.

Tropes well us'd are a Lively Picture of the Things treated of. When we call a Great Captain *the Thunder of War*, the Image of Thunder is a Senſible Repreſentation of the Courage and Power with which this Captain over-runs whole Provinces, of the Rapidity of his Conqueſts, and the Noiſe of his Fame and Arms.

Beſides, theſe Quick Expreſſions, foreign to the Subject which Uſe and Art ſupply us with, to be the Signs not only of the Emotion of our Thoughts but of our Wills, the Paſſions have a Particular Character by which they Paint themſelves in Diſcourſe. As we read in a Man's Countenance what paſſes in his Breaſt, by the Fire in his Eyes, the Frown in his Forehead, the Alteration of his Colour from Pale to Red, ſhew the Extraordinary Emotions of his Soul, ſo the particular Turns of a Diſcourſe, the Manner of Expreſſing ones ſelf different from what we ſhould obſerve in a perfect Tranquility of Mind, are Signs of the Agitation the Soul is under at the time of Speaking. The Paſſions cauſe us to think of Things otherwiſe than we do when our Minds are Calm and in Repoſe. They magnifie Objects, fix the Soul to them, and occaſion its being entirely taken up with them; for they almoſt make as much Impreſſion on it then, as the Things themſelves. The Paſſions often produce quite contrary Effects; they carry the Soul away with them, and bear it in an Inſtant thro' different Changes; they force it on a ſudden to leave the Conſideration of one Object to purſue another which they preſent to it; they precipitate it, interrupt it: In a Word, the Paſſions operate on the Mind of Man as the Winds do on the Sea; ſometimes they throw the Waters on the Shoar, ſometimes force them back again into the Boſom of the Deep, ſometimes lift them up to the Clouds, and ſometimes drive them down to the Center.

Words always anſwer our Thoughts; the Diſcourſe of a Man that's mov'd is never equal; ſometimes 'tis diffus'd and draws an exact Image of the Things which form the Object of his Paſſion; and he ſays the ſame after a hundred ſeveral Ways. At other times his Diſcourſe is ſhort, his Expreſſions maim'd, a hundred things are ſaid at once, the Thread is broken with Interrogatives, Exclamations, and interrupted with frequent Digreſſions. Theſe Turns and this manner of Speaking are as eaſy to be diſtinguiſh'd from the Common, as the Looks of a Man in a Paſſion are from thoſe when he is out of it. We eaſily ſee by what *Dido* ſays to *Æneas* after he had declar'd the Reſolution the Gods had oblig'd him to take to leave *Carthage*; that ſhe was mov'd in an extraordinary manner.

Falſe as thou art, and more than falſe, foreſworn;
Not ſprung from Noble Blood, nor Goddeſs born,
But hewn from harden'd Entrails of a Rock
And rough Hyrcanian *Tygers gave thee Suck.*
Why ſhould I fear, what have I worſe to fear?
Did he once look or lend a liſt'ning Ear,
Sigh when I Sigh, or ſhed one kindly Tear?
All Symptoms of a Baſe Ungrateful Mind
So foul, that which is worſe, 'tis hard to find.
Of Man's Injuſtice, why ſhould I complain?
The Gods and Jove *himſelf behold in vain*
Triumphant Treaſon, yet no Thunder flies,
Nor Juno *views my Wrongs with Equal Eyes,*
Faithleſs is Earth, and Faithleſs are the Skies.
Juſtice is fled, and Truth is now no more,
I ſav'd the Shipwrack'd Exile on my Shoar,
With needful Food his Hungry Trojans *fed,*
I took the Traytor to my Throne and Bed,
Fool that I was— 'tis little to repeat
The Reſt, I ſtor'd and rigg'd his ruin'd Fleet.
I rave, I rave, a God's Commands he pleads,
And makes Heaven acceſſary to his Deeds,
Now Lycian *lots, and now the* Delian *God,*
Now Hermes *is employ'd from* Jove's *Abode*
To warn him hence; as if the Peaceful State
Of Heav'nly Powers were touch'd with humane Fate.
But go; thy Flight no longer I detain,
Go ſeek thy promis'd Kingdom thro' the Main.
Yet if the Heavens will hear my Pious Vow,
The Faithleſs Waves, not half ſo falſe as Thou,
Or ſecret Sands ſhall Sepulchre afford
To thy proud Veſſels, and their Perjur'd Lord;
Then ſhalt thou call on Injur'd Dido's *Name,*
Dido *ſhall come in a black Sulphry Flame*
When Death has once diſſolv'd her Mortal Frame;
Shall Smile to ſee the Traytor vainly weep,
Her Angry Ghoſt ariſing from the Deep
Shall haunt Thee waking and diſturb thy Sleep.
At leaſt my Shade thy Puniſhment ſhall know,
And Fame ſhall ſpread the pleaſing News below.
Dryd. *Virg.*

Theſe Turns, which are Characters drawn out in the Mind by the Paſſions, are the famous Figures ſo much talkt of by the Rhetoricians, which they define thus; *Figures are Manners of Expreſſion diſtinct from thoſe that are Natural and Common*, which Definition being very plain, we ſhall proceed to the Uſe of Figures.

There are Three Reaſons that make them neceſſary in Diſcourſe; as Firſt when we make a Perſon ſpeak who is mov'd by any Paſſion. To Paint that Paſſion livelily we ought to introduce all the Figures that are proper, and give the Diſcourſe that Turn which a Perſon in the ſame Paſſion wou'd give it. The Second Reaſon is ſtronger, and a greater Proof of the Neceſſity of uſing Figures. You cannot touch another if you do not ſeem to be touch'd your ſelf.

——Si vis me flere, dolendum eſt
Primum ipſe tibi—— ——

Weep firſt thy ſelf, if thou wou'dſt have me weep.

None can obſerve we are mov'd, unleſs our Words expreſs ſome Emotion of the Soul. The Third Reaſon is ſtill more Conſiderable. Animals know how to defend themſelves, and acquire or preſerve the Strength that is uſeful to them. Such as believe they are not meer Machines, ſhew ingeniouſly that their Bodies are ſo organiz'd as without the help of a Soul to direct them; they can defend themſelves and fight for their Preſervation. We our ſelves Experience that our Members without the Participation of the Mind, diſpoſe themſelves in the moſt proper manner to avoid Injuries. The Body aſſumes the Poſtures that are proper to attack and defend; the Hands and Feet expoſe themſelves for the Preſervation of the Head; the Feet ſtand firm to ſupport the Body, and enable it to reſiſt the Efforts of the Enemy; the Arm extends itſelf, and the Hand clinches to ſtrike with Force; the whole Body plies, bends, gathers up together to avoid Blows or prevent falling; all this is done almoſt naturally and without any Reflection.

It muſt not be imagin'd that Figures in Rhetorick are only certain Terms invented by the Rhetoricians for the Ornament of their Diſcourſe. God has not deny'd to the Soul what he has granted to the Body. If the latter knows how to repel Injuries, the former can defend itſelf as well, and Nature has not made it immoveable. When 'tis attack'd, all the Figures which it makes uſe of in Diſcourſe when it is mov'd, have the ſame Effect as the Poſtures of the Body: If theſe are proper to defend it in Corporeal Attacks, Figures in Diſcourſe are as proper for the Defence of the Mind. Words are the Spiritual Arms of the Soul with which it perſwades or diſſwades. 'Tis impoſſible to tell all the different Poſtures which the Paſſions make the Body aſſume, and to expreſs all the Figures which Paſſions employ in turning and winding a Diſcourſe. We ſhall therefore ſpeak only of the moſt remarkable, and ſuch as are commonly treated of by the *Maſters* of this *Art*. The different Turns of Diſcourſe occaſion'd by different Paſſions and different Ways of Expreſſion are the Reaſons why the *Maſters* of the Art have given them different Names. The firſt that lies in our way is

Exclamation, plac'd at the head of the others, becauſe the Paſſions begin by her to ſhew themſelves in Diſcourſe; every Wave that's rais'd in the Soul is follow'd by an Exclamation. Men in Paſſion when they ſpeak are always crying out *Alas! Ah! Oh Heaven! Oh Earth*, &c. Nothing is more natural. We ſee, that aſſoon as an Animal is wounded or hurt, it cryes out as if Nature made him demand Aſſiſtance. The next Figure is

Doubt. The Motions of the Paſſions are not leſs Changeable and Inconſtant than the Waves of the Sea, by which means ſuch as abandon themſelves to the Violence of their Paſſions are in a perpetual Diſquiet, ſometimes they will, ſometimes they will not. They undertake a Thing, and then give it over; they approve and diſapprove almoſt at one and the ſame Time. This Irreſolution is the Figure which is call'd Doubt, and there's a Fine Example of it in *Virgil*, when *Dido* ſhews herſelf irreſolute what to do upon *Æneas*'s abandoning her.

Then thus ſhe ſaid within her ſecret Mind,
What ſhall I do, what Succour ſhall I find?
Become a Suppliant to Hyarba's *Pride,*
And take my Turn to Court and be deny'd?
Shall I with this Ungrateful Trojan *go,*
Forſake an Empire and attend a Foe?
Himſelf I refug'd and his Train reliev'd
'Tis true? But am I ſure to be receiv'd?
Can Gratitude in Trojan *Souls have place,*
Laomedon *ſtill lives in all his Race?*
Then ſhall I ſeek alone the Churliſh Crew,
Or with my Fleet their flying Sails purſue?
What Force have I, but thoſe whom ſcarce before
I drew reluctant from their Native Shoar?
Will they again embark at my Deſire,
Once more ſuſtain the Seas, and quit their ſecond Tyre?
Rather with Steel thy Guilty Breaſt Invade,
And take the Fortune thou thy ſelf haſt made.

An *Epanorthoſis* is when a Man in a Paſſion is never ſatisfy'd with what he has ſaid and done. The Warmth of his Emotion wou'd puſh him ſtill farther. Thus the Words he has made uſe of not ſeeming ſtrong enough, he condemns his faint Expreſſions as too weak, and Corrects his Diſcourſe by adding others that are ſtronger.

No, Cruel, thou wer't never Goddeſs born
A Tygreſs nurſt thee at her bloody Paps,
And dreadful Caucaſus, *who in a rage*
Begot Thee, harden'd, like his Rocks, thy Heart.

This Figure is *Greek*, and ſignifies *Correction*.

An *Ellipſis* is when a Man is in ſo violent a Paſſion that he cannot ſpeak all he would ſay. The Tongue is too ſlow to keep Company with it; and indeed Paſſion is beſt expreſt by Broken and Interrupted Expreſſions. The Father in *Terence* being enrag'd againſt his Son, ſays only, *Omnium, Of all Mankind*——His Choler abounded ſo he cou'd not finiſh what he was going to ſay, *Hominum peſſimus, thou art the Worſt*, is underſtood. An *Eillpſis* is the ſame thing in our Language as an Omiſſion.

An *Apoſiopeſis* is a kind of *Ellipſis*; 'tis when a Man Changes from one Paſſion to another, or gets out of all Paſſion on a ſudden, or breaks off his Diſcourſe ſo, that ſuch as hear him have much ado to find out what he means. This Figure conſiſts commonly in Threats, as *If I ſhould*—— *I'll*—— *But*——&c.

Quos ego — ſed motos præſtat componere fluctus.

An *Hyperbaton* is nothing but a Tranſpoſition of Thoughts and Words from the Natural Order of Diſcourſe. 'Tis ſometimes treated of as a Figure in Grammar, but ought rather to be taken Notice of as one that bears the Character of a ſtrong and violent Paſſion. Let us ſee how *Longinus* talks on the like Occaſion; " In Effect conſider well all " ſuch as are mov'd by Anger, Fear, Spite, Jealouſy, or any other Paſſion whatſoever; for there's " ſo many we cannot determine their Number: " Their Minds are in continual Agitation; they " ſcarce form one Deſign before they conceive " another, and in the midſt of that propoſe new

“ ones to themſelves, which have no Connexion
“ nor Relation to it, after which they often re-
“ turn to their firſt Reſolution. Paſſion is in them
“ like a light inconſtant Wind that drives and
“ turns them inceſſantly from one Side to another.
“ Thus in this perpetual Flux and Reflux of oppo-
“ ſite Sentiments, they Change Thoughts and Lan-
“ guage, every Minute, and obſerve neither Order
“ nor Sequel in their Diſcourſe.

A *Paralipſis* is a Feint, as if one wou'd omit what is ſaid, and a Feint that is very natural. When a Man is mov'd, Reaſons crowd in upon the Mind; he is deſirous to make uſe of all of 'em, but is afraid of being tireſome; and beſides, the Activity of his Agitation hinders his ſtopping at all of 'em. Thus he produces 'em all at once, making as if he did not ſpeak of 'em at all, that is, not ſtop to enlarge on every one as much as he might have done: as for Inſtance, *I will not mention*, Gentlemen, *the wrong my Enemy did me, I willingly forget the Injuries I receiv'd from him, and ſhut my Eyes to all his Machinations againſt me.* There's a fine Example of this Figure in the Epiſtle to the *Hebrews*, where the Apoſtle numbers up all thoſe who had been eminent for their Faith under the Diſpenſation of the Law. *And what ſhall I ſay more? for the Time would fail me to tell of* Gideon, *and of* Barak, *and of* Sampſon, *and of* Jephtha, *and of* David *alſo, and* Samuel, *and the Prophets.*

Repetition is a very Common Figure in Diſcourſes where Paſſion predominates. There are two ſorts of Repetition, the one is of Words, the other of Things.

Fame ſhall her Juſtice o'er the World proclaim
And fill the liſt'ning Nation with Applauſe.
Her Juſtice ſhall to all Mankind be known,
And ev'ry Tongue her wondrous Goodneſs praiſe.

Here the Things are treated of in other Words; the Repetition of the latter is as thus,

In Crowning him they Crown'd the beſt of Kings.

This Figure is not only moſt Beautiful but moſt Uſeful in Poetry, where the Repetition of the ſame Words may be diſpos'd with ſo much Art, that by anſwering to one another they may make an agreeable Cadence to the Ear.

A *Pleonaſm* is when we ſay more than is neceſſary, as, *I heard it with my own Ears.* It comes from a *Greek* Word which ſignifies *ſuperabound.*

A *Synonomy* is when we expreſs the ſame Thing by ſeveral Words, that have the ſame Signification, which happens when the Mouth is not ſufficient for the Heart, and then we make uſe of all the Words we can think of to expreſs our Thoughts, as, *abiit, evaſit, erupit,* He's gone, He's flown, He's eſcap'd.

An *Hypotypoſis* is when the Objects of our Paſſions ſeem to be before our Eyes, and we hear and ſee them tho' abſent.

—— *Illum abſens abſentem auditq; videtq;*

This often comes into Dramatick Poetry, and expreſſes Paſſions very lively.

See there to Heaven on Angels Wings he flies,
And leaves new Tracts of glorious Light behind.

This Figure is call'd *Hypotypoſis*, becauſe it paints Things, and forms an Image which ſtands inſtead of thoſe Things, as the Greek Word ſignifies. 'Tis a ſort of Enthuſiaſm, which makes one fanſie we ſee Things abſent, and repreſents them ſo ſenſibly to the Eyes of ſuch as hear it that they think they ſee 'em alſo.

Deſcription is a Figure ſomething like it, but is not ſo lively; it ſpeaks of abſent Things as abſent, but in ſuch a manner, that it makes a very ſtrong Impreſſion, as in deſcribing a Storm.

The Sky was all in horrid Night involv'd,
Thro' which blue Lightning, ſhot its baleful Fires;
The Thunder roar'd, and rent the trembling Shoars.
The foaming Billows now to Heaven were toſt,
And on a ſudden to the Center, ſunk.
The frantick Winds from every Quarter rag'd;
The Clouds diſcharg'd another dreadful Sea;
The Ship no more repell'd the warring Waves;
The Sailors in Deſpair, their Labour ceaſt,
And let the Veſſel with the Tempeſt drive.

Diſtribution, another kind of *Hypotypoſis*, is when we enter into the Particulars of the Object of a Paſſion, as when St. *Paul* ſays, *I have been ſcourg'd with Rods thrice, I have been ſtoned once, I have ſuffer'd Shipwrack thrice,* &c.

An *Antitheſis* is alſo call'd *Oppoſition*; all Antitheſes, or Oppoſitions, Compariſons, and Similitudes, are Figures proper to repreſent Things clearly, being the Effects of that ſtrong Impreſſion made on our Minds by the Object of that Paſſion with which we are animated, and of which we are conſequently qualify'd to Talk exactly and clearly. 'Tis known by every Body, that oppoſite Things make each other the more Perceptible; as any thing white looks whiter, if plac'd by any thing that's black. As for Example of the *Antitheſis*, the following Verſe is ſufficient.

He gain'd by loſing, and by falling roſe.

A *Similitude* is ſo well known, that there's no need of giving either Definition or Example of it.

As a tall Oak, the Monarch of the Woods,
Defies the Winter-Winds and Autumn-Storms,
And keeps his Head aloft to mate the Clouds:
So when the Prince with adverſe Fortune ſtrove,
Great in Diſgrace, and Conſcious of his Worth,
He kept his Courage firm, and reach'd the Throne.

A *Compariſon* is different from a *Similitude*, only in that the former is more warm. There are Two things further to be obſerv'd, with Reference to Compariſons: The Firſt is, that there's no need of ſeeking for an exact Agreement between all the Parts of a Compariſon, and the Subject ſpoken of, ſeveral things are taken in only to render the Compariſon more lively, as in that which *Virgil* makes of a young *Ligurian* kill'd by *Camilla*, with a Dove in the Claws of a Kite. After having ſaid what was the principal thing on which the Compariſon was made, he adds, *Tum cruor, & vulſæ labuntur ab æthere plumæ.*

'Twas not neceſſary to ſay the Blood was ſeen to flow, and the Feathers to fall, that was not in the Compariſon, and ſerves only to make a ſenſible Image of a Dove torn in pieces by a Kite. Our Author makes the ſecond Obſervation in favour of this admirable Poet, to defend him againſt the Criticiſms of thoſe who condemn his Compariſon as too mean. But he ſhews his Art in his *Æneids*; in taking his Compariſons from ſimple Things, he wou'd eaſe the Mind of the Reader, which the Greatneſs and Dignity of the Subject had employ'd with too much Application. And to be ſatisfy'd that this was his Deſign, one need only read his *Georgicks*, where the Compariſons are on the contrary great and ſublime. We cannot ſuſpect that this Reflection will be thought an unneceſſary Digreſſion to any one. As for Inſtances of Compariſons there may be an infinite Number of all kinds given; but tho' 'tis probable we ſhall be thought to be put to it, when we have recourſe to the Old Teſtament for them; yet ſince we cannot meet with better for our Purpoſe, let us take 'em from that great Prophet *Iſaiah*, *The Ox knows his Owner, and the Aſs his Maſter's Crib, but Iſrael does not know, my People does not conſider.* Again, *Shall the Ax boaſt it ſelf againſt him that hews with it, or ſhall the Saw magnify himſelf againſt him that ſhakes it: As if the Rod ſhould ſhake it ſelf againſt them that lift it up, or as if the Staff ſhould lift up it ſelf as if it were no Wood.*

Suſpenſion. When we begin a Diſcourſe in ſuch a manner that the Auditor does not know what we wou'd ſay, and the Expectation of ſomething great renders him Attentive, this Figure is call'd *Suſpenſion*; as, *The Eye has not ſeen, the Ear hath not heard, neither hath it entered into the Heart of Man to conceive what God has prepared for them that love him.*

A *Proſopopœia* is when the Orator turns on a ſudden from his firſt manner of ſpeaking, and talks in the Perſon of another, as,

Bleſs me, he cry'd, what Horrors have I ſeen.

Quintilian ſays this Figure ought to be very artful, and touch very much, or elſe be very ſhocking. *Magna quædam vis Eloquentiæ deſideratur, falſa enim & incredibilia Natura neceſſe eſt, aut magis moveant quia ſupra vera ſunt, aut pro vanis accipiantur quia vera non ſunt.* He ſays further, this Figure ought to be ſoften'd, as *Cicero* has done it in this Example, *Etenim ſi mecum Patria, quæ mihi vita mea multo eſt charior, ſi cuncta Italia, ſi omnis Reſpublica ſic loquatur, M. Tulli, quid agis.* The Figure that in Latin is call'd *Sermocinatio*, or Dialogue, is a ſort of *Proſopopœia*. The Orator makes a feint of being ſilent, to let him ſpeak who is the Subject of his Diſcourſe.

Againſt the Foe, the mighty Hero rode,
With graceful Terror ſhone, and ſeem'd a God;
But ere he cut the Siſters fatal Thread,
He ſternly frown'd, and to the Tyrant ſaid,
But that I ſcorn to take thy hated Life,
What hinders me to end this fatal Strife?
Juſtice and Fate thy ſudden Death decree,
But tho' thou art to die, 'tis not by me.
Let ſome ignoble Hand, &c.

Sentences are only Reflections on a Thing that ſurprizes, and deſerves to be conſider'd. A Sentence is made in a few Words, which are full of Energy, and contain a great deal of Senſe, as this, *There's no ſort of Diſguiſe which can for any long Time hide Love where it is, nor Counterfeit it where it is not.* The Reflection which *Lucan* makes on the Error of the Ancient *Gauls*, who believ'd that Souls, when they went out of one Body, enter'd another, may ſerve for an Example of a kind of Sentence, which is more extenſive.

Officious Fraud, agreeable Deceit,
The Fear of Death, the worſt of Fears cou'd ne'er
Fright the fierce Nations of the Gauls, *who found*
Reſt in their ſweet Illuſions; and from thence,
That Flame of Zeal was kindled in their Souls,
To face a Terror which new Life beſtow'd;
To brave all Danger, and the Battle ſeek,
Amidſt a thouſand Deaths, in Death it ſelf,
To be regenerate and live again.

An *Epiphonema* is an Exclamation that contains ſome Sentence, or more than ordinary Senſe, which is plac'd at the end of a Diſcourſe. 'Tis like the laſt Blow, and gives the Auditors a cloſe and lively Reflection on the Subject in hand. This Hemiſtick of *Virgil* is an *Epiphonema.*

——*Tantæne animis cæleſtibus iræ?*

Such Wrath in Heavenly Minds.

Lucan, by a ſort of *Epiphonema*, finiſhes that Complaint which he makes for the Inhabitants of *Rimini*, againſt the Situation of the City, which was expos'd to the firſt Irruption of either Civil or Foreign Wars.

Rome *never heard the Thunder of a Storm,*
'Till Lightning firſt had darted on our Heads.

An *Interrogation* is a Figure that's to be met with almoſt every where. In a figurative Diſcourſe, Paſſion carries us continually towards thoſe we wou'd perſwade, and cauſes us to addreſs every thing we ſay to 'em by way of Queſtion. For which Reaſon, the Interrogation has a wonderful effect in making the Audience liſten to what is ſaid. Nothing in this kind can be more moving than what our Saviour ſpoke concerning his being the Meſſiah, a Matter which requir'd their ſtricteſt Attention. Thus, in letting 'em ſee that *John* Baptiſt was the Fore-runner of the promis'd Miſſion of himſelf, he ſhew'd them he was the ſame according to *John* Baptiſt's Teſtimony. *What went ye out into the Wilderneſs to ſee? A Reed ſhaken with the Wind? But what went ye out for to ſee? A Man cloathed in ſoft Rayment? Behold they that wear ſoft Cloathing are in Kings Houſes. But what went ye out for to ſee? A Prophet? Yea, I ſay unto you, a Prophet, and more than a Prophet; for this is he of whom 'tis written, Behold I ſend my Meſſenger before thy Face, who ſhall prepare thy way.*

An *Apoſtrophe* is when a Man being extraordinarily mov'd, turns to every ſide, addreſſes himſelf to Heaven, to Earth, to Rocks, to Foreſts, to inſenſible Things, as well as ſenſible. He makes no difference in ſuch an Emotion, he cries out for Help on all ſides. Thus *David*, when he heard of the death of *Saul* and *Jonathan*, makes Imprecations againſt the Mountains of *Gilboa*, *&c.* The Elegy he ſung on that Occaſion, for 'tis in the Poetical Strain, is an incomparable Example of this Figure. *Ye Mountains of Gilboa, let there be no Dew, let there be no Rain upon ye; nor Fields of Offerings, for there the Shield of the Mighty is vilely caſt away, the Shield of Saul, as tho' he had not been anointed with Oil,* &c.

A *Prolepſis* is that Figure which is made when we prevent what the Adverſary may object; and an *Upobola* is the manner of anſwering the Objections that are thus prevented. There's an Example of both theſe Figures, in the Epiſtle to the *Corinthians*, where St. *Paul* ſpeaks of the Reſurrection of the Dead. *But ſome Men will ſay how are the Dead rais'd up? And with what Body do they riſe? Thou Fool, that which thou ſoweſt is not quickened except it dies. And that which thou ſoweſt, thou ſoweſt not the Body that ſhall be, but the Seed only, as that of Wheat, or ſome other Grain.*

Communication is when we argue with the Auditors, and demand their Opinions. *What wou'd you have done, Gentlemen, on the like Occaſion? What Meaſures wou'd you have taken but thoſe which he whom I defend took?*

Confeſſion is a Figure by which we acknowledge our Faults, to engage him to whom we addreſs our ſelves to pardon 'em. 'Tis a very common one in the Pſalms. The following one is very fine. The Royal Pſalmiſt, ſpeaking to the Almighty, ſays, as thus Paraphras'd,

Regard not my Offences, Lord,
Which render me unworthy of thy Grace;
Thy Goodneſs boundleſs as thy Power regard.
The greater are my Sins,
The brighter will thy Mercy ſhine;
Not for my Penitence, Eternal God,
But for the Love of thy Immortal ſelf,
Let me its ſweet Effects enjoy.

Epitrope, or Conſent, is when we freely grant what we may deny, in order to obtain what we demand. This Figure is often Malicious, as in this Example, where *Boileau* anſwers ſuch as had reprov'd him for falling too ſeverely on the Verſes of a Man of Honour.

My Muſe, ſtill Charitable and Diſcreet,
Diſtinguiſhes the Marquis from the Wit;
He is Noble, Faithful, Juſt, and Generous, ſay,
His Candour and Civility diſplay:
Let him be Mild, Officious, and Sincere,
I willingly ſubſcribe to what I hear.
I'll take your Word, and whether right or wrong,
I'm ready, if you pleaſe, to hold my Tongue.
But when his Writings are for Patterns thrown,
When you wou'd ſeat him on the Muſes Throne,
My Choler riſes and I burn to write, &c.

This Figure is ſometimes made uſe of to move an Enemy, and ſhew him the Horror of his Cruelty. To which end you invite him to do all the Miſchief he can. 'Tis common alſo in the Complaints made to Friends, as *Ariſtæus*'s to his Mother *Cyrene* in *Virgil*,

Quin Age, & ipſa manu felices erue Sylvas,
Fer ſtabulis inimicum ignem, atque interfice meſſes,
Ure ſata, & validam in vites molire bipennem,
Tanta meæ ſi te ceperunt tædia laudis.

Periphraſis is a Turn taken to avoid certain Words that are ſhocking, and certain Things which might produce an ill effect. *Cicero* being oblig'd to confeſs that *Clodius* was kill'd by *Milo*, turns it off thus. *Milo's Servants,* ſays he, *being hinder'd from helping their Maſter, whom* Clodius *boaſted to have kill'd, and they believing it to be true, did, in his Abſence, without his Conſent and Knowledge, what every one here wou'd have expected from his Servants on the like Occaſion.* He avoids the odious Words of Killing or putting to Death.

Thus we have treated of moſt of the Figures which are mention'd by the moſt Modern Rhetoricians, for the Ancients had not ſo many, at leaſt not ſettled ones. *Hyperboles* and *Metaphors* of the greateſt Extent, are not ſpoken of in this Place, becauſe they were plac'd among the *Tropes*, tho' they are true Figures, and tho' the barrenneſs of Languages obliges us frequently to make uſe of *Tropick* Expreſſions, even when we are Calm and in Repoſe; yet the common uſe of 'em is in Paſſion, which generally makes Objects appear extraordinary, and conſequently ordinary Terms wou'd not repreſent them as great or as lively as we wou'd have 'em. 'Tis not pretended that all the Figures are here diſcours'd of; there wou'd be much more Room wanted than is allow'd to all this Undertaking, to ſhew all the Characters of the Paſſions in Rhetorick, which are as numerous as the viſible Signs of 'em in the Countenance. Threats, Complaints, Reproaches, Entreaties, have their Figures in every Tongue. There's no better Book to teach them than the Heart, and 'tis Madneſs to ſeek after that in other Mens Writings, which one carries always about one; particularly, if a Man ſhou'd deſire to know the Figures of Choler, let him mind what he ſays when he's acted by that Paſſion.

It muſt not be expected that the Figures ought to be all like the Examples here given, or that theſe Examples are Patterns after which Figures ſhould be form'd. The *Apoſtrophe*, *Interrogation*, *Antitheſis*, may be made an hundred ways. 'Tis not Art that rules there, nor Study that can find them out; but the natural Effects of the Paſſions, as has been already hinted.

An Orator, in managing a Diſcourſe, has not unaptly been compar'd to a Soldier; and the Compariſon holds well as to his Diſpoſition of himſelf, to attack or defend; but having not Room to Expatiate on Things in this Undertaking, we ſhall only obſerve, That the Mind being warm'd by the Paſſions, turns and winds to every ſide to find out Reaſons and Proofs in defence of the Truths it maintains. When a Man is eager to defend himſelf, and ſet a Value upon what he ſays, he repeats the ſame Things over and over, and ſpeaks 'em after different manners; he makes *Deſcriptions*, *Hypotypoſes*, *Compariſons*, and *Similitudes*; he prevents what the Adverſary has to object, and anſwers it. To ſhew his Conſtancy, he ſoon grants every thing that's demanded, and makes as if he wou'd not uſe all the Arguments the Juſtice of the Cauſe wou'd admit of. The Orator engages the Attention of his Auditory, when he finds it neceſſary, by *Apoſtrophes* and *Interrogations*; he awakens them by frequent and repeated *Exclamations*. When Truth is is oppos'd or obſcure, he brings Proof after Proof to explain it, or defend it; ſometimes he appears as if he was ſilenc'd and irreſolute; he advances firſt one Thing, and then another; when Proofs are wanting, he invocates all Nature by *Apoſtrophes*, he calls upon the Dead, and ſummons Heaven and Earth to his Aſſiſtance. There's nothing ſo proper to render a Truth clear, as Figures, eſpecially *Repetitions* and *Synonymies*, *Deſcriptions* and *Hypotypoſes*, &c. *Compariſons* and *Similitudes*, which are generally taken from Things that may be reach'd by the Senſes, make the Underſtanding of the moſt abſtracted Truth eaſy. Nothing is ſo high and ſo ſubtile, that may not be brought to the underſtanding of the loweſt Capacities, provided that among the Things which they either know or may know, the Orator dextrouſly finds out ſome that reſemble thoſe that he wou'd explain to him. There's a wonderful Inſtance of this Addreſs, in a Diſcourſe of Monſ. *Paſcal* to a young Lord, to let him into a true Knowledge of his Condition; to which purpoſe he propos'd this Parable, *A Man was thrown by a Tempeſt on an unknown Iſland, the Inhabitants of which were in great Concern for the loſs of their King, who had been ſome time miſſing; and this Man very much reſembling that Prince, both in Face and Shape, was taken for him, and receiv'd as their King by all the People. He at firſt cou'd not tell what he had beſt do, but at laſt he reſolv'd to yield to his good Fortune; he accepted of the Crown that was offer'd him, ſuffer'd them to treat him as King, and pay him Homage: But not being able to forget his natural Condition, he cou'd not help thinking, while they were paying it him, that he was not the King the People ſought after. Thus he had a double Thought in his Head, one by which he acted as a King, the other by which he acknowledg'd his true Eſtate, and that 'twas Chance only which had plac'd him on the Throne. He conceal'd this laſt Thought, and diſcover'd the other. By the firſt he carry'd himſelf towards the People, by the ſecond towards himſelf.* By this Image, Mr. *Paſcal* repreſented to the young Lord, that 'twas Chance only to which he was indebted for the Dignity of his Birth. That 'twas Imagination which apply'd an Idea of Greatneſs to the Quality of Duke, and that he was in reality no greater than others. By what has been ſaid, even in this narrow Compaſs, 'tis plain that the Paſſions cannot be mov'd without Figures. The uſe of which therefore muſt be very great, becauſe in this Art very few will be able to perſwade, who do not move. Figures are indeed, as has been hinted, the Characters of the Paſſions; and when thoſe Paſſions are irregular, Figures ſerve only to paint their Irregularity. They, for this Reaſon, may be put to an ill uſe, as well as to a good one; for being the Inſtruments with which the Soul is to be ſhaken, if theſe Inſtruments are handled by a Perſon acted by an unjuſt Paſſion, Figures in his Mouth are like a Sword in a Madman's Hand. The Orator is not allow'd to blacken thoſe he ſpeaks againſt by falſe Accuſations, nor is it lawful for him in ſuch a Caſe to make uſe of the ſame Figures as he wou'd do againſt a Criminal; Declaimers, who are generally moſt guilty of this Defect, never deceive twice. The Auditor hears their Exclamations without Concern, and it often happens to them, as it does to Perſons who counterfeit Sickneſs, they cry out but no Body minds 'em; inſomuch, that when they are really ſick, they are not believ'd.

Nec ſimul irriſus, triviis attollere curat,
Fracto crure planum; licet illi plurima manet
Lachryma, per ſanctum juratus dicat Oſirim
Credite; non Ludo: Crudeles tollite Claudum,
Quære peregrinum, vicina rauca reclamat.

This Fault is a ſign of Malice in ſome, and of Levity in others. 'Tis Malice, when the Orator takes Pleaſure in oppoſing the Truth, and does not deſire to convince the Auditory ſo much as to diſturb 'em with the Clouds of ſome unjuſt Paſſion, which deprives them of the ſight of it. True it is, our Declaimers, both at the Bar and in the Chair, ſuch we mean as are nothing elſe but Declaimers, for the Word ſhou'd never be taken in a good Senſe, are not guilty of this, ſo much out of Malice, as Vanity and Ignorance. They don't mind what Impreſſions their Figures may make; their deſign is not to perſwade, but only to ſhew their Eloquence. To this end they make uſe of all the ſtrong Figures in *Rhetorick*, a Vice to which ſome *Artificial* Poets are much given, enter into Enthuſiaſm, loſe the uſe of their Reaſon, and thus they ſee Things after a manner quite contrary to what they are.

Et ſolum geminum & duplices ſe oſtendere Thebas.

What is moſt Ridiculous in this corrupted Part of *Rhetorick*, is that theſe wretched Orators endeavour only to pleaſe without taking any Notice of their Adverſary, ſo as to ſet themſelves to overcome him by force of Words and Arguments. They may very well be compar'd to a Fool, who, when he's fighting, does not take any care to ſtrike his Enemy, or to prevent being ſtruck by him, provided he can attract the Eyes of the Spectators, and fight with a Grace, with a gallant and agreeable Air. *Pedius*, of whom *Perſius* ſpeaks in his Satyrs, was much ſuch a ſort of an Orator.

Fur es ait Pedio: Pedius quid? crimina raſis
Librat in Antithetis, doctas poſuiſſe Figuras
Laudatur.————

Bad Orators affect to meaſure their Words, and give 'em a Cadence to tickle the Ears. All their Expreſſions are proportionated; in a word, they figure their Diſcourſes, but with Figures which, in compariſon to ſuch as are ſtrong and perſwaſive, are like the Poſtures in a Dance, compar'd to thoſe in a Battle. The Art and Affectation, which appears in a painted Diſcourſe, are not the Character of a Soul truly touch'd with the Things it ſpeaks of, but of a Man without any Concern at all, who plays with what he's about. Theſe meaſur'd Figures, whoſe Cadence tickles the Ear, are call'd alſo *Theatrical Figures*; they are Arms for Sight and not for uſe. Figures proper to perſwade, muſt not be far fetch'd; the Warmth contracted in the Defence of Truth, produces them, places them in due Order, ſo that Eloquence is nothing almoſt but the Effect of Zeal.

'Tis not only in great Subjects that Figures are to be made uſe of. The Paſſions have ſeveral Degrees. All Anger is not equally great, neither have all Figures the ſame Force. For extraordinary Emotion, there are *Antitheſes*, and there are the ſame for ordinary. Converſation has its Figures as well as Harangues, as *Repetition*, *Deſcription*, *Simily*, &c. The Stile of thoſe Orators who make a bad uſe of Figures, is call'd *Cold*, becauſe let 'em be at never ſo much Pains to move the Auditory, they are heard with a certain Coldneſs and Indifference, ſo much the more ſenſible, by how much the leſs we are agitated by any of thoſe Emotions which they endeavour to excite. The invincible Diſpoſition we find our ſelves in to ſleep at ſome Sermons, and ſome Plays too, is an effect of this *Coldneſs* of Stile, of which we have too much Experience. When a Man weeps without a Cauſe, we laugh at his Tears. If he is angry without Occaſion, that Anger is look'd upon to be either Folly or Madneſs; but when both are well grounded, we enter into the ſame Paſſions.

Having ſaid thus much of Figures in Diſcourſe, let us add ſomething on *Figures* of *Words*, a Subject that has not been often handled in our Language, but being very well done by Father *Lamy* of the *Oratory*, we ſhall borrow from him, and that will occaſion our taking ſome of the Examples from the *French*.

Figures of Words are quite different from thoſe of Diſcourſe; for as the latter are produc'd chiefly by the Agitations of the Soul, the former are the effect of the Calmneſs and Study of the Mind. 'Tis granted that the Repetition of the ſame Word, the ſame Letter, and the ſame Sound, is generally diſagreeable, but it never ſhocks when that Repetition is made with Art. Indeed, the moſt diſagreeable Sounds pleaſe when they are heard by certain meaſur'd Intervals. The noiſe of a Hammer is apt to deafen us, however, when the Smiths play it on the Anvil with Proportion, they make a ſort of Conſort, which is not at all ſhocking to the Ear. The Repetition of one Letter, one Termination, one Word in meaſur'd Time, and by equal Intervals, muſt therefore be agreeable. This Repetition is made ſometimes in the beginning, ſometimes at the end, ſometimes in the middle of a Sentence, as will be ſeen in the following Inſtances, which are taken chiefly from Poetry, becauſe the Figures of Words are more adapted to Verſe than Proſe. Theſe Figures may be Infinite, becauſe the Repetition may be made with infinite Variety. The ſame Words may be repeated ſimply, without loſing its Signification, as *Good God, Good God, aſſiſt his Righteous Arms*; or in changing the Signification of the Word,

A Father's ſtill a Father, tho' enrag'd,
His Love, when he wou'd ſtrike reſtrains the Blow.

The word Father there is us'd the ſecond Time to ſhew the Tenderneſs which Fathers have for their Children. Another Example of this kind, much more Pathetick, is in *Les Entretiens Solilaires* of *Brebæuf*.

Inſtinct the vileſt Creatures better guides;
A Better uſe they make of good and ill;
They're never guilty of ſuch Crimes as Man,
And without any other help but That,
The Brute does nought unworthy of the Brute,
And Man whate'er's unworthy of himſelf.

The ſame Expreſſion is repeated at the beginning of each Member of a Sentence; as

There's nothing in the Mind of Man ſo baſe,
There's nothing that reſembles more the Fiend,
There's nothing which a Generous Soul abhorrs
So much as He who Sells his Country's Peace,
So much as he who riſes by its Fall.

The ſame Word is plac'd at the Beginning and End of a Sentence with good Effect; as

Revenge the Wrongs of Nations on the Gauls,
Religion, Liberty and Right, Revenge.

Sometimes the ſame Word ends one Member of a Sentence and begins another.

Let Glory rouſe ye, and Immortal Fame,
Immortal Fame the Heroe's ſure Reward.

This Repetition of the ſame Words is ſometimes in the middle of a Period.

The Prince, the Publick he betray'd for Gold,
But laid his wicked Plots too thin to hold,
In Favour falſe, and in Diſgrace the ſame,
From Guilt to Guilt he fell, from Shame to Shame.
One Faith renounc'd, another Faith he choſe,
And made his Foes his Friends, his Friends his Foes,
Inconſtant to himſelf and to the State,
A Proud Unſteady———

The ſame Word may be repeated in all Parts of a Sentence.

He ſooths, he threats, he flatters, he defies,
He gives, he takes, he grants and he denies.

There's a ſort of Repetition when the Word repeated is a little Chang'd, as

Nothing can pleaſe him, who's with nothing pleas'd.

To theſe and other ſuch Figures of Words the Rhetoricans aſcribe Particular Names, but there's no need for a Gentleman to charge his Memory with them.

Thus we have given a ſlight Idea of thoſe Things which wou'd take up whole Volumes to treat *a fond*, and go to the Bottom of 'em. It cannot ſure be improper to ſay ſomething of *Stile* in a Treatiſe of *Rhetorick*, which, tho' commonly taken for the Art of Speaking, yet includes alſo that of Writing. There's no occaſion of entring into an Enquiry after the Etymology of the Word *Stile*; What matters it to the Reader to know it was deriv'd from a Bodkin the Ancients us'd to write with, which ſerv'd for a Name to the Manner of the Writer's expreſſing himſelf. We ſhall alſo be excus'd if we do not, like ſome others on this Subject, examine how far the Qualities of Stile depend on thoſe of the Imagination, Memory and Underſtanding of ſuch as Write; nor how the Qualities of the Brain and Animal Spirits hinder or promote a Good Imagination, and ſome other ſuch nice Inquiries. 'Twill be ſufficient for 'em to obſerve

That Diſcourſe is the Character of the Soul: Our Words paint our Humours, and every one follows that Stile to which his Natural Diſpoſition leads him; this is the Cauſe of the Difference in Stile among ſuch as Write the ſame Language. The Stile of ſome Writers is diffus'd, and whatever Brevity they affect, half of what they ſay may very well be ſpar'd. May not ſome Orators at the Bar come under this Character, tho' perhaps that is not occaſion'd ſo much by a Natural Fluency or Redundancy, as an Affectation to amuſe ſuch as employ 'em, and a Cuſtom acquir'd by it. The Stiles of others are dry, poor, barren; Nothing can Cloath 'em, do what they will they'll be half naked; and there's a Stile alſo which is languiſhing, another that's rough, another ſoft: In ſhort, there's as much Difference in Stile as in Complexion. Every Climate has a particular manner of Expreſſion to itſelf, and that manner agrees very much with the Temper of the People. Every Age has alſo its manner, by which means good Criticks can tell the Time when any Author of Conſideration wrote; for there are ſome ſo wedded to what went before them, that 'twill not be eaſy to diſtinguiſh the contrary by the Stile. *Seneca* obſerves, that in every Age there appears an Author of ſo much Credit as to ſerve for a Pattern of Stile to all who write in it. Thus there may be ſeveral ways of Expreſſion and Terms introduc'd that are not warrantable, but being applauded, come into Uſe, and all the World affect to uſe 'em, by which means certain Faults in Stile have been authoriz'd during whole Ages. He gives an Example out of *Salluſt*; *They lov'd*, ſays he, *in his Time, Conciſe Expreſſions made obſcure by their Brevity.*

To come a little nearer to the Matter we are upon. To arrive at Soveraign Perfection in Eloquence, the Mind ought to be endow'd with Three Qualifications. The Firſt is Capacity, or an Extent of Underſtanding, which enables a Man to diſcover on any Subject whatſoever, all that may be ſaid of it with abundance. The Second conſiſts in a Certain Delicacy; a Certain Vivacity, which enters into Things, immediately goes to the Bottom and enlightens every Part of them. The Third Quality is a Right Judgment, to be a Rule to all the other Qualities, either of the Underſtanding or Imagination. Theſe Qualities of the Mind are not always found where there's a good Imagination, which occaſions a great deal of difference between Speaking and Writing. Thoſe who Write well when you give 'em time to think, often ſpeak ill if they are oblig'd to do it *Extempore*. There's no need of ſo fruitful, ſo warm and ſo ready an Imagination in Writing as in Speaking. When a Man has a Genius that is not entirely unhappy, if he thinks ſeriouſly of a Thing he will find out what ſhould and what can be ſaid upon it. Thoſe who have a Facility of Speaking *Extempore*, or off-hand as we call it in *England*, enjoy that Advantage by means of an abounding Imagination full of Fire, that extinguiſhes and dies in the Repoſe and Coldneſs with which a Piece is Compos'd in the Cloſet. The Qualities of the Mind are preferable to thoſe of the Body, and this Fiery Imagination deriving its Exiſtence from the Complexion of the Orator, the Cool and Calm Eloquence of the Cloſet is much more valuable; the Eloquence, which is the Effect of ſuch an Imagination as is before ſpoken of is like the Noiſe of a Cannon; 'Tis attended with a Flaſh and is gone, we hear of it no more. On the contrary a Writing Compos'd with Care preſerves its Beauty, and the more 'tis read is the more admir'd. *Tacitus* tells us of a certain Man nam'd *Hilerius*, who was Famous in his Life-time for his Oratory; but his Writings had not the ſame Succeſs as his Perſon, becauſe having more Fire in his Imagination than Judgment to govern it, his Talent was Speaking *Extempore*, and not Writing. *A Solid and Labour'd Piece*, ſays that Hiſtorian, *lives in the Eſteem of Mankind after the Author is dead.* The Sweetneſs and Brightneſs of *Hilerius*'s Eloquence were extinguiſh'd with him. *Quintus Halerius —— Eloquentiæ quoad vixit celebratæ, monumenta ingenij ejus haud perinde retinentur, ſcilicet impetu magis quàm curâ vigebat utq; meditatio aliorum & labor in poſterum valeſcit, ſic Hilerius canorum illud & profluens cum ipſo ſimul extinctum eſt.* How many *Hilerius's* are there now a-days who expect Immortality from a Talent which was ſo unfortunate to the *Roman!* In the Choice of *Stile* the Orator muſt be determin'd by the Matter he treats of; when that is great, the Stile ought to be animated, full of Emotion, enrich'd with Figures and all ſorts of Metaphors. If the Subject is not extraordinary, and may be handled without touching the Paſſions, the Stile ought to be Simple. The Art of Speaking being confin'd to no determin'd Number of Subjects, the Difference of Stiles are as various; but the Rhetoricians have reduc'd them to Three Kinds, the Sublime, the Middle, and the Low. To ſay a little of each: In the Sublime Stile nothing mean or low muſt be admitted. 'Tis not a thouſand things ſaid well will gain a Piece the Character of the Sublime, if there's any Allay among them of the Low Character; for this Reaſon *Longinus* condemns *Heſiod*, in his Poem Entitul'd *The Buckler*, for that after he had drawn a dreadful Picture of the Goddeſs of Darkneſs, he ſpoilt all he ſaid by adding *A Naſty Humour from her Noſtrils flow'd.* The Expreſſions muſt every where be noble, and anſwer the high Idea we would give of the Subject. Some Bold Writers, fond of the Sublime, mingle ſomething Great and Prodigious in every thing they Write, without conſidering whether there's any Foundation for't in Reaſon. This way of Writing or Speaking the *Greeks* call'd *Teratologia*, and we meet with an Inſtance of it in *Florus*'s Little Abridgment of the *Roman* Hiſtory. There was no need of ſaying any more than *Sextus Rufus* did, That the *Roman* Empire was extended as far as the Ocean, by the Conqueſts of *Decimus Brutus* in *Spain*; *Hiſpanias per Decimum Brutum obtinuimus & uſq; ut Gades & Oceanum pervenimus.* But tho' *Florus* had no room for Flights, yet, contrary to the Character of an Abridger, he takes Wing and ſays *Decimus Brutus aliquanto latius Gallæcos, atq; omnes Gallæciæ populos, formidatumque militibus flumen Oblivionis peragratoq; Victor Oceani littore non prius ſi qua convertit quam cadentem in maria ſolem, obrutumq; aquis ignem non ſine quodam Sacrilegii metu & horrore deprehendit.* He ſwells his Narration with Prodigies, and imagin'd that the *Romans* having carry'd their Arms to the Extremities of *Spain*, trembled with Fear when they ſaw the Ocean, and thought themſelves guilty of a Crime in looking with Preſumptuous Eyes on the Setting Sun when he ſeem'd to put out his Fires in the Waters of the Sea. This is what we call *Bombaſt*, but wou'd not be taken for ſuch by ſome Modern Hiſtorians, who are much more likely to miſtake it for the Sublime, and think it worthy their Imitation.

As to the Simple Character in Stile, 'tis a Maxim in good Senſe that Words muſt agree with Things; What is Great requires Words that give Great Idea's; what is mean and ordinary, muſt be expreſt Simply. In all Caſes the Writer or Speaker ſhould be a Perfect Maſter of the Tongue he Speaks or Writes in, but more eſpecially in the Simple Stile. There are Terms and Turns that are to be made uſe of only upon Great Subjects, but generally the Sublime Stile conſiſts in Metaphors and Figures, which are introduc'd with the utmoſt Liberty. On the contrary, when a Thing is to be ſaid Simply; that is, when 'tis to be ſpoken as we commonly ſpeak, we are confin'd to Common Uſage, which conſequently the Speaker or Writer ſhou'd underſtand to Perfection to Succeed in the Simple Stile. For this Reaſon the Letters *Cicero* wrote to his Friends are more valuable for Purity of Language than his Orations. 'Tis the ſame with *Virgil's Eclogues* which are in this Stile; which when 'tis call'd Simple muſt not be underſtood to be mean, for that is always bad and to be avoided. The Matter of this Stile admits of no Elevation, but that does not imply that the Diſcourſe by which it is expreſt ſhould be vile and contemptible. It does not require the Pomp and Ornaments of Eloquence, nor a Magnificent Dreſs, but it alſo rejects the Vulgar Ways of Expreſſion, and requires a Dreſs that is neat and decent.

Of the Middle Stile we ſhall not ſay much, becauſe the Name expreſſes that 'tis a Mediocrity between the *Sublime* and the *Simple*. *Virgil* has given us an Example of each of the three kinds of Stile, His *Æneids* are in the Sublime Character: He talks of nothing but Battels, Sieges, Wars, Princes, Heroes; every thing is magnificent. The Sentiments, the Words, the Grandeur of the Expreſſion anſwer to that of the Subject. There's nothing in that Poem which is common; no Terms are made uſe of which may be ſaid to be profan'd by the Uſe of the Vulgar. If he's oblig'd to name any thing ordinary, he does it by a Particular Turn, by ſome Trope; as, for *Panis* Bread, he puts *Ceres*, the Goddeſs of Corn among the Heathens. His *Eclogues* are in the Simple Character: Shepherds talk there, and entertain each other with their Flocks, their Fields, their Sports. The Manner is Simple, and agrees with that of the Words. The *Georgicks* are in the Middle Stile; the Matter does not come up to that of the *Æneids*. *Virgil* does not treat here of Famous Battels, and the Eſtabliſhment of the *Roman* Empire, which are the Subject of the *Æneids*. However, his *Georgicks* do not deſcend ſo low as to the Condition of Shepherds; for in theſe Four Books he dives into the hidden Cauſes of Nature, diſcovers the Myſteries of the *Roman* Religion, and mingles Philoſophy, Divinity and Hiſtory together, which oblig'd him to keep the middle Path, between the Majeſty of his *Æneids* and the Simplicity of his *Eclogues*. There are few Authors that hit this Mediocrity. The Polite underſtand it; but where, and who are the Polite? This Politeneſs is acquir'd in the Converſation of ſuch as have Natural Wit, and the reading of the beſt Authors; but never acquir'd by ſuch as have not a Portion alſo of the ſame Wit. There are not many Writers of this Character, tho' many aſſume it to themſelves, and have the good Fortune to ſee the World impos'd upon; for inſtead of it the greateſt Part of Readers miſtake the oppoſite Character, which is that of a Pedant, for it. He who reads *Homer* with Application will Learn the Natural Stile. *Cicero's* Letters, eſpecially thoſe to *Atticus*, *Horace's* Satyrs and Epiſtles, *Virgil*, *Salluſt* and *Cæſar* will uſe an Author to that way of Writing which is term'd Polite; in *Cæſar* particularly he will find a Perfect Model of the middle Stile.

There ſeems to be a General Miſtake in *Engliſh* Readers as to Stile; for they ſeldom enter into the different Manners, but Content themſelves with ſaying in generally, *Such an Author writes a very fine Stile*; as for Inſtance, Dr. *Tillotſon*, Dr. *Sprat*, Sir *William Temple*, Mr. *Dryden*, Sir *Roger l' Eſtrange*. 'Tis allow'd by every one that they were all Maſters of Stile, and yet perhaps there's as much difference between ſome of 'em as between a good Stile and a bad, tho' all may be perfect in their Kind. We do not in this place pretend to make Critical Remarks on Particular Stiles, but wou'd willingly let the *Engliſh* Reader ſo far into the Secret as that he may no more Confound the one with the other; it being uſual when Compariſons are too raſhly made between the Authors beforemention'd to decide arbitrarily, *this is beſt, or that is beſt*, when 'tis evident, that if thoſe Judges ſhou'd be ask'd who of 'em wrote in the Sublime, who in the Simple, and who in the Middle Stile, 'twould be a more puzzling Queſtion than at firſt Sight it appears to be; and if they cannot diſtinguiſh their Manners, they will never be able to diſtinguiſh their Merit. In order to this let us ſhew a little wherein this Difference of Stile conſiſts, and what are the Qualities of it; for in the ſame kind of Stile ſome are ſofter, ſome ſtronger, ſome florid, ſome ſevere. A Stile is ſaid to be ſoft when Things are ſaid with ſo much Clearneſs that the Mind is at no trouble to underſtand them. Nothing muſt be left to the Reader to gueſs; every thing difficult muſt be made eaſy, all Doubts prevented. In a Word, every thing muſt be ſaid within the neceſſary Compaſs; the Sweetneſs of Cadence and Numbers contributes wonderfully to the Softneſs of Stile, which admits of ſeveral Degrees; 'tis extraordinary when 'tis tender and delicate. *Herodotus* in the *Greek* and *Titus Livius* in the *Latin* Tongue, are taken for Patterns of this Soft Stile. The Second Quality of Stile is Strength, and 'tis entirely oppoſite to the Firſt: It ſtrikes the Mind and renders it extremely attentive. To give this Strength to Stile, we muſt make uſe of Conciſe Expreſſions, which ſignifie a great deal, and raiſe ſeveral Idea's. The *Greek* and *Latin* Authors are full of ſtrong Expreſſions; and of all the Modern Languages the *Engliſh* has the greateſt Share, at leaſt of thoſe Languages that are got out of the Number of the Barbarous. The *French* are not by their own Confeſſion happy in this Conciſe and ſtrong manner of Expreſſion; but they are ſo Civil to themſelves as to give Reaſons for it, which others wou'd give in other Language. They are, ſays *Pere Lamy*, ſpeaking of theſe Expreſſions, *plus rares dans le Francois qui aime que le Diſcours ſoit natural, libre & un peu diffuſ*, more rare in *French* which loves to have a Diſcourſe natnral free and a little diffus'd. Looſe and Wordy might have been ſaid, and in general not have done our Neighbours any Injuſtice. The Third Quality renders a Stile agreeable and florid, and depends in Part on the Firſt. Tropes and Figures are the Marks of a Florid Stile; and *Quintus Curtius* in his Hiſtory has given us an Example of it. The Laſt Quality is the Severe, which cuts off every thing that is not of abſolute Neceſſity: It grants nothing to Pleaſure, ſuffers no Ornament, baniſhes all Warmth and Emotion; and when 'tis carry'd too far, becomes dry. Every Stile muſt agree with the Subject it treats of. A Grave Majeſtick Subject will not admit of Flowers and Gaiety. When the Reader may be made to Laugh, the Severe Stile wou'd be impertinent; Strength of Expreſſion is uſeleſs, if the Mind is to be won by Softneſs; and the Latter wou'd be equally unſucceſsful when there's occaſion of ſtruggling with and conſtraining it.

Stiles may be diſtinguiſh'd again with Reſpect to Arts, as there are thoſe of the Orator, the Hiſtorian, the Dogmatical and Poetical Stiles; of which having ſeparately ſaid a few Words, we ſhall Conclude what we have to ſay of Stile.

The Orator's Stile, ſhou'd be rich and abundant; for it being to enlighten obſcure or doubtful Truths, 'tis neceſſary all the Clouds and all the Obſcurities that hide them ſhould be diſpers'd; this Abundance does not conſiſt in a multitude of Epithetes or Synonymous Words and Expreſſions. Let the Reader carefully remember this, and he will ſoon conceive an ill Opinion of ſome Celebrated Orators, who, if they were really ſo, wou'd only make uſe of ſuch Rich Expreſſions as wou'd make their Reaſons more Valuable. They endeavour to dazzle the Eyes and Underſtanding, and therefore fight always with ſhining Arms. Tropes are very ſerviceable to them on this Occaſion: But it muſt not be forgotten that they ſhou'd never dazzle with a Falſe Luſtre, nor impoſe Falſhood on the Auditory for Truth. The Eloquence of the Bar ſome Years ago conſiſted chiefly in Strong Lungs and a Talent of Rayling, which in our Time has been exploded, and a True and Judicious Way of Reaſoning introduc'd. *Formerly, thoſe Declaimers believ'd*, ſays a Modern Author, *they triumph'd over their Adverſary when they had rail'd at his Reaſons: They thought they had thrown him to the ground, when they had loaden him with Injuries, and ſpent all the Figures of their Art to make him appear ſuch as they wou'd have him.* This was chiefly in Criminal Caſes: In others their Raillery was rather loud than Biting, becauſe 'twas more to amuſe the Client than gain the Cauſe; but both the one and the other are baniſh'd our Courts now, and no ſuch Eloquence will ever paſs there again for Oratory. An Orator ſhould not be Cold or Indifferent in any Part of his Oration. None can argue well that is not concern'd for the Succeſs of his Argument. A Diſcourſe languiſhes when the Heart does not agree with the Sentiments. Figures animate and warm it. As to the Cadence and Number, it ought to be Periodical from time to time. The Roundneſs of Periods are a Charm to the Ear, and that affects the Mind; and when Periods are Pronounc'd with Majeſty, it adds weight to the Matter.

After Orations there's no Subject requires Eloquence more than Hiſtory. Thus *Cicero* ſays it belongs to the Orator to write Hiſtory, *Hiſtoria Opus eſt maxime Oratorium.* The Chief Qualities of the Hiſtorical Stile are Perſpicuity and Brevity. The Brevity contributes to the Perſpicuity. The Hiſtorian ſhould have a Curt Stile free from long Phraſes and Periods, which keep the Mind in Suſpence. It muſt not be interrupted with Extraordinary Figures, by thoſe great Emotions which raiſe Paſſion, it being his Duty to ſhew none. Not but that he's allow'd on ſome Occaſions to let his Eloquence ſhine, becauſe he's oblig'd ſometimes to report what was ſaid as well as what was done; and in ſuch Caſes where Speeches are neceſſary Figures will be alſo neceſſary to paint the Paſſions of thoſe that are repreſented Speaking 'em.

As to the *Dogmatical* Stile, there's no Occaſion of Figures to move the Auditor or Reader; for 'tis to be ſuppos'd they come with Minds prepar'd to Learn what is taught them. Nobody is concern'd for the Truth or Falſhood of a Geometrical Propoſition; whereas in Matters of Paſſion or Intereſt, of Life or Liberty, there's occaſion of every thing to perſwade the Opponents. Geometricians wou'd prove that Three Angles of a Triangle are equal to Two Right Angles; whether true or falſe, it does neither Good nor Harm to any body, and none oppoſe it; wherefore the Geometrical Stile ought to be Simple, Dry, and without any of the Emotions with which Paſſion inſpires the Orator. Beſides, the more a Truth is clear and evident, the more are Men apt to expreſs it after the ſame way in few Words. In *Phyſicks* and *Ethicks* the Stile ſhould not be ſo dry, the Matter is not ſo Crabbed; and as thoſe that handle it are not generally ſo out of Humour, as ſuch as make Inquiries in *Geometry* and *Algebra*, which are Sciences that have not the leaſt Complacency for the Negligence and Idleneſs of Superficial Minds ſo the Reader expects to find ſomething more Gay in *Ethicks* and *Phyſicks*, tho' they ought not to go ſo far out of the Severe Character. 'Twould be very Preſumptuous in a Layman to obſerve any thing on the *Theological* Stile; Who is there that profeſſes it but thinks himſelf a Maſter? Indeed ſo many are ſo, That when we ſay it ſhou'd be Clear and Solemn, Harmonious and Majeſtick, we need only refer the Reader to the Sermons that are Publiſh'd on extraordinary Occaſions, and alſo on others for Examples in this Kind.

We come now to the Poetical Stile, and are not ſo confin'd as in any of the other; for the Poets have all the Liberty given 'em they can deſire; They are not ſubject to the Laws of Common Uſe; They form to themſelves a new Language; They endeavour moſtly to Pleaſe and Surprize by Things extraordinary and marvellous; They cannot arrive at it, if they don't ſupport the Grandeur of Things by that of Words. Every thing they ſay being of this kind, the Expreſſion, which ought in all caſes to be equal to the Dignity of the Subject, muſt be uncommon and extraordinary. In the great Poetry, *Hyperboles* and *Metaphors* are abſolutely neceſſary; for Uſe does not ſupply Terms ſtrong enough. The Turn of the Diſcourſe ſhould for the ſame Reaſon be *Figurative*, for the Dignity of the Matter. In *Eclogues*, and other kinds of Verſe, where the Subject is low, the Stile muſt be ſimple and without Figures. 'Tis the Quality of the Things ſpoken of, which excuſes and authorizes the Poet's manner of ſpeaking; if the

Matter is Common, the Poet, no more than the Hiſtorian, ſhou'd not tranſgreſs the Laws of Cuſtom. Some Criticks will admit of no Poetry but what conſiſts of *Fable* and *Figure.* They will hardly excuſe a Satyr, or an Epiſtle in Verſe without a Deſign, as they call a Metaphorical Contrivance that has relation to the Subject. But theſe are Criticks, whoſe Heads are better turn'd for the Structure of Machines, we will not ſay they wou'd make better *Mechanicks* than *Poets*; but 'tis certain, their Invention is a great Impediment to their Wit. For all the Fire which ſhould ſhine in the Poem is waſted in the Deſign. This Error proceeds from a Miſtake in *Ariſtotle*, and his Commentators: For, becauſe in *Heroick* Poetry, in *Dramatick* Poetry, in the *Ode* and *Eclogue*, a Deſign or Fable is abſolutely neceſſary to expreſs the Paſſion and Action more lively, they imagine *Fable* is the Life of all Poetry in general, and that in all Subjects the *Expreſſion* muſt be *figurative.* But Criticks, eſpecially Modern Ones, are not exempted from the Misfortunes of Miſtaking. Poets, who, tho' they ſhould aim chiefly at Inſtruction, are fondeſt of pleaſing, generally make uſe of thoſe Expreſſions which give the Reader the leaſt trouble to underſtand; ſuch as form in the Imagination the moſt lively Picture of what they wou'd have him conceive. For which Reaſon, Metaphors which render all Things ſenſible, as we have ſeen, are ſo frequent in their Stile. This Deſire to ſtrike the Senſe, and to be underſtood with eaſe, was the Reaſon why the Ancient Poets ſo often made uſe of Fictions, and gave to every Thing a Soul and Body like ours. When a Poet is throughly warm'd, he never conſiders Things in their natural Condition.

'Tis not a Vapour then that Thunder forms,
But Jove *in Arms to fright the trembling World:*
The Tempeſt which ſo much the Sailors dread,
Is Neptune, *who enrag'd, has ſwol'n the Seas.*

Which manner of Expreſſion touches more than what is Common. When a Poet talking of War, ſays *Bellona, The Goddeſs of War, carries Terror thro' the whole Army, That* Mars *fires the Soldiers*, the Impreſſion it makes is quite different from the Common ways of Expreſſion, as, *All the Army was frighted, The Soldiers were eager to engage.* Each Vertue, each Paſſion, is a Divinity. In Poetry, *Minerva* is Prudence; *Fear, Rage*, and *Envy*, Furies. The Words, *Fear, Rage*, and *Envy*, conſider'd only with the Idea which Uſe has join'd to 'em, have no great effect. But we can't repreſent the Goddeſs of Rage with her Eyes full of Fury, her Hands ſtain'd with Blood, the Flames iſſuing out of her Mouth, with her Snakes and lighted Torches, without raiſing Terror. Proſe ſleeps; Poetry is, or ſhould be always awake. Poetical Narrations are interrupted by *Exclamations, Apoſtrophes, Digreſſions*, and a Thouſand other Figures, which engage the Attention. They always ſhew the moſt Charming ſide of the Things they repreſent. They take no Notice of any thing in Art but what is great and rare, and neglect what wou'd leſſen the Heat of Admiration. Thus, if we may ſo ſay, they go out of themſelves, and ſuffer themſelves to be carry'd away by the Fire of their Imagination. They become like a *Sibyl*, who being fill'd with an extraordinary Spirit, does not ſpeak the Language of Mortals.

——————*Sed pectus anhelat,*
Et rabie fera corde tument, majorque videri,
Nec mortale ſonans, afflata eſt Numine quando
Jam propriore Dei.——————

But this is not, as has been hinted, to be underſtood of any thing but the greater Poeſy.

We ſhall conclude this ſhort Eſſay upon Rhetorick with the Fourth and Fifth Parts of the Art of Rhetorick, which are all that remains to be ſpoken of, *viz.* Memory and Pronunciation. And firſt of

Memory, which is a Talent that depends on Nature and Exerciſe; it conſiſting only in the Facility with which the Marks of the Objects we have perceiv'd, are renew'd; Exerciſe helps one to a Memory, every thing plies that way to which 'tis often ply'd. We ſhou'd often repeat what we have learn'd, and endeavour daily to add ſomething new to it. We ſhou'd fill our Memory with proper Terms, and let the Relation of the Images and Names of Things be ſo ſtrict, that they ſhou'd both come together. A great Man has compar'd the Memory to Printing; if the Printer has nothing but *Gothick* Characters, he can Print nothing but in a *Gothick* Character, let the Work that's put to the Preſs be never ſo fine. Thus it may be ſaid of thoſe whoſe Memory is full of bad Words, having their Minds fill'd with *Gothick* Moulds, when their Thoughts are to be cloath'd with Expreſſions, they will always have a *Gothick* Air.

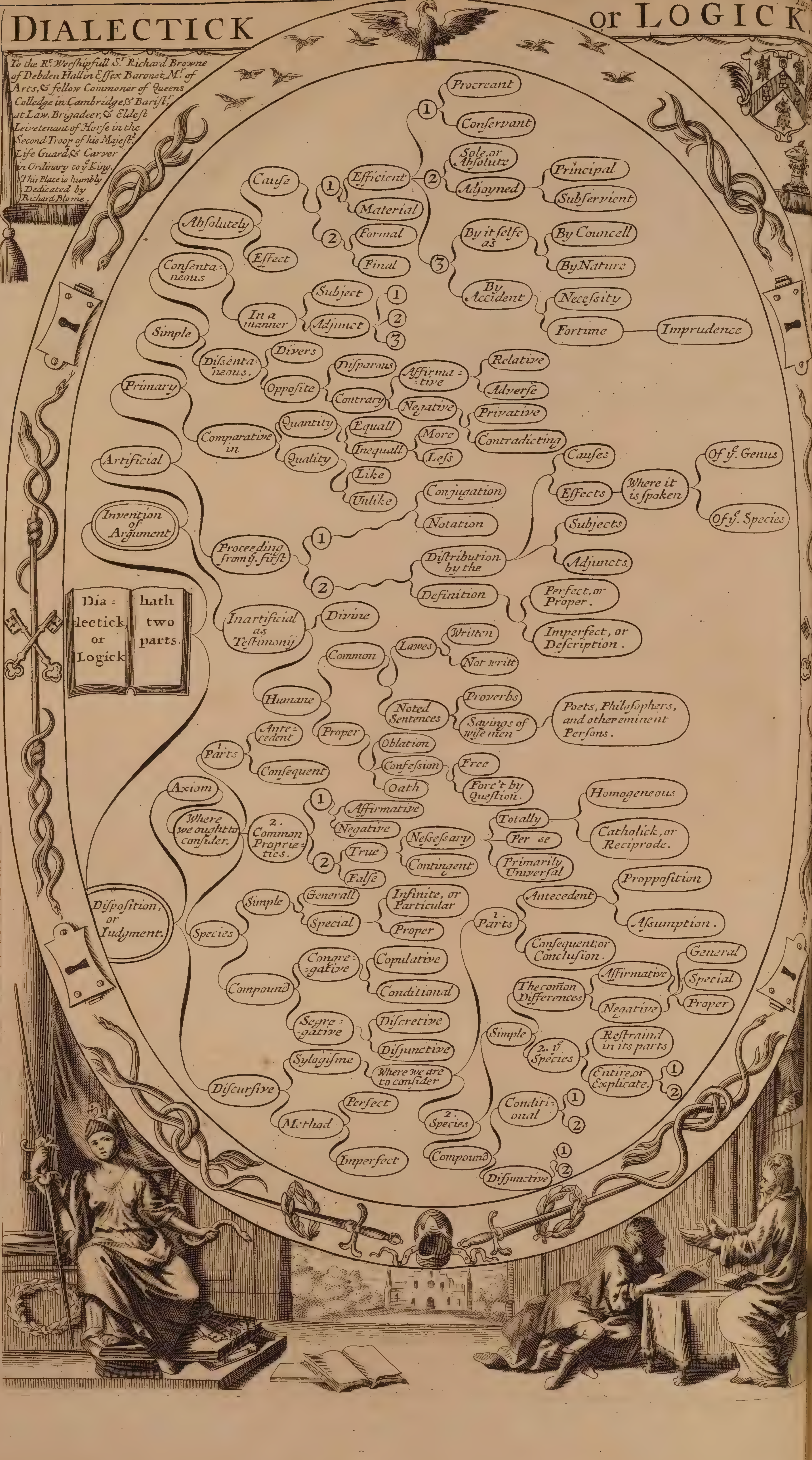
Both *Memory* and *Pronunciation* relate to the Art of ſpeaking chiefly, and but very little to that of writing.

Good Pronunciation muſt certainly be of great Advantage to an Orator; for it muſt be confeſt, that there's an Eloquence in the Eyes, and the Air of the Perſon will perſwade as much as his Reaſons. This is ſo true, that there was a very famous Orator, who for Twenty or Thirty Years went away with the Reputation of the moſt Eloquent Man in the Robe, tho' 'twas at laſt found out that his Eloquence conſiſted entirely in the Roundneſs of his Periods, and the Eloquence of his Air. When an Orator, with ſo fine a Mein begins to ſpeak, we join in with him immediately, *Des qu' un Orateur qui a cet air commence a Parler on luy donne les mains*, ſays a celebrated *French* Critick. In Matters of Divinity, ſome Sermons are well receiv'd, being well pronounc'd, which in the Mouths of ſome Preachers wou'd have been thought contemptible. Men are ſatisfy'd with the Appearances of Things; thoſe who talk with a loud and ſtrong Voice, and have an agreeable Air, are ſure of gaining Applauſe. There are few who give themſelves the trouble to make uſe of their Reaſon, Senſe is the Common way of trying all Things. 'Tis no matter what the Orator ſays, provided he ſays it handſomly, and we judge by the Eye and Ear: If he pleaſes the Eye, and tickles the Ear, he will always go off with the Character of an Eloquent Perſon. 'Tis ſo neceſſary to take Men by their weak ſide, that the moſt Eloquent ſhould not for this very Reaſon neglect the Art of Pronunciation. There are without doubt certain Defects in it, as indecent, ridiculous, affected, vulgar Poſtures, which are not to be endur'd, and Tones which ſhock the Ear and tire it. Theſe are the Vices of ſuch as find *Cant* much more eaſy to be learn'd than the Art of Reaſoning. 'Tis true, every Sentiment has a Tone of Voice, a Geſture, and a Mein proper to it. This Relation, as 'tis good or bad, makes good or bad Declaimers; if good, 'tis no little help towards the Auditors conceiving rightly what is ſaid, and the trouble the Orator is at to perfect himſelf in the Art of Pronunciation, will not be found to be vain and uſeleſs; but the Study of it is not to be done by Books, its Rules cannot be taught but by a living Maſter. Men being created to live together in a great Union, are ſo diſpos'd by Nature, that they ſoon imbibe the Sentiments of thoſe they live with, when they appear to be Natural. We are troubled when we ſee another troubled, and are joyful with thoſe that Rejoice. The natural Signs of Paſſion make an Impreſſion on ſuch as ſee 'em; and if they do not reſiſt that Impreſſion, they will follow its Dictates. Thus every one that ſpeaks naturally, will always move without intending it; and thoſe he ſpeaks to will think like him. Men hardly ever act by Reaſon, Senſe or Imagination always govern them; by which thoſe who know how to repreſent the outſide of their Thoughts, are ſure to impoſe them on the Auditory. Common Declaimers affect only a ſhining Pronuntiation, which indeed raiſes Admiration, and in that they ſucceed. For as naturally, we ſpeak with no extraordinary Geſtures, and in no elevated Tone, thoſe which are extraordinary, and with which we are ſurpriz'd, are when a Declaimer opens his Mouth wide, when his Geſtures are extravagant, then the People fanſie he ſays ſomething that's very great; they admire him, but their Admiration has no effect; they don't mind what he ſays, but his way of ſaying it.

LOGICK.

DIALECTICK or LOGICK.

To the R^t. Worſhipfull S^r. Richard Browne
of Debden Hall in Eſſex Baronet, M^r. of
Arts, & fellow Commoner of Queens
Colledge in Cambridge, & Bariſt^r,
at Law, Brigadeer, & Eldeſt
Leivetenant of Horſe in the
Second Troop of his Majeſt^s.
Life Guard, & Carver
in Ordinary to y^e King.
This Plate is humbly
Dedicated by
Richard Blome.


Dia=
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Invention
of
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Cause
1
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Procreant
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as
By Councell
By Nature
By
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Imprudence
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Adverse
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Comparative
in
Quantity
Equall
Inequall
More
Less
Quality
Like
Unlike
Proceeding
from y^e. first
1
Conjugation
Notation
2
Distribution
by the
Causes
Effects
Where it
is spoken
Of y^e. Genus
Of y^e. Species
Subjects
Adjuncts.
Definition
Perfect, or
Proper.
Imperfect, or
Description.
Inartificial
as
Testimony
Divine
Humane
Common
Lawes
Written
Not writt
Noted
Sentences
Proverbs
Sayings of
wise men
Poets, Philosophers,
and other eminent
Persons.
Proper
Oblation
Confession
Free
Forc't by
Question.
Oath
Disposition,
or
Judgment.
Axiom
Where
we ought to
consider.
1.
Parts
Ante=
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Consequent
2.
Common
Proprie=
ties.
1
Affirmative
Negative
2
True
Nessessary
Totally
Homogeneous
Catholick, or
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Universal
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Simple
Generall
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Infinite, or
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Proper
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Where we are
to consider
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Parts
Antecedent
Proppositition
Assumption.
Consequent, or
Conclusion.
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Differences
Affirmative
Negative
General
Special
Proper
Simple
2. y^e
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Method
Perfect
Imperfect

LOGICK.

LOGICK is the Art of Guiding our Reaſon in the Knowledge of Things, as well for our own Inſtruction as the Inſtruction of others.

This Art conſiſts in the Reflections which Men have made on the Four Principal Operations of the Mind, as *Conceiving*, *Judging*, *Reaſoning* and *Diſpoſing*.

By *Conceiving* is to be underſtood the Simple View which we have of the Things that preſent themſelves to the Mind; as if we imagine the *Sun*, *a Globe*, *a Tree*, *a Square*, *a Thought*, *a Being*, without forming any Particular Judgment; and the Form by which theſe Things are repreſented to the Mind is call'd *Idea*.

By *Judging* is meant that Action of the Mind by which, joyning ſeveral Idea's together, it affirms from one what the other is; or from one denies what the other ſhould be; as when having an Idea of the Earth and an Idea of a Round, I affirm that the Earth is round, or deny that it ſhould be round.

By *Reaſoning* we underſtand that Action of the Mind by which it forms a Judgment of ſeveral others; as when we judge that True Vertue ought to have Relation to God, and that the Vertue of the Pagans was not True Vertue.

By *Diſpoſing* is to be underſtood that Action of the Mind, by which having ſeveral Idea's, ſeveral Judgments and ſeveral Reaſonings on the ſame Subject as a Humane Body; it diſpoſes of them in the moſt proper manner to ſhew what that Subject is: This is call'd *Method*.

As we can have no Knowledge of any thing that's without us, but by the Aſſiſtance of the *Idea's* that are within us the Reflexions that may be made on our *Idea's* are perhaps the moſt important Part of *Logick*, becauſe they are the Foundation of all the reſt. Theſe Reflections may be reduc'd to Five Heads, according to the Five Manners after which we ſhould conſider *Idea's*.

1. According to their Nature and Origin.
2. According to the Principal Difference of the Objects they repreſent.
3. According to their Simplicity or Compoſition.
4. According to their Extent or Reſtriction.
5. According to their Clearneſs and Obſcurity, or Diſtinction and Confuſion.

As to their Nature and Origin. The Word *Idea* is one of thoſe which are ſo clear of themſelves that they cannot be explain'd by others. When we talk of Idea's, we don't call thoſe Images that are Painted by the Fancy by that Name; but all that is within our Underſtanding, when we can truly ſay we *conceive* a Thing after whatever manner we *conceive* it.

There's nothing that we conceive more diſtinctly than Thought it ſelf, and no Propoſition that's more clear to us than this; *I think, therefore I am.* We can have no Certainty of this Propoſition, if we don't conceive diſtinctly *What it is to be*, and *What it is to think.* From this Propoſition a Logician takes occaſion to argue againſt thoſe who maintain that all Idea's are convey'd by the Senſes to the Mind. *There's no need,* ſays he, *of explaining theſe Terms, becauſe they are ſome of thoſe which are ſo well underſtood by all the World, that to go about to explain wou'd be to obſcure them. If therefore it cannot be deny'd but that we have within us the* Idea's *of* Being *and* Thought, *I demand by what Senſe they enter'd? Are they Luminous or Colour'd to make their way by the Sight? Are they of a ſharp or flat Tone to enter by the Ear? Of a fragrant or noiſome* Smell *to affect the Noſe? Of a Good or Bad* Taſte *to enter by that Senſe, Hot or Cold, Rough or Soft, to make their way by* Feeling? *If 'tis ſaid they were form'd of other Senſible Images, Pray let us know what thoſe Images are of which 'tis pretended the* Idea's *of* Being *and* Thought *were form'd? and how they were form'd by Compoſition, Ampliation, Diminution or Proportion. If nothing can be anſwer'd to all this but what is unreaſonable, then it muſt be confeſt that the* Idea's *of* Being *and* Thought *do not in any manner derive their Origin from the Senſes; but that our Mind has the Faculty of forming of it ſelf, tho' 'tis often mov'd to it by ſomething which ſtrikes the Senſe; as a Painter may be mov'd to draw a Picture by the Money that's promis'd him, yet it can't be ſaid that the Picture derives its Origin from the Money.* This is ſufficient to give the Reader an Idea of Idea's, and we do not pretend in this more than any other of theſe Eſſays to go farther. The next Article is that of Conſidering Idea's according to their Object. Every thing we conceive is repreſented to the Mind, either as a Thing, or as the Manner of a Thing, or as a Thing Modify'd. We call that a Thing which is conceiv'd as ſubſiſting by itſelf, and as the Subject of every thing that's conceiv'd of it; this is what is otherwiſe call'd *Subſtance.* We term that the Manner of Things, or Mode, or Attribute, or Quality, which being conceiv'd in a Thing, and not being able to ſubſiſt without it, determines it to be after a certain Manner, and cauſes it to be nam'd ſuch. We call a Thing Modify'd when the Subſtance is conſider'd as determin'd by a Certain Manner or Mode, which will be better comprehended by Examples: When I conſider a Body, the Idea I have of it repreſents a Thing or a Subſtance, becauſe I conſider it as a Thing that ſubſiſts by itſelf, and has no occaſion of any thing elſe to ſubſiſt it. But when I conſider that this Body is round, the Idea I have of Roundneſs repreſents to me only the Manner of Being, or a Mode, which, I conceive, cannot ſubſiſt naturally without the Body whoſe Roundneſs it is. In a Word, When I joyn the Mode with the Thing, I conſider a Round Body, which Idea repreſents to me a Thing Modify'd. The Names or Nouns made uſe of to expreſs Things are call'd Subſtantive or Abſolute, as *Earth, Sun, Spirit, God.* Thoſe alſo which ſignifie chiefly and directly Modes, becauſe they have in that ſome Relation to the Subſtantives, are alſo call'd Subſtantives and Abſolute, as *Hardneſs, Heat, Juſtice, Prudence.* The Names or Nouns which ſignifie the Things as Modify'd, denoting chiefly and directly the Thing more confuſedly, and indirectly the Mode, tho' more diſtinctly, are call'd Adjectives, as *Round, Hard, Juſt, Prudent.* In this Conſideration of Idea's, according to their Objects, 'twill be proper to place the Ten Categories of *Ariſtotle*, becauſe they are only ſeveral Claſſes to which this Philoſopher wou'd reduce all the Objects of our Thoughts, by comprehending all Subſtances under the Firſt, and all Accidents under the Nine others, as

I. *Subſtance*, which is either Spiritual or Corporeal.

II. *Quantity*, which is call'd Diſcrete, When the Parts are not bound together as Number, continu'd when they are bound; and then 'tis either ſucceſſive as Time and Motion, or permanent, which is what is otherwiſe call'd Space or Extent, in Length, Breadth and Depth; the Length alone making the Lines, the Length and Breadth the Surfaces, and all three together the Solids.

III. *Quality*, of which *Ariſtotle* makes four ſorts. The Firſt comprehends Habitude; that is, the Diſpoſition of Mind and Body acquir'd by repeated Acts, as the Fancy, Vertues, Vices, Addreſs in the Arts of Painting, Writing, Dancing. The Second, Natural Powers, ſuch as the Faculties of the Mind or Body, the Underſtanding, Will, Memory, the Five Senſes, the Power of going. The Third, Senſible Qualities, as Hardneſs, Softneſs, Weight, Cold, Heat, Colours, Sounds, Smells, Taſtes. The Fourth, Form and Figure, which is the Exterior Determination of Qualities, as Being, Round, Square, Spherical, Cubical.

IV. *Relation*, as that of Father, Maſter, Servant, King, Subject, every thing that denotes Compariſon, as Equal, Greater, Leſs.

V. *Acting*, either in itſelf, as Walking, Dancing, Knowing, Loving; or out of itſelf, as Beating, Calling, Breaking, Warming.

VI. *Suffering*; as, to be beaten, to be broken, to be warm'd.

VII. *Where*; that is, what anſwers to Queſtions which relate to Place, as to be at *Rome*, *Paris*, in a Cloſet, in a Chair.

VIII. *When*; that is, what anſwers to Queſtions relating to Time, as, When did he Love? A Hundred Years ago? When was that done? Yeſterday?

IX. *Situation*, as Sitting or Standing, Before, Behind, to the Right, to the Left.

X. *Having*; that is, to have ſomething on itſelf to ſerve for Cloathing, either Ornament or *Armour*, as, to be Cloath'd, to be Crown'd, to be Arm'd. Theſe are the Ten Categories of *Ariſtotle*, of which ſo much Myſtery is made, tho' in truth they are not very uſeful, and not only ſerve very little towards forming the Judgment, which is the End of true Logick, but often are very prejudicial to it on Two Accounts: The Firſt is, Theſe Catagories are lookt upon as Things founded on Reaſon and Truth, whereas they are Things that are altogether arbitrary, and have no Foundation but in the Imagination of a Man, who has no Authority to preſcribe Laws to others, as *Meſſieurs* of the *Port Royal* word themſelves; for they have as much Right as he to place the Objects of their Thoughts otherwiſe, according to their Manner of Philoſophizing: And indeed there are ſome who have compriz'd all that is to be conſider'd, according to a New Philoſophy, in every thing whatſoever in this Diſtich,

Mens, Menſura, Quies, Motus, Poſitura, Figura;
Sunt cum Materia cunctarum exordia rerum.

That is, theſe Men imagine that all Nature may be conſider'd in theſe Seven Things or Modes. 1. *Mens*, the Mind or Subſtance which Thinks. 2. *Materia*, the Body or Subſtance extended. 3. *Menſura*, the Greatneſs or Littleneſs of each Part of the Matter. 4. *Poſitura*, their Situation with reſpect to each other. 5. *Figura*, their Figure. 6. *Motus*, their Motion. 7. *Quies*, their Repoſe or leaſt Motion. The Second Reaſon which renders the Study of Categories dangerous is, that it uſes Men to be ſatisfy'd with Words, and fanſie they know all Things when they know only Arbitrary Names which form no clear and diſtinct Idea in the Mind: But 'tis very likely that the Young Gentlemen who have been three or four Years at the College will not allow of this Defeat of Words, which are the greateſt Merit of ſo many notable Exerciſes. We might here ſpeak of the Attributes of the *Lulliſts*, as *Goodneſs, Power*, &c. But 'tis ſuch a ridiculous thing to fancy as they do, that by applying ſome Metaphyſical Words to every thing propos'd, they may be able to give Reaſons for all, that 'tis not worth ſpeaking of. A Modern Author has ſaid with a great deal of Reaſon, *That the Rules of* Ariſtotle's *Logick ſerve only to prove to another what he knows already; but* Lully's *Art ſerves only to make a Man Diſcourſe without Judgment of a Thing he does not know.* Ignorance is better than this falſe Science, being much eaſier to be come at than what is true, and making as much Noiſe among the People, and perhaps a great deal more. The Number of its Students are very large, while that which is Sound find but few Votaries.

We are now to treat of Idea's conſider'd according to their Compoſition or Simplicity. The little Extent of our Mind is ſuch, that it can't perfectly comprehend Things that are Compounded, unleſs it conſiders them by Parts which is generally call'd *Abſtraction.* But as Things are differently Compounded, and there are ſome Parts that are really diſtinct, which are call'd *Integral Parts*, as the *Humane Body*, the *ſeveral Parts of a Number*; 'tis then very eaſy to conceive that our Mind may apply itſelf to conſider one Part without conſidering another, becauſe thoſe Parts are really diſtinct, which is not what is call'd *Abſtraction.* 'Tis ſo uſeful in thoſe Things to conſider rather the Parts ſeparately than the whole; that without it one cou'd have no diſtinct Knowledge of it; For Inſtance in a *Human Body*, How cou'd it be known but by dividing it into all its like and unlike Parts, and giving them all different Names? The Parts may be conſider'd alſo as a Mode, without having any Regard to it as a Subſtance, or two Modes which are joyn'd together in the ſame Subſtance by conſidering each of 'em apart. This the Geometricians do, who for the Object of their Science, have taken a Body extended in Length, Breadth and Depth; for in order to know it the better, they chiefly apply themſelves to conſider it according to one Dimenſion, which is Length, and this they call a Line. They then conſider it with two Dimenſions, Length and Breadth, and that they call Surface; and afterwards conſidering all three Dimenſions together, Length, Breadth and Depth, they term it a Solid or Body.

The more Things can be ſeparated into ſeveral Modes, the more the Mind will come to the Knowledge of them. Thus we ſee that in as much as it has not been diſtinguiſh'd in Motion, the Determination towards any Place, the Movement itſelf, and even ſeveral Parts of the ſame Determination, no clear Reaſon of Reflection and Refraction has been given, which is eaſily done by this Diſtinction, as may be ſeen in the Second Chapter of *Deſcartes*'s Dioptricks. There's another way of conceiving Things by Abſtraction, and that is when the ſame Thing having ſeveral *Attributes*, we think of one without thinking of other, tho' there is but one Diſtinction of Reaſon between them, which is done thus, If I reflect that I think, and conſequently that 'tis I that thinks, in the Idea I have of my ſelf that I think, I may apply my ſelf either to the Conſideration of a Thing that thinks without having any regard that it is me, tho' in me, me and that which thinks are the ſame Thing. Thus the Idea I conceive of a Perſon who thinks, may not only repreſent me, but all other Perſons that think. 'Tis plain, that by theſe ſort of Abſtractions, the Idea's of *Singulars* become Common, and the Common more Common; which brings us to conſider of

Idea's as to their Generality, Particularity, and Singularity: Tho' every Thing that exiſts is Singular, yet by means of Abſtraction we have all ſeveral Idea's, of which ſome repreſent but one thing, as the Idea which every one has of himſelf and others, may equally repreſent ſeveral things; as when we conceive a Triangle, without conſidering it otherwiſe than as a Figure of three Lines, and three Angles. The Idea it forms may ſerve one to conceive all other Triangles.

The Idea's which repreſent but one thing, are term'd *Univerſal*, *Common*, or *General*. The Names that denote the firſt are call'd Proper, as *Socrates*, *Rome*, *Bucephalus*; and thoſe which denote the latter Common, as *Man*, *City*, *Horſe*. And both Univerſal Idea's and Common Names may be call'd General Terms. There are two things in General Idea's, which 'tis of great Importance to diſtinguiſh well, *Comprehenſion* and *Extent*. By the Comprehenſion of an Idea, is to be underſtood the *Attributes* it contains in it ſelf, and which cannot be taken away without deſtroying it, as the Comprehenſion of the Idea of a Triangle includes Extenſion, Figure, three Lines, three Angles, &c. By the Extent of an Idea, is meant the Subject to which that Idea agrees, which is alſo call'd the Inferiors of a General Term; which, with Reſpect to them, is call'd Superior, as the Idea of a Triangle in General extends to all the divers kinds of Triangles.

We ſhall enter as little way as may be into theſe ſorts of Eſſays, aſſuring our ſelves that few Gentlemen will make 'em a part of their *Recreation*; and thoſe who would do more, will doubtleſs have recourſe to Treatiſes at large, ſuch as the *Port Royal*, *Le Clerc*'s, and other Logicks. But conſidering that Gentlemen ſhould be ſo far acquainted with the moſt abſtruſe Sciences, as not to be ſurpriz'd and confounded when they hear Men of Learning talking of them, or arguing upon them, we think we ſhould not anſwer the Deſign of this Undertaking, if we did not give 'em Light enough to prevent ſuch a Misfortune.

What has been already ſaid is, in a few Words, in order to explain the Five Univerſal Idea's taught in the *Schools*, where the Thread of Science is ſpun ſo fine, that 'tis often very apt to break. However, becauſe Scholaſtick Terms are affected on theſe Occaſions, 'tis not improper to go on with them, and let the Reader know that theſe five ſorts of Univerſal Idea's are *Genus*, *Species*, *Difference*, *Propriety*, and *Accidents*. When General Idea's repreſent to us their Objects as Things, and are denoted by Terms call'd *Subſtantive* or *Abſolute*, we give 'em the Names of *Genus* or *Species*.

Genus, is when the Idea is ſo Common, that it extends to other Idea's, which are alſo Univerſal, as the *Quadrilater* is *Genus*, with Reſpect to the *Parellelogram* and *Trapezia*; *Subſtance* is *Genus*, with Reſpect to *Subſtance* extended, which we call Body, and the *Subſtance* that Thinks, which we call Mind.

Species, is a Common Idea, under one more Common and more General, as the *Parallelogram* and *Trapezia* are *Species* of the *Quadrilater*, and *Body* and *Mind* are *Species* of *Subſtance*.

Difference, is when the Object of an Idea is an eſſential *Attribute*, which diſtinguiſhes one *Species* from another, as Extended, Weight, Heavy, Reaſonable.

Propriety, is when the Object is an *Attribute*, which in effect belongs to the Eſſence of the Thing, but is not firſt conſider'd in that Eſſence, but as dependant on the firſt Idea, as Diviſible, Immortal, &c.

Common Accidents, are when the Object is a true Mode, which may be ſeparated, at leaſt by the Mind, from the Thing of which 'tis ſaid to be an *Accident*, and yet the Idea of that Thing ſhall not be deſtroy'd, as Round, Hard, Juſt, Prudent.

We ſhall now ſay a word or two of Complex Terms, their Univerſality or Particularity. We ſometimes join to one Term ſeveral others, which compoſe in our Mind a Total Idea, from whence it often happens, that one may affirm or deny, what could not be deny'd or affirm'd of any one of thoſe Terms taken ſeparately. As for inſtance, *A Prudent Man, A Tranſparent Body*, Alexander *Son of* Philip, are Complex Terms. This Addition is ſometimes made by the *Pronoun Relative*, as if we ſhould ſay, *A Body that is Tranſparent*, Alexander *who is Son of* Philip. And if this Relative is not always expreſt, 'tis always in ſome manner underſtood.

There's nothing of more Importance than that all Idea's ſhould be clear and diſtinct, free from Obſcurity and Confuſion. Clearneſs may be diſtinguiſh'd in an Idea from Diſtinction, and Obſcurity from Confuſion. An Idea is clear, when it ſtrikes ſenſibly, tho' 'tis not diſtinct. As the Idea of Pain ſtrikes us livelily, and therefore may be call'd Clear; yet it may be very confus'd in repreſenting Pain to us, as in a wounded Hand, tho' 'tis only in our Mind. However, one may ſay, that all Idea's which are clear are diſtinct, and that their Obſcurity ariſes only from their Confuſion; as in Pain, the only Sentiment which ſtrikes us, is clear, and alſo diſtinct; but the Confuſion lies, in that we are at a loſs whether it is in the Hand or the Mind. Let the Clearneſs and Diſtinctneſs of Idea's be taken for one and the ſame thing, 'tis neceſſary to examine carefully why ſome are clear and others obſcure. But this is better to underſtand by Examples than any other way, and we ſhall therefore inſtance ſome that are clear and ſome that are obſcure. The Idea every Man has of himſelf, as a Thing that thinks, is very clear. We have alſo very clear Idea's of Subſtance, and what agrees with it; as Figure, Motion, Reſt. We have in the ſame manner clear Conceptions of Being, Exiſtence, Duration, Order, Number. Yet as clear as all theſe Idea's are, we often render them Obſcure, by endeavouring to make them more Clear. The Idea we have of God, in this Life, is clear in one ſenſe, tho' in another it may be very imperfect and obſcure: 'Tis clear, in that 'tis ſufficient to communicate to us, in the Knowledge of God, a great Number of Attributes, which can only be in God alone; but 'tis obſcure, if we compare it to that which the Happy in Heaven have of him; and 'tis imperfect, in as much as our finite Underſtandings cannot but very imperfectly have any Conception of Infinity. There's a great deal of difference between the Perfection and Clearneſs of an Idea; for 'tis perfect when it repreſents to us all that is in its Object; and clear, when it repreſents enough for us to have a clear and diſtinct Conception of it.

Confus'd and obſcure Idea's are ſuch as we conceive of ſenſible Qualities, as Colour, Sounds, Odors, Taſtes, Cold, Heat, Weight, *&c.* The Reaſon of their being confus'd, is what follows: As we were Children before we were Men, and exterior Things acting upon us, caus'd divers Sentiments in our Minds, by the Impreſſions they made on our Bodies; the Mind, which finds 'tis not by its own Will that theſe Sentiments are excited in us, but that they were occaſion'd by certain Bodies, as it is ſenſible of Heat by approaching Fire, is not ſatisfy'd with imagining that there's ſomething without it ſelf, which caus'd thoſe Sentiments in which it would not be deceiv'd. But it goes farther, believing that what was in thoſe Objects, was entirely like the Sentiments it had conceiv'd of 'em. From this Judgment it forms Idea's, by tranſporting theſe Sentiments of Heat, Colour, *&c.* into thoſe Things themſelves which are without its ſelf. Theſe are the obſcure and confus'd Idea's, which we have of ſenſible Qualities; the Mind adding that falſe Judgment to what Nature has help'd it to the Knowledge of. And as theſe Idea's are not Natural but Arbitrary, they are often very Fantaſtick; for Heat and Burning are but two Sentiments, the one weaker, the other ſtronger. We put Heat into the Fire, and ſay, *Fire has Heat*, but don't apply Burning to it in the ſame manner. For the Pain we feel by coming too near it, is not ſaid to be in it, like Heat; and would it not be thought very whimſical, if any one ſhould ſay, *Fire has Pain?* However, if Men have found out that the Pain is not in the Fire which burns the Hand, perhaps they are ſtill deceiv'd, in imagining that the Fire burns in the Hand; whereas, to take it right, 'tis only in the Mind, tho' occaſion'd by what paſſes in the Hand; becauſe Pain in the Body is only a Sentiment of Averſion, which the Mind conceives of ſome Motion contrary to the natural Conſtitution of the Body; which has been allow'd not only by ſome Ancient Philoſophers, as the *Cyrenaicks*, but alſo by St. *Auguſtine* in ſeveral places, particularly in the *City* of *God*, *Dolores qui dicuntur Carnis, animæ ſunt in Carne, & ex Carne.* The Pains we call Corporal are not in the Body, but in the Mind, which cauſes the Mind to feel Pain; but that Motion muſt communicate it ſelf to the Brains by means of little Threads encloſ'd in the Nerves, as in Pipes, which reach like little Strings from the Brains to the Hand, and other Parts of the Body. By which means, if theſe little Threads are ſtirr'd, that Part of the Brain from whence they proceed, is ſtirr'd alſo. We might follow Meſſieurs *de Port Royal* much farther in diſcourſing of this Example, but this is enough to prove that the Pain is not in the Hand, nor the Fire, but in the Mind. The Logicians generally take Pleaſure in enlarging on Idea's, and the more Uncertainty and Subtlety there are in Arguments, many are apt to be moſt delighted with them. Indeed, it gives a Character of depth of Science, of going to the bottom of Things, of Maſtery and Perfection; but we ſhall content our ſelves with the Notion of Idea's already given, in what has been ſaid in this Eſſay, and refer the Reader to Mr. *Lock*, if he is fond of being more learned in the Matter.

From theſe Idea's form'd in the Mind, ariſe *Propoſitions:* For after we have conceiv'd Things by them, we compare the Things together, and finding an Agreement between ſome of them, and a Diſagreement among others, we bind or unbind them, which is term'd *Affirmations* or *Negations*, and generally *Judging*. This *Judgment* is call'd alſo *Propoſition*; and 'tis eaſy to perceive it ought to have two Terms, one is call'd *Subject*, and the other which affirms or denies, *Attribute*. 'Tis not enough to have a right Conception of theſe two Terms; the Mind muſt alſo join or ſeparate them, which is done by the Verb *is* alone when we affirm, and with a Negative Particle when we deny. Thus, when I ſay, *God is Juſt*, God is the *Subject* of this *Propoſition*, *Juſt* the *Attribute*, and *is* the Affirmative which binds the two Idea's together, *God* and *Juſt*. When I ſay, *God is not Unjuſt*, *is* being join'd with the Particle *not*, is the Negative by which I look upon theſe two Idea's, as repugnant to each other. Every *Propoſition* is Affirmative or Negative, and is diſtinguiſh'd by the Verb which affirms or denies. When the *Subject* of a *Propoſition* is a Common Term taken in all its Extent, then the *Propoſition* is call'd Univerſal, whether Affirmative or Negative, as *Every impious Man is Mad*, or *No vicious Man is Happy*. When the Common Term is taken in part of its Extent only, 'tis call'd *Particular*, whether it affirms or denies; as *Whoever is Cruel is Baſe*, *Every poor Man is not Unhappy*. The *Propoſition* is call'd *Singular*, when the *Subject* is ſo; as, *Prince* Eugene *has taken* Liſle. All *Propoſitions* may be reduc'd to four ſorts, which for the help of the Memory are denoted by the four Vowels, *A*, E, I, O.

A is a Univerſal Affirmative, as *Every vicious Man is a Slave.*
E a Univerſal Negative, as *No vicious Man is Happy.*
I a Particular Affirmative, as *Whoever is Covetous is Poor.*
O a Particular Negative, as *Every poor Man is not Unhappy.*

That the Learner may remember them with the more eaſe, they are compriz'd in theſe two Verſes,

Aſſerit A, *Negat* E, *verum generaliter Ambo.*
Aſſerit I, *Negat* O, *ſed particulariter Ambo.*

The *Univerſality* or *Particularity* of *Propoſitions,* is call'd *Quantity*; the *Affirmation,* or *Negation, Quality.* Thus A and E agree in *Quantity,* and differ in *Quality,* and I and O the ſame; but A and I agree in *Quality* and differ in *Quantity,* and E and I the ſame.

Propoſitions are further divided, according to the Matter, into True and Falſe; and 'tis plain, there can be none but muſt be either True or Falſe, becauſe all *Propoſitions* denote the Judgment we make of Things; they are true when that Judgment is conformable to Truth, and Falſe when 'tis not conformable to Truth; and becauſe we often want Light to perceive what is True and what Falſe beſides, the *Propoſitions* which ſeem to be True to us, and thoſe which appear to be certainly Falſe, there are ſome which ſeem True, but the Truth of 'em not to be ſo Evident as to leave no Apprehenſion in us of their being Falſe. Theſe *Propoſitions* are call'd *Probable.*

We have ſaid already, that there are four ſorts of *Propoſitions,* A, E, I, O; and the Reader will now require to know wherein they agree or diſagree among themſelves; when ſeveral ſorts are propos'd in the ſame *Subject* and *Attribute,* which is what is call'd *Oppoſition,* of which there are three kinds; for if they are oppos'd in *Quantity* and *Quality* alone, as A and I and E and I, they are term'd *Contradictory,* as *Every Man is an Animal, Some Men are not Animals.* If they differ in *Quantity* only, and agree in *Quality,* as A and I and E and O, they are term'd *Subaltern,* as *Every Man is an Animal, Some Men are Animals.* If they differ in *Quality,* they are call'd *Contrary* or *Sub-contrary,* as *Every Man is an Animal, No Man is an Animal. Sub-contrary,* when they are particular, as *Some Men are Animals, Some Men are not Animals.* In examining theſe ſeveral Sorts of *Propoſitions,* 'tis eaſy to perceive,

1. That the *Contradictory* are either *True* or *Falſe* together, but if the one is *True* the other is *Falſe,* and if one *Falſe* the other *True*; for if it is *True* that *Every Man is an Animal,* it cannot be *True* that *Any Man is not an Animal*; and if on the contrary 'tis *True* that *Any Man is not an Animal,* it cannot be *True* that *Every Man is an Animal.*

2. *Contraries* cannot be *True* together, but they may be both *Falſe.* They cannot be *True,* becauſe then *Contradictories* would be *True*; for if it is *True* that *Every Man is an Animal,* 'tis *Falſe* that *Any Man is not an Animal*; which is the *Contradictory,* and conſequently more *Falſe,* than *No Man is an Animal,* which is the *Contrary*; but the *Falſity* of the one does not concern the *Truth* of the other: For it may be *Falſe,* that *All Men are Juſt,* and yet not be *True,* that *No Man is Juſt,* ſince there are juſt Men, tho' all Men are not juſt.

3. *Sub-contraries,* by a Rule quite *oppoſite* to that of the *Contraries,* may be *True* together; as theſe two, *Some Men are Juſt, Some Men are not Juſt,* becauſe Juſtice may agree to one Part of Mankind and not agree to another; and thus the *Affirmation* and *Negation* does not relate to the ſame *Subject,* for *ſome Men* in one of the *Propoſitions* are taken for one Part of Mankind, and in the other for another; but they cannot both be *Falſe,* becauſe otherwiſe the *Contradictories* would be both *Falſe.* For if 'tis *Falſe,* that *Some Men are Juſt,* it would be *True,* that *No Man is Juſt,* which is the *Contradictory.*

4. As to the *Subalterns,* they are not really an *Oppoſition,* ſince the *Particular* is a *Conſequence* of the *General*; for if *Every Man is an Animal, Any Man is an Animal*; if *No Man is an Ape, Any Man is not an Ape*; for which Reaſon, the *Truth* of *Univerſals* does concern that of *Particulars,* but the *Truth* of *Particulars* does not concern that of *Univerſals.*

Tho' every *Propoſition* muſt have at leaſt one *Subject* and one *Attribute,* it does not follow it muſt have no more than one of each. That which has but one, is call'd a *Simple Propoſition,* that which has more than one a *Compound*; as when I ſay, *Life and Death, Health and Sickneſs, Poverty and Riches, come from the Lord.* The *Attribute, Come from the Lord,* is not an *Affirmation* of a ſingle *Subject,* but of ſeveral, as *Life and Death, Health and Sickneſs,* &c. The *Simplicity* of a *Propoſition* is taken from the *Unity* of *Subject* and *Attribute.* There are ſeveral *Propoſitions* that have but one *Subject* and one *Attribute*; but the *Subject* or *Attribute* may be a Compound Term, which includes ſeveral other *Propoſitions* that may be call'd Incident, being but a part of the *Subject* or *Attribute,* and join'd by the *Pronoun Relative, Who* or *Which,* the Property of which is to join ſeveral *Propoſitions,* ſo that they may all Compoſe but one only. Compound *Propoſitions* may be of three ſorts,

1. When the Compoſition relates to the *Subject,* to the *Attribute,* or to both, as *Every Man who fears Nothing is a King, Rex eſt qui metuit nihil.*

Beatus ille qui procul negotiis
Ut priſca gens mortalium
Paterna rura bobus exercet ſuis
Solutus omni fœnore.

For the Verb *eſt* is underſtood in this laſt *Propoſition, beatus* is the *Attribute,* and all the reſt the *Subject.*

2. When the *Attribute* is a Compound Term, then the Compoſition relates to the *Attribute, Piety is a Good which renders Men happy in the greateſt Adverſity.*

Sum Pius Æneas famâ ſuper Æthere notus.

3. Sometimes the Compoſition falls on the *Subject* and *Attribute*, both the one and the other being a Compound Term, as in this Propoſition, *The Great, who oppreſs the Poor, ſhall be puniſh'd by God, who is the Protector of the Oppreſs'd.*

Ille ego qui quondam gracili modulatus avena
Carmen, & egreſſus ſylvis vicina coegi.
Ut quamvis avido parerent arva colono,
Gratum opus agricolis: At nunc horrentia Martis.
Arma virûmque cano, Trojæ quis primus ab oris,
Italiam fato profugus Lavinaque venit
Littora.

The three firſt Verſes, and half the fourth, compoſe the *Subject* of this *Propoſition.* The reſt, the *Attribute* and the *Affirmation*; is included in the Verb *Cano.*

If we aim'd in this Eſſay to explain this Art ſo thoroughly, as to leave nothing unſaid which the beſt *Logicians* have written upon it, we might enlarge *On the Falſity that may be found in Compound Terms, and Incident Propoſitions*; *On Compound Propoſitions, according to Affirmation and Negation*; and *Of a kind of Propoſition, call'd by the Philoſophers* Modal. We might treat *Of ſeveral ſorts of Compound Propoſitions, Of Propoſitions Compound in the Senſe,* and add ſome *Obſervations to ſhew which is the Subject and which the Attribute in ſome Propoſitions, expreſs'd after a manner that is not Common.* We might ſpeak of *Confus'd Subjects equivalent to two Subjects,* and obſerve *How Propoſitions may be further known to be Univerſal or Particular*; as alſo treat of *Propoſitions*; where the *Name of Things is given to Signs.* But this would ſwell the Treatiſe to a much more bulky Size than conſiſts with a Deſign that propoſes to give nothing more than the Skeleton of Things. We ſhall therefore proceed to Two ſorts of *Propoſitions* of great uſe in the Sciences, *Diviſion* and *Definition.* And firſt of *Diviſion,* which is the dividing one *Whole* into what it contains. But as there are two ſorts of *Wholes,* there are two ſorts of *Diviſions*; one compos'd of ſeveral Parts, really diſtinct, which in Latin is *Totum,* and the Parts of it are term'd Integral Parts. The *Diviſion* of this *Whole*, is properly call'd *Partition*; as when a Houſe is divided into its Apartments, a Village into its Precincts, a Kingdom into its Provinces, &c. The only Rule in this *Diviſion* is to take care to be exact in the Particulars, and leave nothing out. The other *Whole* is in Latin *Omne,* and its Parts term'd Subjective or Inferior, becauſe this *Whole* is a Common Term, and its Parts are compriz'd within its Extent, as the word *Animal* is a *Whole* of this Nature; the Inferiors of which, as Man or Beaſt, which are compriz'd within its Extent, are its Subjective Parts. This *Diviſion* is what is properly call'd *Diviſion,* and there are four ſorts of it.

1. When the *Genus* is divided by the *Species*; as *All Subſtance is Body or Soul, Every Animal is a Man or Beaſt.*

2. When the *Genus* is divided by its *Differences*, *Every Animal is Reaſonable, or depriv'd of Reaſon, All Numbers are Equal or Unequal, All Propoſitions True or Falſe, Every Line Right or Curv'd.*

3. When a Common *Subject* is divided by the Oppoſite *Accidents*, of which it is capable, or according to its ſeveral Inferiors, or into ſeveral Tomes, as *Every Star is Luminous by its ſelf, or only by Reflection, All Bodies are in Motion or Reſt, All* Britains *are Nobles or Commons, All Men are ſick or well, All People expreſs themſelves, either by Speech only, or by Writing and Speech.*

The Rules for *Diviſion* are, 1. That it be Entire, that is, that the Members of the *Diviſion* comprehend all the Extent of the Term divided, as Equal and Unequal comprehend all the Extent of the Term Number, there being none but what muſt be Equal or Unequal. The ſecond Rule which is a ſequel of the firſt, that the Members of the *Diviſion* be oppoſite, as *Equal* and *Unequal, Reaſonable and depriv'd of Reaſon.* The third Rule is a ſequel of the ſecond, and requires that no one of the Members be ſo ſhut up within the other, but that the other may be affirm'd, tho' it may be ſometimes included in it after another manner; for the Line is included in the Surface, as the Term of the Surface. And that does not hinder the Extents being divided into Line, Surface, and Solid, becauſe it cannot be ſaid that the Line is Surface, nor the Surface, Solid. We ought not to divide Opinions into True, Falſe, and Probable, but firſt into True and Falſe, and then divide the one and the other into Certain and Probable.

The next thing we are to treat of is *Definition,* of which there are two ſorts, the moſt exact retains the Name of *Definition*; the other, which is leſs exact, is call'd *Deſcription.* The moſt exact explains the Nature of Things by their eſſential *Attributes*; of which thoſe that are Common, are call'd *Genus*, thoſe that are Proper, *Difference.* Thus Man is defin'd as a reaſonable Animal, the Soul a Subſtance which thinks, the Body a Subſtance of Extent, God as a Perfect Being. Sometimes *Definitions* are made by the Integral Parts, as when we ſay, *Man is compos'd of Soul and Body.* The leſs exact *Definition,* which is call'd *Deſcription,* is that which gives ſome Knowledge of a Thing by Accidents proper to it. Thus Herbs, Fruits, Animals, are deſcrib'd by their Figure, Size, Colour, and other like Accidents. Of this Nature are the *Deſcriptions* of the Poets. There are three Things neceſſary to a good *Definition,* it ought to be Univerſal, Proper, and Clear. 1. A *Definition* may be ſaid to be Univerſal when it includes all the Things defin'd; for which Reaſon the Common *Definition* of *Time* is, that it is the Meaſure of *Motion,* becauſe we ſay a Thing has been ſo long in Reſt, as well as ſo long in Motion. 2. A *Definition* muſt be proper, that is, it muſt agree to nothing but the Thing defin'd; for which Reaſon the Common *Definition* of the Elements, *A Simple Corruptible Body,* does not ſeem to be Good. For the Celeſtial Bodies, according to the Philoſopher's own Confeſſion, are not leſs Simple than the Elements. And we have no Reaſon to believe that there are not the like Alterations in them, as in Terreſtrial Bodies; for not to ſpeak of Comets, which are known not to be form'd of Exhalations aſcending from the Earth, as *Ariſtotle* imagin'd. There have been Spots diſcover'd in the Sun, which are form'd and diſpers'd like our Clouds, though they are much greater Bodies. 3. A *Definition* muſt be ſo clear, that it muſt give us a clear and diſtinct Idea of the Thing defin'd, and as far as may be make us comprehend the Nature of it; ſo that it may help us to give the Reaſon of its Principal Properties. This is what ought to be chiefly conſider'd in Definitions, and ſay *Meſſieurs* of the *Port Royal* in their Logick, *yet this is what is wanting in a Great Part of* Ariſtotle's *Definitions.* The Authority of the *Port Royal* in this Matter will go as far as *Ariſtotle's*, eſpecially after the Reader has ſeen what theſe Gentlemen ſay of the Philoſopher on this Head. " For who is there, ſay they, who comprehends the Nature of Motion ever the better by his Definition of it; *Actus entis in Potentia quatenus in Potentia*, the Act of being in Power while it is in Power. Is not the Idea which Nature furniſhes us with a hundred times clearer than this? and how will it ever help to explain any of the Properties of Motion." When ſuch Great Men are at Variance in their Method of Explaining the Niceties of Art, the Learners muſt at once inform and pleaſe themſelves by reading what they ſay; wherefore we ſhall continue the Gentlemen of the *Port Royal's* Reflections on *Ariſtotle's* Definitions.

" The Four Celebrated Definitions of the Four Chief Qualities, as *Dryneſs*, *Moiſture*, *Heat* and *Cold*, are not better. *Dryneſs*, ſays he, is that which is eaſily contain'd in its own Bounds, and difficultly in thoſe of another Body, *quod ſuo termino facilè continetur, difficulter alieno.* *Moiſture* on the contrary is what is eaſily contain'd in the Bounds of another Body, but difficultly in its own, *quod ſuo termino difficulter continetur, facilè alieno.* Theſe Definitions agree better with Hard and Liquid Bodies than with Dry and Moiſt; for we ſay that ſuch an Air is dry, and another a moiſt Air, tho' it be eaſily contain'd within the Bounds of another Body, becauſe 'tis always Liquid. Further we can't ſee how *Ariſtotle* cou'd ſay that Fire, that is Flame, was dry, according to his Definition, ſince it eaſily accommodates itſelf to the Bounds of another Body, from whence *Virgil* calls it Liquid Flame, *Et liquidi ſimul Ignis.* 'Tis a vain Piece of Subtlety to alledge with *Campanella* that Fire being ſhut up *aut rumpit aut rumpitur*; for 'tis not on Account of its Dryneſs, becauſe its own Smoak ſtifles it if there's no Air. When there is any Paſſage for the latter to it, whereby it may drive out what it inceſſantly exhales, 'tis with Eaſe contain'd within the Bounds of another Body.

" As for *Heat*, he defines it to be that which gathers together like Bodies, and diſunites unlike, *quod congregat Homogenea & diſgregat Heterogenea*; and *Cold* that which gathers together unlike Bodies and diſ-unites like; which Definitions ſometimes agree with Heat and Cold, and ſometimes do not agree; and beſides, do's not at all help to the Knowledge of the true Cauſe which produces Heat and Cold. Thus the Chancellor *Bacon* had Reaſon to ſay theſe Definitions were like thoſe that were made of Man, by defining him to be an Animal that made Shooes and labour'd in the Vineyard: *Ariſtotle* defines Nature to be *Principium motus & quietis in eo in quo eſt*, the Principle of Motion and Reſt in that in which it is; which is founded only on an Imagination of his, That Natural Bodies differ'd from Artificial, inaſmuch as Natural have the Principle of Motion within 'em, and Artificial only without 'em; whereas 'tis evident and certain, that no Body can give Motion to itſelf, becauſe Matter being of itſelf indifferent to Motion or Reſt cannot be determin'd to one or t'other but by ſome Foreign Cauſe, which not being able to reach Infinity, it neceſſarily follows that God has impreſt Motion in Matter, and keeps it in it. The Famous Definition of the Soul appears ſtill to be more defective; *Actus primus corporis naturalis organici potentia vitam habentis*, the Firſt Act of the Natural Organical Body which has Life in Power. By which we can't tell what he would define; for if 'tis the Soul, as Common to Man and Beaſt, 'tis a Chimera, there being nothing Common between the Two Things. He has explain'd an obſcure Term by four or five more obſcure. To ſpeak only of the Word *Life*; the Idea we have of it is as Confus'd as that of the Soul, the true Term being equally ambiguous and equivocal." As to the Definition of the latter, with all due Submiſſion to the *Criticks* of the *Port Royal*, this Philoſopher might very well be a little obſcure in the Definition of a Soul, which none cou'd ever have a true Idea of but by the Help of the Knowledge of its Original. The True God and the Religion that teaches it, which Chriſtian Philoſophers having, may, doubtleſs, excel all that ſpeak of God or the Soul before the Sacred Revelation prevail'd. The Light of Nature will not go ſo far of itſelf, and the Brighteſt Idea's of the *Platoniſts*, relating to Immortal Beings are Confus'd, in Compariſon to the clear ones communicated to us by the Spirit of God.

What we have ſaid of Idea's already, and of Diviſion and Definition, prepares the way for that Part of Logick which is moſt treated of, and that is *Reaſoning*, the Neceſſity of which is founded only on the narrow Limits of Humane Underſtanding, which being to judge of the Truth or Falſhood of a Propoſition, which is there call'd *Queſtion*, cannot always do it by Conſideration of the Two Idea's that Compoſe it. That Idea which makes the Subject is call'd the *Little Term*, becauſe the Subject is commonly of leſs Extent than the Attribute, and the Idea of the Attribute is on the contrary call'd the *Great Term.* When the Conſideration of theſe Two Idea's only is not ſufficient to form a Judgment of Affirmation or Negation, there's occaſion of a Third, which is term'd the *Mean.*

This Term *Mean* muſt be compar'd as well with the Subject as with the Attribute, either ſeparately with each of theſe Terms, as in Simple *Syllogiſms*, or with both together, as in the Arguments that are call'd *Conjunctive.* In both, one way or t'other, Two Propoſitions are requiſite. We ſhall particularly ſpeak of the *Conjunctive* Arguments; for the Simple are clear, ſince the Mean being once compar'd with the Attribute of the Concluſion (which cannot be done but by affirming or denying) makes the Propoſition call'd *Major*, becauſe the Attribute of the Concluſion is call'd the *Great Term*; and being again compar'd with the Subject of the Concluſion it makes the *Minor*, becauſe the Subject of the Concluſion is call'd the *Little Term.* This Concluſion is the Propoſition to be prov'd, which before Proof is the *Queſtion.* The Two Chief Propoſitions are call'd *Premiſes*, for that they are plac'd at leaſt in the Mind before the Concluſion, which ought to be a neceſſary Conſequence if the Syllogiſm is good; that is, ſuppoſing the *Premiſes* to be true, the Concluſion muſt neceſſarily be ſo. 'Tis true, the two Premiſes are not always expreſs'd, becauſe oftentimes one is enough for the Conception of both; and when but Two Propoſitions are expreſs'd, this ſort of Reaſoning is call'd *Enthymeme*, which is a true Syllogiſm in the Mind, in as much as it ſupplies the Propoſition that is not expreſs'd. Tho' I have ſaid there are at leaſt Three Propoſitions in an Argument, there may be many more without rendring it defective, provided the Rules are always obſerv'd; for if after having conſulted a Third Idea, to find whether a Subject agrees to the Attribute, or does not agree to it; and having compar'd it with one of the Terms, I can't yet tell whether it agrees or diſagrees with the Second Term, I may chooſe a Fourth to inform my ſelf better, and a Fifth if that will not do, and ſo on 'till I have found one Term that will bind the Attribute of the Concluſion to the Subject. As for Example; Suppoſe I doubt whether *Miſers are miſerable*. I may firſt conſider that *Miſers* are full of Deſires and Paſſions; If that is not ſufficient for me to conclude from thence they are miſerable, I muſt examine what it is to be full of Deſires, and ſhall find in this Idea, that of wanting abundance of Things deſir'd, and the Miſery of being depriv'd of the Thing wiſh'd for; from whence I have ſufficient Ground to form this Argument, *Miſers are full of Deſires: Thoſe who are full of Deſires want abundance of the Things deſir'd, becauſe 'tis impoſſible for 'em to have their Deſires ſatisfy'd: Thoſe that want what they deſire are miſerable, therefore Miſers are miſerable.* The next thing to be treated of is *Syllogiſm*, ſo famous in Treatiſes of Logick, of which 'tis the Staff.

Syllogiſms, or Arguments of Three Propoſitions, are either Simple or Conjunctive. Simple are thoſe where the *Mean* is joyn'd but to one of the Terms of the Concluſion at once; Conjunctive are thoſe where it is joyn'd to both. Thus this Argument is Simple; *Every Good Prince is belov'd by his Subjects; Every Pious King is a Good Prince: Therefore every Pious King is belov'd by his Subjects*, becauſe the *Mean* is joyn'd ſeparately to *Pious Kings*, which is the Subject of the Concluſion, and with *belov'd by his Subjects*, which is the Attribute; but what follows is the Conjunctive for a Contrary Reaſon. *If an Elective State is ſubject to Diviſions 'twill not laſt long. An Elective State is ſubject to Diviſions, therefore an Elective State will not laſt long.* Here an *Elective State*, which is the Subject, and *laſt long*, which is the Attribute, are Part of the *Major*. Theſe two ſorts of Syllogiſms have their ſeparate Rules; and there are alſo two ſorts of Simple Syllogiſms, one wherein each Term is joyn'd wholly to the *Mean*; that is, to the Attribute wholly in the *Major*, and to the Subject wholly in the *Minor*: The other wherein the Concluſion is Complex'd, that is Compos'd of Complex Terms, we take but Part of Subject and Part of the Attribute to joyn with the *Mean* in one of the Propoſitions, and take all the reſt, which is but one ſingle Term to joyn with the *Mean* in another Propoſition.

The Law of God obliges to honour Soveraigns.
Queen ANNE is Soveraign;
Therefore the Law of God obliges to honour Queen ANNE.

The *Syllogiſms* which are call'd Conjunctive, do not all conſiſt of Propoſitions that are Conjunctive or Compounded, but are thoſe whoſe *Major* is ſo Compounded that it includes all the Concluſion. They may be reduc'd to Three Kinds, *Conjunctive, Disjunctive*, and *Copulative*.

Conditional Syllogiſms are ſuch whoſe *Major* is a Conditional Propoſition containing all the Concluſion, as

If there is a God he muſt be belov'd.
There is a God;
Therefore he muſt be belov'd.

The *Major* has Two Parts; the Firſt is call'd *Antecedent*, *If there is a God*; the Second *Conſequent*, *He muſt be belov'd.*

Disjunctive Syllogiſms are thoſe whoſe Firſt Propoſition is Disjunctive; that is, whoſe Parts are joyn'd by *Or*, as this of *Cicero*.

Thoſe who kill'd Cæſar *are Parricides, or Defenders of Liberty.*
Now they are not Parricides;
Therefore they are Defenders of Liberty.

Copulative Syllogiſms are thoſe in which a Negative Propoſition is taken, Part of which is afterwards laid down as Truth to take off the other Part, as

A Man cannot be at once a Servant of God, and a Worſhipper of Money.
Now a Miſer is a Worſhipper of Money;
Therefore he is not a Servant of God.

For this ſort of *Syllogiſm* does not neceſſarily conclude any thing, when one Part is taken away to have another put in its Place; as may be ſeen by this Argument taken from the ſame Propoſition.

A Man cannot be at once a Servant of God and a Worſhipper of Money.
Now the Prodigal is not a Worſhipper of Money;
Therefore he is a Servant of God.

Of *Syllogiſms* there can be none Perfect which have leſs than Three Propoſitions, unleſs the Concluſion is abſolute; for a Conditional Propoſition may include one of the Premiſes beſides the Concluſion, and even both of 'em. As for Example; Suppoſe I was to prove that the Moon is a Rugged Body, and not Smooth like a Looking-Glaſs, as *Ariſtotle* imagin'd, I cou'd not conclude it abſolutely under leſs than Three Propoſitions.

All Bodies which reflect Light from all Parts are Rugged.
Now the Moon reflects Light from all Parts;
Therefore the Moon is a Rugged Body.

But I ſhould have occaſion of Two Propoſitions only to conclude it Conditionally, as

All Bodies which reflect Light from all Parts are Rugged;
Therefore if the Moon reflects Light from all Parts, 'tis a Rugged Body.

Nay, this Argument may be brought within the Compaſs of one Propoſition.

If all Bodies which reflect Light from all Parts are Rugged, and the Moon reflects Light from all Parts, it muſt be allow'd that it is not a Smooth but a Rugged Body.

Or elſe one of the Propoſitions may be bound by the Cauſal Particle, *Becauſe* or *Since.*

If every true Friend ought to be ready to lay down his Life for his Friend,
There are no true Friends;
Since there are none who carry their Friendſhip ſo far.

This way of Arguing is very common and very fine, and ſhews that all Arguments are not bound to be made up of Three Propoſitions, divided and plac'd in the Order of the *Schools*; for 'tis certain that this Single Propoſition comprehends this Entire Syllogiſm.

Every true Friend ought to be ready to lay down his Life for his Friends:
Now there are none that are ready to lay down their Lives for their Friends;
Therefore there are no true Friends.

We muſt now ſay ſomething of *Enthymems* and *Enthymematick* Sentences. An *Enthymem* is a Perfect Syllogiſm in the Mind, but imperfect in the Expreſſion, becauſe one of the Propoſitions is ſuppreſt as too clear and too well known. This way of Argument is ſo common in Speaking or Writing, that 'tis rare to find all the Propoſitions expreſt, becauſe generally there's one clear enough to be underſtood. This Suppreſſion flatters the Vanity of thoſe to whom we ſpeak, inaſmuch as we leave ſomething to their Underſtanding, and by abridging the Diſcourſe 'tis render'd the more ſtrong and lively: As for Inſtance, if of this Verſe of *Ovid*, which contains a very Elegant *Enthymem*,

Servare potui, perdere an poſſim rogas,

Thee have I kept, Thee therefore I can loſe.

An Argument in Form had been made as; *He who can keep can loſe. Now I have been able to keep thee, therefore I can loſe thee.* All the Grace wou'd have been loſt; and the Reaſon is, That as one of the Principal Beauties of a Diſcourſe is to be full of Senſe, and give the Mind an Opportunity to form a Thought of more Extent than the Expreſſion; ſo 'tis on the contrary a great Defect to be void of Senſe, and include few Thoughts in the Expreſſion, which is almoſt *unavoidable in Philoſophical Syllogiſms*; yet theſe are in great Vogue with ſuch as having acquir'd a Habit of 'em in the Schools, cannot fall ſo eaſily into a reaſonable way of Arguing, as they can remember what they have Learnt. The Propoſition ſuppreſt by the *Enthymem* is ſometimes the *Major*, ſometimes the *Minor*, and ſometimes the Concluſion. It ſometimes happens that the Two Propoſitions of the *Enthymem* is concluded in one Propoſition only, which *Ariſtotle* calls an *Enthymematick* Sentence, and gives this Example,

Mortal, do not keep an Immortal Hatred.

The Argument Entire would be, *He that is mortal ought not to keep an immortal Hatred. Now you are mortal therefore*; and the Compleat *Enthymem* wou'd be, *You are mortal, let not your Hate therefore be immortal.*

Some *Syllogiſms* are compos'd of more than Three Propoſitions, and ſuch are generally call'd *Soriſtes*. They may be diſtinguiſh'd Three Ways, by *Gradation, Dilemma's* and *Epichereums*. Of *Gradation* ſomething has been ſaid, tho' under other Terms, when we firſt treated of *Syllogiſms*. *Dilemma's* will be ſpoken of in another Place; and in this we ſhall treat of *Epichereums*, which comprehend the Proof either of one of the Two Chief Propoſitions or both of them. As we are often oblig'd to ſuppreſs certain Propoſitions which are too clear in a Diſcourſe, ſo 'tis often alſo neceſſary to advance ſome that are doubtful, and to joyn Proof to 'em at the ſame time, to prevent the Impatience of thoſe to whom we ſpeak, who are ſhock'd ſometimes when we pretend to convince them by Reaſons which ſeem falſe or doubtful; for tho' we provide a Remedy in the Sequel, yet 'tis dangerous to give the leaſt diſguſt to the Mind, tho' but for a little time; wherefore 'tis neceſſary Proofs ſhould immediately follow doubtful Propoſitions, and not be ſeparated from them. This Separation will produce another great Inconveniency in obliging us to repeat the Propoſition to be prov'd. For which Reaſon, whereas the Method of the Schools is to propoſe the Argument Entire, and afterwards prove the difficult Propoſition, that which obtains in Common Diſcourſes is to joyn the Proofs that confirm it to ſuch Propoſitions as appear doubtful. This makes a ſort of Argument compos'd of ſeveral Propoſitions; for to the *Major* is joyn'd the Proofs of the *Major*, to the *Minor*, the Proofs of the *Minor*; after which comes the Concluſion. All *Cicero*'s Oration for *Milo* may be reduc'd to a Compound Argument, whoſe *Major* is, that 'tis permitted to kill him who lays Snares for our Lives. The Proofs of this *Major* are taken from the Law of Nature, the Rights of Mankind and Examples. The *Minor* is, Clodius *laid Snares for* Milo; and the Proofs of the *Minor* are Clodius's *Equipage and Train*, &c. The Concluſion is, *That 'twas therefore lawful for* Milo *to kill him*, which is ſufficient to give a Notion of the Nature of *Epichereums*; and the Uſe of 'em appears plainly in all Pleadings and Publick Orations, that are to have an immediate Effect on the Auditory; and to engage them, 'tis neceſſary to keep the Proofs as near any thing doubtful as is poſſible. The next Thing is the

Dilemma, which is a Compound Argument, wherein, after having divided a Whole into its Parts, we conclude affirmatively or negatively of the whole, what had been concluded of each Part; It muſt be, *What has been concluded of each Part*;

and not that only which might have been affirm'd, for nothing is properly call'd a *Dilemma*, but that wherein what has been ſaid of each Part is maintain'd by its Particular Reaſon: As for Example, being to prove that we cannot be happy in this World, this *Dilemma* may be made upon it.

We cannot live in this World without abandoning our ſelves to our Paſſions, or ſtruggling with them. If we abandon our ſelves to them, 'tis a miſerable Eſtate, becauſe ſhameful and unſatisfactory; If we ſtruggle with them that's alſo a miſerable Eſtate, becauſe nothing is more troubleſome than that inward War which we are continually oblig'd to have with our ſelves; therefore we cannot have any true Happineſs in this Life.

The following Obſervations may be made on theſe ſorts of Arguments.

The Firſt is, That we do not always expreſs all the Propoſitions that belong to them; as for Inſtance: There are abundance of Things to be underſtood in that Famous *Dilemma* by which an Ancient Philoſopher ſays, *That we ought not to meddle with Affairs of State.*

If we act well we ſhall give Offence to Man; if we act ill we ſhall oflend the Gods; therefore we ought not to meddle at all. And in this, by which another próv'd, *That we ought not to Marry.*

If we marries a handſome Woman, ſhe cauſes Jealouſy, if an Ugly Woman, Diſquiet; therefore we ought not to marry. For in both theſe *Dilemma's* the Propoſition that ſhould have contain'd the Partition is underſtood. And this is what is very common, becauſe it is eaſily underſtood, being ſufficiently denoted by the Particular Propoſitions wherein each Part is treated of.

Further, That the Concluſion may be contain'd in the *Premiſes*, ſomething general, which may agree to all, muſt be underſtood every where as well as in the Firſt; as,

If we act well we ſhall give Offence to Man, which is grievous; if we act ill we ſhall offend the Gods, which is alſo grievous; therefore 'tis grievous in any wiſe to meddle with State Affairs. This Advice is of great Importance towards judging rightly of the Force of a *Dilemma*; for that which makes this not concluſive is, That 'tis not grievous to offend Man when we can avoid offending God.

The Second Thing to be obſerv'd is, That a *Dilemma* may be vicious, and chiefly two ways. One is, when the *Disjunctive* on which it is founded is *defective*, as not comprehending all the Members of the whole which is divided. Thus the *Dilemma* againſt Marriage is not Concluſive, becauſe there may be Women not handſome enough to create Jealouſy, nor ugly enough to give Diſguſt. The other is, when the Particular Concluſions of each Part are not neceſſary. Thus 'tis not neceſſary that a handſome Woman ſhould cauſe Jealouſy, ſince ſhe may be ſo diſcreet and ſo vertuous, as not to give a Ground for Diſtruſtthat ſhe's Unfaithful. Neither is it neceſſary that an Ugly Woman ſhou'd give Diſguſt, becauſe ſhe may have ſo many good Qualities of Mind that ſhe may pleaſe her Husband.

The Third Thing to be obſerv'd is, That he who makes Uſe of a *Dilemma*, be very careful, leſt it might be turn'd againſt himſelf. Thus *Ariſtotle* witneſſes, That the Famous *Dilemma* about meddling with State Affairs was turn'd againſt the Philoſopher who made it, it being ſaid,

If we Govern according to the Corrupt Rules of Man,
we ſhall Content Man.
If we ſerve True Juſtice we ſhall Content the Gods;
Therefore we ought to meddle with them.

However, this Turn was not reaſonable; for 'tis not profitable to pleaſe Man by offending God.

We ſhall in the next place treat of the Method of finding out Arguments, and what the Rhetoricians and Logicians call *Loci Argumentorum* or *Places*, which are certain General Heads under which all the Proofs relating to the ſeveral Matters diſcours'd of may be plac'd; and that Part of Logick term'd *Invention*, is nothing elſe but what they teach by theſe Places.

Ramus on this Subject quarrels with *Ariſtotle* and the Philoſophers of the *Schools*, becauſe they treat of Places after having given Rules for Arguments, and pretends that Places, and every thing relating to Invention ought to be explain'd before the Rules are treated of; his Reaſon was, that the Matter ſhou'd be found out before we think of diſpoſing it. Now the Explanation of Places teaches how to find out Matter, wheteas Rules for Arguments ſhew only how to diſpoſe of it. " But, ſay the Gentlemen of the *Port Royal*, " this Reaſon is very weak; " for tho' 'tis neceſſary the Matter be found out " before we think of the Diſpoſition of it, 'tis " not how ever neceſſary to learn how to " find out Matter before we learn how to diſ- " poſe of it. For to diſpoſe of Matter, 'tis ſuffi- " cient to have Certain General Matters to ſerve " for Examples; now the Mind and Common Senſe " always furniſh enough without having any oc- " caſion to borrow from Art and Method. 'Tis " therefore true, that a Man may have Matter to " Explain the Rules of Arguments, but falſe that " 'tis neceſſary to find that Matter by the Method " of Places.

Much more might be ſaid for putting theſe Places in the Order the Reader will find them; but as long as he finds them he will be ſatisfy'd, eſpecially ſince there was no abſolute Neceſſity of their being made Introductory to the other Parts of Logick: So leaving *Ramus* to decide that Affair with *Ariſtotle* we proceed.

The Ancients made a great Myſtery of this Method of *Places*, and *Cicero* preferr'd it to all the *Dialetick* as taught by the *Stoicks*, becauſe they ſaid nothing of *them*. Let us leave off a Science that ſays nothing to us of the Art of finding out Arguments, and ſpeaks too much of that of judging, *Iſtam Artem totam relinquamus quæ in excogitandis Argumentis muta nimium eſt, in judicandis nimium loquax.* *Quintilian* and all the Rhetoricians, *Ariſtotle* and all the Philoſophers ſpeak of them; ſo that we ſhould be put to it to be of another Opinion, if General Experience was not quite contrary to it. We may call as many Perſons as have paſt thro' a Common Courſe of Study to witneſs this Truth. Is there one of them who having learnt this Method at the College, when afterwards he has been oblig'd to treat of any Subject that reflected on theſe Places, and ſought there for the Reaſons that were neceſſary. Let us hear what the *Port Royal* ſay of this Matter, becauſe we know 'twill ſhock the Logicians grown old in the ways of the Schools, and the Young Men, who are fonder of the Form than of the Power of Argument.

"Conſult, *ſay they*, as many Lawyers and Preachers as are in the World, as many Men as Speak and Write, and have always Matter left, and 'tis to be queſtion'd whether you'll find one that ever thought of making an Argument *à Cauſa, ab effectu, ab adjunctis*, to prove what he intended." Now this is at once to throw out of the School thoſe ſounding Terms which ſerve to amuſe the Ignorant, and divert others. What will become of *Cauſe Efficient, Procreant*, and *Conſervant, Final*? Of *Diſſentaneous, Diſparous, Privative, Comparate, Ratio*, &c. which make more Noiſe than good Senſe, and true Art. In a word, what will become of all the Exerciſes in Logick, that are to form ſo many future Orators for the Chair and the Bar? Let what ever will be their Fate, we'll go on with the *Port Royal's* Reflections, which 'tis probable will be of more uſe than their preſent Courſe in the *Dialectick*. "Thus, tho' *Quintilian* ſhew'd he had an Eſteem for this Art, he was oblig'd nevertheleſs to acknowledge that we ſhould not, when we handle any Matter, knock at the Door of all thoſe Places, to fetch from thence Arguments and Proofs. *Illud quoque ſtudioſi Eloquentiæ cogitant, non eſſe cum propoſita fuerit materia dicendi ſcrutanda ſingula & velut oſtiatim pulſanda, ut ſciant an id probandum quod intendimus, fortè reſpondeant.* 'Tis true, all the Arguments made on each Subject, may be brought under the Heads call'd Places; but 'tis not by this Method that they are found. Nature, the deliberate Conſideration of the Subject, the Knowledge of ſeveral Truths produces them, and Art afterwards accommodates them to certain *Genus's*. Again, we may form Rules by obſerving what Nature makes us do, but we never do thoſe Actions by the help of Rules. *Virgil*, in the Ninth Book of the *Æneis*, after having repreſented *Eurialus* ſurpriz'd, and ſurrounded by his Enemies, who were ready to revenge on him the Death of their Companions, whom *Niſus*, *Eurialus's* Friend, had ſlain, puts theſe Words, full of Emotion and Paſſion in the Mouth of *Niſſus*,

Me me adſum, qui feci, in me convertite ferrum
O Rutuli, mea fraus Omnis; Nihil iſte nec auſus,
Nec potuit. Cœlum hoc & ſidera conſcia teſtor
Tantum infelicem nimium dilexit amicum.

"This Argument is, ſays *Ramus*, *à Cauſa Efficiente*. But one may boldly ſwear that *Virgil* never thought of the *Place* call'd the Efficient Cauſe, when he made theſe Verſes; he never would have made them, if he had ſtop'd to look after ſuch a Thing as Place; for to produce ſuch Noble and Pathetick Lines, he muſt neceſſarily have not only forgotten thoſe Rules, if ever he knew them, but muſt in ſome meaſure have forgotten himſelf, to take on him the Paſſions he would repreſent.

"The Truth is, the little Uſe the World has made of this Method of Places, ſince it has been found out and taught in the Schools, is an evident Proof that 'tis indeed not uſeful. Let any one draw as much Fruit from it as 'tis capable of yielding, he will never arrive by it at any thing uſeful or valuable. All that can be pretended to by this Method, is to find out ſeveral General, Common, and Foreign Thoughts on each Subject, ſuch as the *Lulliſts* find by the help of their Tables. Now, of what uſe can ſuch an abundance be, than which nothing is more prejudicial to the Judgment? Nothing choaks good Seed ſo much as the abundance of Weeds. Nothing renders the Mind more barren of ſolid and juſt Thoughts, than this wretched Fertility of Common ones. The Mind accuſtom'd to this facility, eaſes it ſelf of the Trouble of looking after particular and proper Reaſons, which are only diſcover'd by ſerious Attention to the Subject.

"It ought to be conſider'd, that the abundance ſought after by the means of *Places*, is of very little Advantage; 'tis not what the greateſt part of Mankind wants. And thoſe who follow this Method, offend oftner thro' Exceſs than Deficiency; Diſcourſes made in this way are but two full of Matter. Thus, to form a ſolid and judicious Eloquence, 'twould be much more uſeful to teach Men to hold their Tongues than to ſpeak; that is, to ſuppreſs and cut off Low, Common, and Falſe Thoughts. And as the uſe of *Places* ſerves for little, but to find out ſuch Thoughts; if it muſt be allow'd, that 'tis convenient to know them, becauſe ſo many great Men have ſaid ſo, 'tis much more convenient to know how ridiculous it is to uſe 'em. To diſcourſe of every thing, as the *Lulliſts* do, by means of their General Attributes, which are a ſort of Places, and that this bad facility of diſcourſing upon every thing, and finding Reaſons every where, of which ſome Perſons are very Vain, is ſo poor a Character of Underſtanding, that 'tis below even Brutality." If theſe Gentlemen ſhould meet with many more Votaries than they have done already, the Ancient Logick will ſuffer as much as the Ancient Geometry did by the Diſcovery of the *Infinitely Littles*, which has in one Age gone farther than all the Art did before in Two Thouſand Five Hundred Years. Notwithſtanding what has been ſaid againſt the blind Uſage of *Places* inſtead of *Genius* and *Reaſon*, yet ſince a General Tincture of them may not be amiſs, in as much as it may help a Man when he does not think of 'em, to view Things on more ſides than one, we ſhall ſay ſomething of them.

Thoſe that have treated of Places have divided them after different manners, we ſhall follow that which was follow'd by the *Port Royal*.

Places of Grammar, are Etymology and Words deriv'd from the ſame Root, which in the Latin are call'd *Conjugates*. We argue by Etymology, when we ſay, for Example, *That ſeveral Perſons in the World never divert themſelves*, properly ſpeaking, becauſe to divert themſelves, is to diſapply themſelves from ſerious Occupations, and that they are never ſeriouſly occupy'd. Words deriv'd from the ſame Root, help alſo to find out Thoughts, as *Homo ſum, humani nil à me alienum puto. Mortali urgemur ab hoſte, Mortales. Quid tam dignum miſericordiâ quam Miſer? Quid tam indignum miſericordiâ quam ſuperbus Miſer?* Who is there more worthy of Mercy than a miſerable Man? Who more unworthy of it than a miſerable Man that's Proud?

Places of *Logick* are Univerſal Terms, *Genus, Species, Differences, Propriety, Accident, Definition, Diviſion*. To theſe Places are join'd certain Common Maxims, which 'tis convenient to know, not becauſe they are very uſeful, but becauſe they are common. The Ordinary Terms are,

1. What affirms or denies in the *Genus*, affirms and denies in the *Species*, *That which agrees with all Men, agrees with the Great; but they are not to pretend to Advantages that are above Men.*

2. By deſtroying the *Genus* you deſtroy the *Species*, *He who does not judge at all, does not judge ill, He who never ſpeaks at all, never ſpeaks ill.*

3. By deſtroying all the *Species* you deſtroy the *Genus*, *The Forms which are call'd Subſtantial (except the Reaſonable Soul) are neither Body nor Soul, therefore they are not Subſtances.*

4. If we can affirm or deny the total *Difference* of any Thing, we may affirm or deny the *Species*, *Extent does not agree to Thought, therefore it is not Matter.*

5. If we can affirm or deny the *Property* of any Thing, we may affirm or deny the *Species*, *It being impoſſible to figure to ones ſelf half of a Thought, nor a round or a ſquare Thought, 'tis impoſſible that it ſhould be a Body.*

6. We affirm or deny a Thing defin'd, when we affirm or deny the *Definition*, *There are few juſt Perſons, becauſe there are few who have a firm and conſtant Will to render to every one what is his due.*

Places of Metaphyſicks are certain General Terms, agreeing to all Beings; to which ſeveral Arguments are annex'd, as Cauſes, Effects, the Whole, Part, oppoſite Terms. What is moſt uſeful, is to underſtand ſome General Diviſions, and eſpecially of Cauſes. The Definitions which are given in the Schools to Cauſes in general, as *A Cauſe is that which produces an Effect, or that by which a Thing is,* are ſo little Clear, and 'tis ſo difficult to ſee how they agree to all kinds of Cauſes, that it would have been well if that Word had been left among thoſe which are not defin'd, the Idea we have of it being every whit as Clear as thoſe Definitions.

The Diviſion of Cauſes into four kinds, into Final, Efficient, Material, and Formal, is the moſt famous, and moſt neceſſary to be known.

A Final Cauſe is the end for which a Thing is. There are *Principal* Ends, which are thoſe that are principally regarded; and Acceſſory Ends, which are conſider'd only as over and above. What we pretend to do or obtain, is call'd *Finis cujus Gratia.* Thus Health is the end of Phyſick, becauſe it pretends to procure it. He for whom Labour is done, is call'd *Finis cui.* Man is the end of Phyſick, in this manner, becauſe 'tis for him that it deſigns the Cure. There's nothing more Common than to draw Arguments from the End, either to ſhew that a Thing is imperfect, as when a Diſcourſe is ill done, when 'tis not proper to perſwade, or to ſhew, 'tis likely a Man has done or will do ſuch an Action, becauſe 'tis conformable to the End he us'd to propoſe to himſelf. From whence came that famous Saying of a Roman Judge, that we muſt before every thing examine, *cui Bono*, what Intereſt had a Man in doing ſuch a thing, becauſe Men are generally acted by their Intereſt; or, on the contrary, to ſhew a Man ought not to be ſuſpected to be guilty of ſuch an Action, becauſe 'twould have been contrary to his End. There are ſeveral other Ways of Arguing from the End, which good Senſe will diſcover better than all Precepts; which Obſervation may ſerve for all other Places.

The *Efficient Cauſe* is that which produces another Cauſe. Arguments are drawn from it, by ſhewing that an *Effect* is not, becauſe there has not been ſufficient Cauſe, or that it will be by demonſtrating that all the *Cauſes* are. If theſe Cauſes are neceſſary, the Argument is neceſſary; if they are Free and Contingent, 'tis only probable. There are ſeveral *Species* of *Efficient Cauſes.* God creating *Adam*, was the total Cauſe, becauſe Nothing concurr'd with him in it; but the Father and Mother are each but partial Cauſes of their Child, becauſe both the one and the other was neceſſarily concern'd in the Generation of it. The Sun is a proper Cauſe of Light, but only the accidental Cauſe of the Death of a Man kill'd by its Heat, becauſe he was ill diſpos'd. The Father is a *Neighbouring* Cauſe of his Son, the Grand-father but a *Diſtant*, the Mother the *Productive*, the Nurſe the *Preſerving.* A Father is an *Univerſal* Cauſe, with reſpect to his Children, becauſe they are like him in Nature. God is but an *Equivocal* Cauſe, with reſpect to his Creatures. A Workman is the principal Cauſe of his Work, his Inſtruments are only the *Inſtrumental* Cauſe. The Air that enters an Organ, is an *Univerſal* Cauſe of the Harmony of the Organ. The particular Diſpoſition of each Pipe, and he who plays, are the *Particular* Cauſes which determine the *Univerſal.* The Sun is a *Natural* Cauſe, Man an *Intellectual* Cauſe, with reſpect to what he does with Judgment. The Fire which burns, Wood, is a *Neceſſary* Cauſe. A Man who walks, is a *Free* Cauſe. The Sun giving Light to a Chamber, is the *Proper* Cauſe of its Light; the Window is but a Condition, without which the Effect would not have been, *Conditio ſine qua non.* The Fire burning a Houſe, is the *Phyſical* Cauſe of its burning; the Man who ſet it on fire, the Moral. The *Exemplary* Cauſe is alſo reckon'd a Part of the *Efficient.* 'Tis the Model we propoſe to our ſelves in undertaking any Piece of Work, as the Deſign of a Building, by which the Architect builds; or generally whatever is the Cauſe of the Object of our Idea, or any other Image, as that of Queen ANNE, is the *Exemplary* Cauſe of her Picture.

The *Material Cauſe*, is that out of which Things are found, as Gold is the Matter of a golden Cup. That which agrees or diſagrees with the Matter, agrees or diſagrees with the Things made of it.

Form is that which renders a Thing what it is, and diſtinguiſhes it from others; by the Knowledge of which we muſt explain its Properties.

There are as many different *Effects* as there are *Cauſes*, theſe Words being reciprocal. The common way of drawing Arguments from them, is by ſhewing, if the Effect is, the Cauſe is; nothing can be without Cauſe. That a Cauſe is good or bad, is prov'd when the Effects are good or bad; which however is not always true in Cauſes by Accidents.

There are four ſorts of *Oppoſite* Terms; *Relative*, as Father, Maſter, Servant. *Contrary*, as Hot, Cold, Health, Sickneſs. *Privative*, as Life, Death, Knowledge, Ignorance, Sight, Blindneſs, Contradictory, which conſiſt in a Term, and the ſimple Negation of this Term *to ſee, not to ſee.* The difference between the two latter ſorts of Oppoſitions lies in that the Privative Terms include the Negation of a Form in a Subject capable of it, whereas Negatives do not denote that Capacity. Thus we do not ſay a Stone is blind or dead, becauſe 'tis not capable of Life or Sight. As theſe Terms are *Oppoſite*, we make uſe of one to deny the other. *Contradictory* Terms have this Particular in 'em, that by taking away one you eſtabliſh the other.

There are ſeveral kinds of Compariſons; for we compare things equal or unequal, like or unlike. We prove, that what agrees or does not agree with a thing equal or like, agrees or does not agree with another thing to which 'tis equal or like. In unequal things, we prove Negatively, that if what is more Probable is not, what is leaſt Probable is not with much greater Reaſon: Or Affirmatively, that if what is leaſt Probable is, what is more Probable is alſo. We generally make uſe of *Differences* or *Diſſimilitudes*, to ruin what others would confirm by *Similitudes*, as we ruin an Argument taken from a *Decree*, by proving 'twas given in another Caſe.

We hope the Reader, who is willing to have a View of Logick, will now be ſatisfy'd, ſince we have let him into the Secret of *Places*, and furniſh'd him with Names to puzzle others, and prevent being puzzled himſelf: For as to other Uſes, he will ſoon perceive, that as the Meſſieurs of the *Port Royal* declare in their Logick, few Men in Writing or Speaking tye themſelves to theſe Forms, but are furniſh'd with Arguments by their Genius and Capacity, which provide much better for them than theſe *Loci*. However, the Uſe of 'em is not unknown to 'em, Reaſon throws 'em upon it whether they will or not. Such as deſire a ſuperficial Knowledge of Terms, will find enough in the Article of the *Efficient Cauſe*; and if we had not rang'd that Liſt in due Order, it would have been a moſt inſufferable Diſappointment to the young Student, who takes theſe things to be the very Eſſence of fine Thinking; but that he may not be miſtaken, we'll cloſe our Diſcourſe of *Places* with a Word or two tranſlated from the Treatiſe written by the before-mention'd Gentlemen; "Thus have we given you a rude Sketch of Part of what has been ſaid of *Places*; there are other things much more uſeful than theſe, and worthier to be learn'd. Thoſe who would know more may read the Authors who have handled this Matter more amply: However, we ſhall not adviſe any Body to have recourſe to *Ariſtotle*'s Topicks, for they are a parcel of Books ſtrangely confus'd. But there's ſomething fine enough on this Subject in the Firſt Book of his Rhetorick, wherein he teaches us ſeveral Ways of proving a thing to be uſeful, agreeable, greater or leſs. Yet true it is, that we never arrive at the Knowledge of any thing ſolid by that way." The Authority of the *Port Royal* is ſufficient to juſtify our ſpeaking what a long Experience has taught us, That 'tis not all the Old Methods of the Schools which ever made a Man write or ſpeak well, who had not Capacity for it, and he who has will never make uſe of 'em. They are a great help to *Sophiſts* and *Pedants*, and whoever would arrive at any Maſtery in Pedantry or Sophiſtry, muſt be as well acquainted with 'em, as a Geometrician ſhould be with the Elements of *Euclid*. This naturally brings us to treat of *Sophiſts*, or falſe *Logicians*. Every one that underſtands the Rules of good Reaſoning will ſoon find out bad: Neverthelefs, ſince Examples to be avoided ſtrike more than thoſe to be imitated, 'twill not be uſeleſs to ſay ſomething of the principal Springs of bad Reaſoning, which is call'd *Sophiſtry*; the *Port Royal* reduces 'em to ſeven or eight. The firſt is, *To prove another Thing than that which is in Queſtion. Ariſtotle* calls this Sophiſm *Ignoratio Elenchi*, i. e. Ignorance of what ſhould be prov'd againſt an Adverſary. This is very common in the greateſt part of Diſputations. Men generally diſpute with Heat, but do not underſtand one another. Paſſion or Malice makes 'em impute that to an Adverſary which was far from his Thoughts, nay, tho' he diſowns and denies it. This *Ignoratio Elenchi*, is to be met with in almoſt all our Poetical Conteſts, and in too many of our Religious. There's hardly a Tract in *Politicks*, *Diſputative Theology*, or *Criticiſms*, but what is made up of this Sophiſm. And indeed, almoſt all manner of Modern Diſputations, which, whoever is the leaſt acquainted with 'em, eaſily comprehends. As he will do the ſecond Sophiſm, to *ſuppoſe that for Truth which is in Queſtion*, which *Ariſtotle* calls *Petition of the Principle*. This is not uncommon, as much as 'tis againſt Reaſon; and the great *Galileo* accuſes *Ariſtotle* himſelf of being guilty of it, when to prove that the Earth is in the Center of the World, he ſays,

The Nature of heavy Bodies is to tend to the Center of the World, and light Bodies to be at a diſtance from it:

Now Experience ſhews that heavy Bodies tend to the Center of the Earth, and light Bodies keep at a diſtance from it:

Therefore the Center of the Earth is the ſame as the Center of the World.

'Tis plain there's a *Petition* of *Principle* in the *Major* of this Argument; for tho' we perceive that heavy Bodies tend to the Center of the Earth, yet how did *Ariſtotle* come to know that they tended to the Center of the World, if he did not imagine that the Center of the Earth was the ſame as the Center of the World, which is the Concluſion he would prove by this Argument?

All Arguments, whereby Men pretend to prove an unknown Thing, by one that is as much or more unknown, or an uncertain one by one that's as much or more uncertain, are reckon'd Part of this *Sophiſm*.

The third is, *To take that for* Cauſe *which is not* Cauſe. This is very common, ſometimes out of Ignorance of the Cauſes of Things. Such was the Opinion of thoſe Philoſophers who taught, that Veſſels full of Water broke when frozen, becauſe the Water being bound up, left a *Vacuum*, which Nature cannot ſuffer; yet 'tis found out that they break on the contrary, becauſe the Water being frozen takes up more room than before, which is alſo the Cauſe that the Ice ſwims upon it. When Diſputants make uſe of Foreign Cauſes, or ſuch as prove nothing, for Proof of Things clear enough of themſelves, or falſe, or at leaſt doubtful; as when *Ariſtotle* would prove that the World is Perfect for this Reaſon, *The World is Perfect, becauſe it contains a Body; the Body is Perfect, becauſe it has three Dimenſions; three Dimenſions are Perfect, becauſe three are all* (quia tria ſunt Omnia) *and three are all, becauſe we do not make uſe of the word all, when there's but one or two things, but only when there are three.* By the ſame Reaſon, the leaſt Atom may be prov'd to be as Perfect as the World, becauſe it has three Dimenſions, as well as the World. We are very loath to mention the Miſtakes of great Men, knowing that tho' it became the *Port Royal,* it may not perhaps become us; for there's a ſort of Men in the World, who will never allow others to have a right to ſpeak Reaſon; Shall ſuch a one charge *Ariſtotle* with Error? Shall he pretend to deny Things that have been long thought ſo uſeful in the Learned World? 'Tis intolerable. And yet we ſhall at once offend another great Part of that Illuſtrious Body, who content themſelves with Words, and triumph with Sound; but becauſe we will let 'em ſee there's other Authority than our own Judgment, which was not form'd by reading the *Port Royal* Logick, but by Experience, and that Portion of Reaſon which fell to our Lot, we will oblige 'em with the Words of thoſe Gentlemen, as near as we can render them. Let it be remember'd, that when we ſpeak of the *Learned World,* we do not mean thoſe that are truly learned, for ſuch will not be concern'd in this Affair, but ſuch as pretend to Learning, and have really nothing but Pretence to ſupport 'em. Perhaps the Number may not be great, and therefore we'll venture to ſhew the World what true Logicians think of their Way of Arguing; "Another Cauſe, which makes them fall into this *Sophiſm,* is a fooliſh Piece of Vanity that renders them aſham'd to own their Ignorance. For that is the Occaſion that they had rather invent imaginary Cauſes of Things; the Reaſon of which if demanded of 'em, then they confeſs they do not know the Cauſe, and the way they take to avoid this Confeſſion is merry enough. *Every Gentleman will ſo often meet with ſuch notable Argumentations as theſe, eſpecially ſuch as are of ſhort ſtanding at the College, that 'tis very well worth his while to be a little Attentive here, for he'll collect abundance of Sophiſtry by this means, and get rid of abundance of Impertinence.* "When they ſee an Effect, the Cauſe of which is unknown to them, they fanſie they have diſcover'd it by joining to that Effect a general *Word,* or *Virtue,* or *Faculty,* which forms no other Idea in the Mind, but that that Effect has a Cauſe, which they knew before they had found out the Word. As for inſtance, there's Nobody but knows his Pulſe beats, that Iron is attracted by the Loadſtone, that Sena purges, that Poppy makes one ſleep: Thoſe who make no Profeſſion of Science, and are not aſham'd of Ignorance, confeſs freely they know thoſe Effects, but know nothing of the Cauſe; whereas the *Learned,* who would bluſh to ſay as much, get off after another manner, and pretend they have diſcover'd the true Cauſe of theſe Effects, which is, that in the Arteries there's a Pulſifick Virtue, in the Loadſtone a Magnetick Virtue, in Sena a Purgative Virtue, and in Poppy a Soporiferous Virtue. Thus you ſee how bravely they have accommodated Matters. There's never a Man in *China,* but might with as much eaſe have unfolded the Myſtery of the Clock, which rais'd ſuch Admiration among 'em. He needed only have ſaid, he knew perfectly well the Reaſon of that which others found ſo wonderful, and there was nothing in it, but that this Machine had an indicating Virtue which mark'd the Hours on the Plate, and a Sonorifick Virtue, which made it ſtrike and tell them. He would by this means have become as knowing in the Matter of Clocks, as the Philoſophers are in the knowledge of the beating of the Pulſe, the Properties of the Loadſtone, of Sena, &c. There are Words which make Men learned at a very ſmall Expence, as *Sympathy, Antipathy, Occult Qualities,* &c." 'Tis very plain by this, that theſe Gentlemen were not ſo eaſily to be impos'd on, as moſt Men are in the Affair of Thinking. For 'tis certain, that Appearances are not ſo much taken for Subſtances in any thing as in that.

The fourth *Sophiſm* is *Particularizing Things imperfectly.* There's no defect in Reaſoning, into which Men are more apt to fall than into this, and not to conſider enough how many ways a thing may be or may happen, whence they raſhly conclude, either that it is not, becauſe it is not after a certain manner, tho' it may be after another, or that it is after ſuch or ſuch a way, tho' it may be ſtill after another manner which they did not think of.

The fifth *Sophiſm* is *To judge of a Thing by ſomething which agrees with it only by Accident.* This is call'd in the Schools *Fallacia Accidentis,* and is when a Man draws an abſolute Concluſion, Simple, and without Reſtriction, from a thing that is true only by Accident, which is the Argument of thoſe who declaim againſt Eloquence, becauſe of the ill Effects it produces when 'tis abus'd. We will venture to give a falſe Example of this out of the *Port Royal,* becauſe tho' 'tis true with reſpect to the Papiſts, as thoſe Gentlemen were, yet 'tis Sophiſtry with reſpect to us, and that makes it pleaſant to have Sophiſm condemn'd by Sophiſtry. *'Tis by this,* ſay they, *the Hereticks of this Age have made ſo many abus'd Nations believe that Invocation of Saints, Veneration for Relicks, Prayers for the Dead, ought to be rejected as an Invention of Satan, becauſe Corruption and Superſtition have crept in among thoſe Holy Uſages warranted by all Antiquity, as if the bad uſe Men make of the beſt things could render them bad.* The Sophiſtry of this is obvious. The Reform'd, whom the Papiſts very wrongfully ſtile Hereticks, do not fall on the Catholicks for the Corruption of thoſe ſuperſtitious Cuſtoms in Religion authoriz'd by Antiquity, but for doing what is not warranted by Antiquity as the Hiſtory of the Apoſtolical and Primitive Ages of Chriſtianity plainly prove: However, in the Opinion of the Rigid Papiſts, this Example of the *Port Royal* is true, and not very unlike that of a late learned Writer againſt the Stage, who with great Applauſe fell upon the Immorality and Profaneneſs that had crept into it, and then made many *abus'd People,* as the *Port Royal* ſaid before on another occaſion, believe the Stage *ought to be* rejected as an Invention of Satan. This was a Proof of the fifth Sophiſm, *Fallacia Accidentis*; for he himſelf allow'd a Regulated Drama was not only uſeful but commendable.

The ſixth Sophiſm is *To paſs from a divided to a compound Senſe, or from a compound to a divided;* the one Sophiſm, is call'd *Fallacia Compoſitionis,* and the other *Fallacia Diviſionis.* The ſeventh, is to paſs from what is true in one Senſe to what is ſimply true, which is what is term'd in the Schools, *A dicto ſecundum quid ad dictum ſimpliciter.* Of this Nature is the ridiculous Argument of *Cotta* againſt the Exiſtence of God, mention'd in *Cicero's Natur. Deor.* *How,* ſays he, *can we conceive there's a God, not being able to attribute any Virtue to him? For ſhall we ſay he has Prudence; now Prudence conſiſting in the Choice of Good and Evil, what need can God* *have of Choice, not being capable of any Evil? Shall we ſay he has Knowledge and Reaſon? Reaſon and Knowledge help us to diſcover what is unknown to us by what is known; now nothing can be unknown to* God. *Neither can Juſtice be in Gad, for that only relates to Humane Society; nor Temperance, becauſe he has not Deſires to reſtrain; nor Streugth, becauſe he's not ſuſceptible of Pain or Labour, and is not expos'd to any Danger. How therefore can that be* God *which has neither Knowledge nor Vertue?* 'Tis difficult to imagine any thing more impertinent than this way of Arguing: 'Tis like the Thought of a Peaſant, who having never ſeen any thing but Thatch'd Houſes, and being told there are no Thatch'd Houſes in Cities, ſhould conclude there are no Houſes in Cities, and that thoſe who dwell there are wretched, being expos'd to the Injuries of the Weather. Thus *Cotta*, or rather *Cicero*, argues; *There cannot be a God with the ſame Vertues as Man has, therefore there cannot be a God.* And what is moſt wonderful is, he do's not conclude, there is no Vertue in God, but becauſe the Imperfection of Humane Vertue cannot be in God; ſo that he proves God knows nothing, becauſe nothing is hid from him; that is, He ſees nothing becauſe he ſees all Things; He can do nothing becauſe he can do all Things; He enjoys no good Thing becauſe he enjoys every good Thing. Is not ſuch an Argument as this enough to put a Mean Logician in Countenance; if ſuch a Sophiſm cou'd eſcape *Cicero*, well may we and others, who are by no means of his Size, deſpair of being perfectly free from Sophiſtry.

The Eighth is, *To abuſe with ambiguity of Words* what may be done after ſeveral Manners. This is a great Help to Young Sophiſts, and procures 'em an eaſy Victory in Diſputes where the Adverſary is rather to be Confounded than Convinc'd. Of this Kind are all Vicious Syllogiſms, whether they conſiſt of Four Terms, or the Middle is taken twice particularly; or in one Senſe in the Firſt Propoſition, and in another in the Second; or the Terms of the Concluſion are not taken in the ſame Senſe in the Premiſes as in the Concluſion. For by Ambiguity we don't mean that of meer Words only, which ſeldom or never deceives, but every thing that alters the Senſe of a Word, eſpecially when that Change is not eaſily to be perceiv'd, becauſe ſeveral things being ſignify'd by the ſame Sound they take 'em for the ſame Thing. When Words which ſignifie ſome Whole may be taken as collectively for all its Parts together, or ſeparately for each of its Parts; By this the following Sophiſm of the *Stoicks* is reſolv'd, which concludes that the World is an Animal endow'd with Reaſon, *becauſe that which hath the Uſe of Reaſon is better than that which hath not. Now there is nothing,* ſay they, *better than the World; therefore the World has the Uſe of Reaſon.* The *Minor* of this Argument is falſe, becauſe they attribute to the World what agrees only with God, who is the beſt and perfecteſt Being we can conceive: But confining our ſelves to the Creature, tho' it may be ſaid there's nothing better than the World, taking it collectively, for the Univerſality of all Created Beings, all that can be concluded at moſt is, that the World has the Uſe of Reaſon, according to ſome of its Parts, as *Angels*, *Men*; and not *that the whole together is an Animal that has the Uſe of Reaſon.*

The Ninth is, *To draw a General Concluſion from a defective Induction.* An Induction is, when by ſearching into ſeveral Particular Things, we acquire the Knowledge of one General Truth. Thus we have Experienc'd on ſeveral Seas, That the Water is Salt, and on ſeveral Rivers that the Water is Freſh: We conclude generally, that Sea-Water is Salt, and River-Water is Freſh. But ſuch ſort of Concluſions from Induction may very eaſily be falſe; for 'twas thought after repeated Experiments, that Water might be rais'd by an Air-Pump as high as one pleas'd, yet by later Experiments 'tis found out that it cannot be rais'd that way above thirty-two or thirty-three Foot.

We are now come to a Part of the Logick we Choſe for our Guide, which will, we hope, entertain the Reader as well as it entertain'd us, and then we ſhall be far from having any Reaſon to repent our Trouble. If he will read it with Attention, it will create many uſeful Idea's of our Modern Art of Thinking; and it may be, put him out of Love with ſome Authors, who have now the only Charm that can reach his Heart. The Vices committed in Arguing ariſe chiefly from Paſſion, Intereſt or Ignorance; and as the Two former are moſt Prejudicial to Truth, moſt will be ſaid upon thoſe Heads.

If we carefully examine what makes Men generally embrace one Opinion more than another, we ſhall find 'twas not the Penetration of Truth and Force of Reaſon, but ſome Engagement of Self-Love, Paſſion or Intereſt. If in our own Unhappy Diviſions we ſhould remember what is ſaid on this Subject by the Gentlemen ſo often cited in this Eſſay, we ſhall find this Truth Eternal and Univerſal. Self-Love, Intreſt or Paſſion are the Weights that turn the Balance, and decide moſt of our Doubts. We judge of Things, not as they are in themſelves, but with reſpect to their Relation to us; and Truth and Profit are to us the ſame thing. We have no need of any other Proofs than what we ſee every Day, That Things which are reckon'd every where elſe for doubtful, or even for falſe, are held for very certain, by all thoſe of ſome other Nation, Profeſſion or Party. *I am a Native of ſuch a Country, therefore I believe ſuch a Saint Preach'd the Goſpel there. I am of ſuch a Community, therefore I believe ſuch a Privilege really belongs to it. My Father was of ſuch a Religion, therefore am I.* Are theſe Arguments? Are theſe Reaſons? And yet if they are not, eſpecially the laſt, what would Millions have to ſay for their Creed? Again; *I love a Man, he is therefore one of the wiſeſt Men in the World? I hate him, he's a Raſcal*; and this often happens in one and the ſame Object: For the Paſſion cannot change oftner than the Manner of ſuch Mens Arguing, whoſe Reaſon is determin'd by it. Self-Love was a very notable way of deciding Things by a General Principle very advantageous to 'em; which is, *I underſtand Things; I know Truth when I ſee it,* and the like; as a late Critick in Defence of a Play. *I have not ſtudy'd the Art ſo long, but muſt be allow'd to know ſomething of the Matter*; which ſomething takes in the whole Compaſs of the Art, as modeſt as the Word is in Appearance. Others have a pleaſant way of rejecting Certain Opinions a little like the other; *If that was ſo, I ſhould know nothing of the Matter from whence they conclude much to their Advantage: Now I know very much of the*

the Matter, therefore it is not. Again, *Nothing is more common than to ſee Men mutually reproach each other, and for inſtance reciprocally call one another Opiniative, Paſſionate, Railers,* &c. *when they are of different Sentiments.* Let even our Britiſh Diſputation ſpeak in this Caſe; but of all Conteſts Pleadings are moſt diſtinguiſh'd in this Kind. However, we will not ſpeak our own Thoughts; let us keep here to the Text, and perhaps the Reader may find ſome Difference between our Pleaders and thoſe in France. “ There's hardly a Pleader but accuſes his Antagoniſt of ſpinning out a Suit, and to hide Truth by Artful Addreſs. Thus thoſe who are in the Right, and thoſe who are in the Wrong, ſpeak almoſt the ſame Language, make the ſame Complaints, and attribute the ſame Faults to one another, which is one of the moſt pernicious things in the Life of Man; for it confounds Truth and Error, Juſtice and Injuſtice, ſo that the Common People cannot diſcern the one from the other, by which means it happens that ſeveral are engag'd by Chance, and without Light to one Side and t'other; and others condemn both as equally in the Wrong.” To proceed; Self-Love has another Reaſon of the like Importance in the Art of Speaking; *'Tis a Notion of my own Invention, therefore true; 'Twas another ſaid it and not I, therefore 'tis falſe; I did not write ſuch a Book, therefore 'tis bad.* Under this Article will come almoſt all the Eulogies that are made upon ſome Men, and all the Cenſures that are paſt on others, Vanity and Malice are the Sources of both. Nor does it proceed ſeldom from a Spirit of Contradiction, which is indeed produc'd by Conceit and Ill Nature; and is the Cauſe that when Men hear or read any thing written or ſaid by another, they don't hearken to the Reaſons that might convince, but to ſuch as they think they can oppoſe. This Vice breeds moſt of the Criticks in our Times. Hiſtories, Sermons, Poems, are condemn'd or deſpis'd by it. This Vice alſo is the Principal Character of Pedantry; for a Pedant's Maſter-Piece is to hit a ſmall Blot, and be ſevere with the Author for't: He looks on a Beauty like a Blind Man on a Fine Picture; and if he's directed to it, maliciouſly turns his Eyes away as hating or fearing to ſee it: He hates to ſee what he can't imitate, and fears to be laſh'd by what he has juſtly provok'd, Reaſon being always at War with Folly and Affectation, of which Pedantry is the worſt ſort. Others do not oppoſe it out of Malice or Envy, but only out of a Diſputing Humour, which often debauches the Underſtanding. Others, eſpecially Courtiers, perceiving how ill this Humour looks, fly to a contrary one, and inſtead of Cenſuring approve every thing. What's that Man's Praiſe worth who praiſes every body? He certainly does it with as much ill Conſequence as if he Condemn'd every one to raiſe his own Character; for if he ſpeaks well of one who does not deſerve it, and at the ſame time of one that does, the World will have a Mean Opinion of his Judgment and Recommendation. Men engage themſelves often to defend Sentiments which are neither true, neither do they believe 'em to be ſo, and all Argument made on ſuch an Occaſion muſt be falſe; for where the Foundation is wrong all the Building muſt be the ſame. 'Tis a falſe and impious Opinion that Truth is ſo like Falſhood, and Vertue ſo like Vice, that 'tis impoſſible to diſcern them; but 'tis true, that in moſt Things there's a Mixture of Truth and Error, Vertue and Vice, Perfection and Imperfection, which Mixture is commonly the Riſe of all the falſe Judgments of Men. 'Tis thro' this Miſchief that the Good Qualities of Perſons we Eſteem make us approve of their Defects, and the Defects of thoſe we diſ-eſteem make us Condemn what is good in them. The Reaſon is, Men never judge by Particulars but according to the Impreſſion made on their Minds, and feel nothing but what ſtrikes them moſt. Thus when they perceive abundance of Truth in a Diſcourſe, they don't obſerve the Errors that are mixt with 'em; and on the contrary, If there are Truths mixt with abundance of Errors, they give their Attention to the Errors only. This proceeds from the General Tendency of Mankind rather to Condemn than to Commend; for we always find our Account more in the former than the latter. He who condemns aſſumes a Superiority over the Perſon Condemn'd, which Superiority flatters a Paſſion, inſomuch that we do not wonder the Number of falſe Criticks is ſo great. Men err by the *Exteriors* much more than by the *Interiors,* which will occaſion their judging wrong in all Caſes; for Good Senſe, Sound Judgment, Solid Learning, which may be term'd *Interiors,* never err; whereas Round Periods, Smooth Language, Choſen Words, and a Fine Manner of Expreſſion, which may be call'd *Exteriors,* are what pleaſe the Ear, charm the Senſe, and impoſe on the Underſtanding. Theſe Ornaments make us blind to the Faults that are mix'd in a Diſcourſe, and inſenſibly engage us to like it all. When we hear an Orator begin an *Antitheſis* of ſeveral Members, we ought to be on our Guard, for moſt certainly he intends to deceive us if he can. How many falſe Thoughts has the Fondneſs of ſome Writers for *Points* produc'd, eſpecially in Poetry. If there's a Point in a Poem, or a Poem full of Points, the latter ſhall be univerſally admir'd, and the former admir'd only for the Point that's in't. How many late Tragedies have ſucceeded for the Point, *Combien la rime a-t-elle engage de Gens a Mentir, How many Men,* ſays a Great *French* Critick, *have been tempted to lye by Rhime.* He proceeds; “ How many *Italian* Authors have writ fooliſhly out of an Affectation to uſe *Cicero's* Words, and write what they call pure Latinity? Who wou'd not laugh to hear Cardinal *Bembo* ſay of a Pope, he was Choſen by the Favour of the Immortal Gods, *Deorum Immortalium Beneficiis.* 'Tis the ſame with the Poets, who fanſie 'tis eſſential in Poetry to introduce Pagan Divinities; and a *German* Poet, juſt ſuch another as he was a Judicious Writer, having been reprov'd with Reaſon by *Picus de Mirandola,* for bringing into his Poem, wherein he deſcrib'd the Wars of Chriſtians againſt Chriſtians, all the Pagan Deities, and mingling *Apollo, Diana, Mercury,* with the *Pope, Electors* and *Emperors,* ſaid ingenuouſly in his Excuſe, he cou'd not have been a Poet without it, alledging to prove it, that *Heſiod's, Homer's* and *Virgil's* Verſes are full of the Names of the Fables of thoſe Gods, from whence he concludes 'twas lawful for him to do the ſame.” This Fault is ſo common in our *Engliſh* Poets, that *Oh Jove! Oh ye Immortal Gods,* &c. are the Chief Paſſion of their Poems on whatever

Subject they Writ, Jewiſh or Chriſtian, True, when they make uſe of the Name of *Phœbus* by way of Invocation, or as a Perſon for a Thing, by which they only mean the Spirit or Genius of Poetry, We queſtion whether there's ſo much Paganiſm in it as we condemn 'em for it. 'Tis common with moſt People in judging of Letters, or rather of Men of Learning, to cenſure them for what is falſe in an Opinion if they embrace what is true. Without this all our Party Men wou'd never be able to carry on their Political Controverſies: As for Inſtance, When a Man is Zealous in the Defence of our Eſtabliſh'd Church, and of thoſe Religious Ceremonies, Holy Rites and Sacred Ordinances which the Law has enjoyn'd, and Decency and good Order require, the Sectarian falls upon him for favouring Popery, becauſe Papiſts are fonder of Humane Inventions than the Laws of God in the Scripture. Again, If a Man warmly aſſerts the Divine Right of Monarchy, or the Royal Prerogative; tho' by Divine Right, he does not go ſo far as the Evil Inſtruments in King *James* the Second's Time carry'd it; yet his Adverſary immediately Charges him with Sedition and Faction, and brands him as an Enemy to the preſent Conſtitution, becauſe the Enemies of that Conſtitution among a Thouſand Errors maintain ſome true Principles. This Argument may be turn'd to the other Side, but 'tis ſo plain there needs no altering the Scene. The Reader will do it of himſelf, and obſerve that this is the General Reſource of all our Politick Diſputants.

This Part of our Eſſay might be Enlarg'd upon to a great Length, and be equally uſeful and diverting to the Writer and Reader; but the Compaſs we are circumſcrib'd to by the Narrowneſs of the Deſign and that occaſion'd by the Univerſality of it, which wou'd not allow of Expatiating much in Particulars, hinders us from proceeding further in it to ſhew other Cauſes of the falſe Reaſoning of Mankind who are byaſs'd by Paſſion and Intereſt. We muſt leave it however to others, and add a Word or two concerning *Method*.

By *Method* is generally underſtood the Art of diſpoſing a Series of ſeveral Thoughts, either to find out a Truth that is unknown to us, or to convince others of one we know.

There are two ſorts of Method, one to find out Truth, which is call'd *Analyſis*, the other to convince others of a Truth already found out, which is term'd *Syntheſis*. When Effects are prov'd by the Cauſes that is call'd Arguing *à Priori*: On the contrary, when Cauſes are prov'd by the Effects that's term'd Arguing *à Poſteriori*. We ſhall cloſe this Eſſay with a Diſcourſe upon *Analyſes*, which was taken from a Manuſcript of Monſ. *Deſcartes*.

All Queſtions which are reſolv'd by *Analyſis*, relate either to Words or Things. By Queſtions relating to Words, we underſtand not ſuch as inquire after Words only; but thoſe wherein by Words we inquire after Things, 'tis to unfold an *Ænigma*, or explain what an Author had ſaid in doubtful or obſcure Terms. Queſtions relating to Things may be reduc'd to Four Principal Kinds.

The Firſt, When we ſearch after Cauſes by the Effects: As for Inſtance; We know the ſeveral Effects of the Magnet, and ſearch after the Cauſe.

The Second, When we ſearch after the Cauſe by the Effects: As for Example, *It has been always known that Wind and Water have great Power in moving Bodies*; yet the Ancients did not enough examine what might be the Effects of thoſe Cauſes, nor apply them, as has been of late done by the Means of Mills.

The Third, When by the Parts we ſearch after the whole; as when having ſeveral Numbers given we ſearch after the Sum by adding them together.

The Fourth, When having the whole and ſome Part, we ſearch after another Part, as a Sum being given what is to be taken away, we ſearch after what remains.

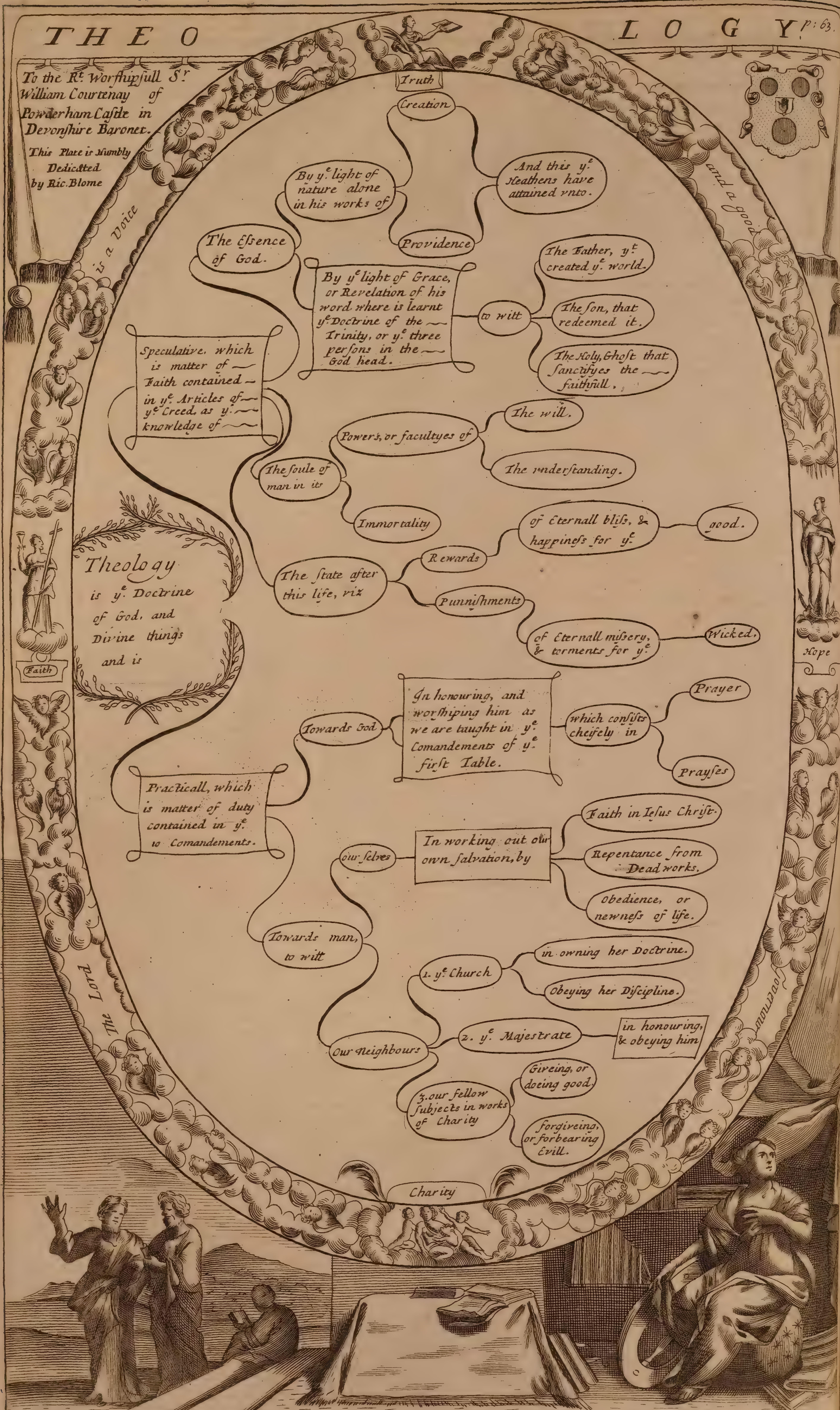
Of what Nature ſoever the Queſtion propos'd may be, the firſt thing to be done, in order to reſolve it, is, rightly and diſtinctly to conceive what is demanded of us; that is, what is the Preciſe Point of the Queſtion, for we ſhou'd avoid doing as a great many do, who thro' a Precipitation of Mind undertake to reſolve every thing propos'd to 'em before they have ſufficiently conſider'd the Signs and Tokens by which they may know what they ſearch after when they meet with it: As if a Servant, whoſe Maſter bad him ſeek for a Friend of his, ſhould run away to find him before his Maſter had particularly inform'd him who that Friend of his was. When a Man has well examin'd the Conditions of the Signs and Tokens beforemention'd, he muſt alſo examine well what he knows in the Queſtion, ſince 'tis by that he muſt arrive at the Knowledge of what he do's not know; for we muſt not imagine that we are to find out a New Kind of Being, when our Light cannot extend farther than to know in what manner the Thing we ſeek after participates of the Nature of Things known to us. If a Man born blind was to conceive a true Idea of Colours, wou'd all the Arguments and Proofs we cou'd think of give him ſuch a one as we conceive by our Senſes. 'Tis the Attention the Mind gives to what it knows in a Queſtion which helps it to reſolve it, and in which the *Analyſis* principally conſiſts, all the Art lying in extracting a great many Truths from that Attention, which may lead us to the Knowledge of what we ſeek after.

As, Suppoſe 'twas propos'd to reſolve, *If a Man's Soul is Immortal*; and in order to find out the Solution of the Queſtion, we ſhould conſider attentively the Nature of the Soul: We ſhould firſt obſerve 'tis the Property of the Soul to think that it may doubt of every thing; but that it thinks, for the very Doubt wou'd be a Thought; we afterwards ſhou'd examine what Thinking is, and finding nothing in the Idea of Thought like what is in the Idea of Subſtance, which we call Body; but that we may deny that to be in Thought which belongs to Body, as *Length*, *Breadth*, *Thickneſs*, *Diverſity of Parts*, *Figure*, and without deſtroying our Idea of Thought, we Conclude, That Thought is not a Mode of Subſtance of Extent, becauſe 'tis the Nature of Mode not to be conceiv'd in denying the Thing in it of which it was the Mode. When we further infer that Thought, not being a Mode of Subſtance of Extent, it muſt be the Attribute of ſome other Subſtance; and that Subſtance which Thinks, and Subſtance of Extent muſt be Two Things really diſtinct; from whence it follows that the Diſtraction of the one ought not to imply the Deſtruction of the other, ſince even the Subſtance of Extent is not, properly ſpeaking, deſtroy'd, but all that happens in what we call De-

Deſtruction, is nothing but a Change or Diſſolution of ſome Parts of the Matter which always remains in Nature; as when we break the Wheels of a Clock there's no Subſtance deſtroy'd, tho' we ſay the Clock is deſtroy'd; which ſhews, that the Soul not being diviſible, and compos'd of any Parts, cannot periſh, and by Conſequence is Immortal: This is what is call'd *Analyſis* in Logick; *Analyſis* in Geometry is the Solution of a Problem, of which we are to treat elſewhere.

Thus far we have gone in Copying after ſeveral Famous Authors, whoſe Labours ſuffer a little by our being oblig'd to keep within narrow Limits. Things might have been made ſomewhat more clear, more and larger Examples might have been given, more Parts of the Art treated of, and a better Connexion of the whole obſerv'd. But then it wou'd have taken up as much Room as we cou'd allow for a Third Part of this Undertaking, which was not feaſible nor neceſſary; for tho' the Art of Thinking is of the laſt Importance in Humane Life, yet we fear there are few who will give themſelves the Trouble to think by Art. Men are apt to fanſie their Fund of Reaſon ſufficient without making any Improvement; and thoſe that wou'd have recourſe to Science want great Names to give their Art *Authority*. For Indeed the Authority of *Names* is *Sovereign* in the Buſineſs of *Letters*. As to ſuch as deſire to inform themſelves of Things they did not know before, and yet not to go to the Bottom of 'em, this Deſign is Good and Commendable: As for ſuch as would be thoroughly Maſters of a Science, let 'em conſider that there is not one treated of in all this Volume but wou'd take up a Life for a Man to render himſelf Perfect in it, and they will then be ſatisfy'd with what is done here.

DIVINITY.


THEO LOGY
To the Rᵗ. Worſhipfull Sʳ. William Courtenay of Powderham Caſtle in Devonſhire Baronet.
This Plate is Humbly Dedicated by Ric. Blome
The Lord is a Voice and a good Governour
Truth
Faith
Hope
Charity
Theology is yᵉ Doctrine of God, and Divine things and is
Speculative, which is matter of Faith contained in yᵉ Articles of yᵉ Creed, as yᵉ knowledge of
The Eſſence of God.
By yᵉ light of nature alone in his works of
Creation
Providence
And this yᵉ Heathens have attained unto.
By yᵉ light of Grace, or Revelation of his word where is learnt yᵉ Doctrine of the Trinity, or yᵉ three perſons in the God head.
to witt
The Father, yᵗ created yᵉ world.
The ſon, that redeemed it.
The Holy Ghoſt that ſanctifyes the faithfull.
The ſoule of man in its
Powers, or facultyes of
The will.
The underſtanding.
Immortality
The ſtate after this life, viz
Rewards
of Eternall bliſs, & happineſs for yᵉ
good.
Punniſhments
of Eternall miſery, & torments for yᵉ
Wicked.
Practicall, which is matter of duty contained in yᵉ 10 Comandements.
Towards God
In honouring, and worſhiping him as we are taught in yᵉ Comandements of yᵉ firſt Table.
which conſiſts cheifely in
Prayer
Prayſes
Towards man, to witt
our ſelves
In working out our own ſalvation, by
Faith in Ieſus Chriſt.
Repentance from Dead works.
Obedience, or newneſs of life.
Our Neighbours
1. yᵉ Church
in owning her Doctrine.
Obeying her Diſcipline.
2. yᵉ Majestrate
in honouring, & obeying him
3. our fellow ſubjects in works of Charity
Giveing, or doeing good.
forgiveing, or forbearing Evill.

DIVINITY.

DIVINITY is the Knowledge of God, and his Worſhip. The immediate Object of it is *Religion*.

Religion is a general Habit of Reverence towards the Divine Nature, whereby we are enabled and inclin'd to worſhip and ſerve God after ſuch a manner as we conceive moſt agreeable to his Will, ſo as to procure his Favours and Bleſſing.

Religion is either
- *Natural*, or
- *Reveal'd*.

Natural Religion is that which Men might know and ſhould be oblig'd unto, by the mere Principles of Reaſon, improv'd by Conſideration and Experience, without the help of *Revelation*.

Reveal'd Religion is that which God by the Manifeſtation of his Will has oblig'd us to perform, upon the Conſideration of Temporal or Future Rewards or Puniſhments. The Parts of it either *Faith* or *Practice*.

Faith
- *Humane*, or
- *Divine*.

Humane Faith is an Aſſent unto any thing credible merely upon the Teſtimony of Man.

Divine Faith an Aſſent to ſomething as credible upon the Teſtimony of God. Upon which account, the *Faith* of a *Chriſtian* is an Aſſent unto Truths credible upon the Teſtimony of God, deliver'd unto us in the Writings of the *Apoſtles* and *Prophets*.

Chriſtian Faith may be reduc'd to this one *Article* of believing in God, in the *Unity* of whoſe *Eſſence*, is a *Trinity* of *Perſons*. God may be conſider'd in his *Eſſence* or *Attributes*.

God conſider'd in his *Eſſence* is that Supream and independent being, which owes its original to no other Cauſe, and is himſelf the Cauſe of all other things.

The *Attributes* of God are,
- *Incommunicable*,
  - *Simplicity*,
  - *Unity*,
  - *Immutability*,
  - *Infiniteneſs*.
- *Communicable*, belonging to the Divine,
  - *Faculties* of *Acting*,
    - *Power*,
    - *Dominion*.
  - *Will*,
    - *Goodneſs*,
    - *Juſtice*,
    - *Faithfulneſs*.
  - *Underſtanding*,
    - *Knowledge*,
    - *Wiſdom*,
    - *Providence*.

Simplicity of God is his Freedom from all kind of Compoſition or Mixture, either of Principle or Parts.

Unity, by which he is one and no more.

Immutability is a Freedom from all kind of Change or Inconſtancy, both as to his Nature and Purpoſes.

Infiniteneſs, by which is meant his not being bound by Place or Space, or by Duration; but is without Limits or Bounds, without Beginning or End.

By the *Power* of God is meant, an Ability of doing all ſuch things, the doing of which may argue Perfection, and which do not imply a Contradiction, either in the things themſelves, or to the Nature and Perfection of the Doer.

Dominion is a Relative Power, reſpecting that Juriſdiction which he has over reaſonable Creatures; his Right to Govern them in this World, to Command, and Prohibit what he pleaſes, to Reward and Puniſh as ſhall ſeem good unto him.

Goodneſs is a Propenſion and Diſpoſition in the Divine Nature, to communicate Being and Happineſs to his Creatures.

Juſtice, by which is meant, not only the Rectitude of his Nature in general, but more eſpecially his dealing with his Creatures according to the deſert of their Deeds.

Faithfulneſs ſignifies an exact Correſpondence and Conformity between his Word and his Mind, and conſequently between his Word and the Truth and Reality of Things; eſpecially in reſpect of any Promiſes he has made, in which there is an Obligation of Juſtice ſuperadded to his Word.

Knowledge of God is that Perfection or Faculty whereby he underſtands and conſiders things abſolutely as they are in their own Natures, Powers, Properties, Differences, together with all the Circumſtances belonging to them.

Wiſdom of God conſiders the Relations of things one to another, under the Notion of Means and Ends, and of their fitneſs and unfitneſs for the various Purpoſes to which they are deſign'd.

God's *Providence*, { *Particular*,
Univerſal.

Particular Providence is, whereby he ſuperintends and takes care of every individual thing in the World; continuing them in their Beings, diſpoſing of their Operations and Effects in ſuch a wiſe Order, as may be moſt ſuitable to thoſe Ends and Purpoſes for which they are deſign'd.

Univerſal Providence is that whereby he takes care of all things in general, but eſpecially of Mankind; the moſt viſible Act of which is ſeen in redeeming him from that State of Miſery and Servitude, which *Adam* by the Fall had brought upon himſelf and his Poſterity.

The Perſon employ'd in this great Affair, is the ſecond Perſon of the ever bleſſed *Trinity*, who is to be conſider'd in his *Names* and *Offices*.

Names, { *Jeſus*,
Chriſt.

Jeſus ſignifies a Saviour; and this Title was given by God to our *Lord* to ſhew, that he was to be the Saviour of the World, and that no other beſides him was or can be ſo.

Chriſt in *Greek* is the ſame with *Meſſias* in *Hebrew*, or *Syriack*; and is as much as to ſay the *Anointed*; which Title was beſtow'd upon our Saviour to ſhew, that as by the Ceremony of *Anointing* heretofore, God conſecrated thoſe whom he call'd to ſome certain Offices; ſo was this *Jeſus* to be ſeparated, tho' not by a viſible *Unction*, yet by the inviſible Power and Grace of the Holy Spirit, for all thoſe Offices, to which Men were *Anointed*, by God's Command under the *Law*.

Thoſe *Offices* were { *King*,
Prieſt,
Prophet.

His *Regal* or *Kingly Office*, *Chriſt* exercis'd here while we was upon Earth, by giving Laws unto his *Church*, for the Regulation of the Lives and Actions of thoſe who ſhould become Members of it. Theſe Laws he eſtabliſh'd with the Royal Sanction of Rewards and Puniſhments. He ſettled a Miniſtry for the Conduct of his Church under him. He Rules in the Hearts of the Faithful by his Spirit. He has already begun to ſubdue our Enemies, Sin, the Devil, and Death; and he will hereafter utterly deſtroy them. He now ſits in full Power at the Right-hand of God, interceeding for us: And at the End of the World he will deſcend from thence with Glory to judge all Mankind, and put in Execution his Promiſes and Threatnings; by infinitely rewarding thoſe who ſhall be found to have obſerv'd his Laws, and exceedingly puniſhing them who ſhall have broken them.

Chriſt's Prieſtly Office was not according to that of *Aaron*, and the *legal* Inſtitution; but of another and more ancient kind, after the Order of *Melchiſedeck*. This Office he perform'd by offering himſelf on the Croſs for us; by which Oblation he made a full, perfect, and ſufficient Sacrifice, Satisfaction, and Atonement for the Sins of the whole World. Having done this, he aſcended into Heaven, there to appear in the Preſence of God, to mediate and intercede for us. And he bleſs'd us, not only by delivering us hereby from the Puniſhment of our Sins, but by ſanctifying our Souls; and ſo freeing us, in a great Meaſure, even from the preſent Power and Dominion of them.

The *Prophetick Office of Chriſt*, was fulfill'd in foretelling things to come; in declaring God's Will to the World; and leaving us an exact, plain, and perfect Rule of Life and Manners.

This *Rule* are the Canonical Books of the *Old and New Teſtament*, which were wrote by Men divinely inſpir'd, *Prophets*, *Apoſtles*, and *Evangeliſts*, and have been receiv'd into the *Canon* by the Holy *Catholick Church*.

The *Scriptures*, as they refer to the ordering and management of our Lives, are that Scheme of *Chriſtian Morality*, which every one that liſts himſelf into the Service of *Chriſt* is oblig'd by his *baptiſmal* Vow to keep and perform.

Theſe may be conſider'd either as *Precepts*, or the *Motives* to the *Obedience* of them.

Precepts of { *Life*,
Ceremony.

The *Precepts* or Commands of the Goſpel which refer to Life or Manners, may be conſider'd as they lay Duties upon us with reſpect to

God,
Our Neighbour,
Our Selves.

The Duties which relate to God may be found out the moſt eaſily, by conſidering what Influence his *Attributes* ought to have upon us.

His *Incommunicable Attributes* lead us to the Duty of *Adoration* or *Worſhip*.

Which is the higheſt Eſteem and Admiration of him in our Minds, whereby we continually bow down our Souls before him, in the acknowledgment of his Excellencies, depending upon him, invoking him in our Neceſſities, and confeſſing him to be the Author of all the Mercies we enjoy, together with ſuch external Services, as may be fit to teſtify to others that inward Veneration which we have for him, whether by the humble Geſtures of Proſtration, or bowing our ſelves before him, lifting up Hands and Eyes unto him; being always ready to ſpeak good of his Name, and make his Praiſe glorious.

Communicable Attributes, which relate to the Divine *Power* of *Acting*, ſtir up in us *Reverence* and *Obedience*.

Reverence is an humble, awful, and ingenuous Regard towards the Divine Nature, proceeding from a due Eſteem and Love of him, whereby we are rendred unwilling to do any thing which may argue Contempt of him, or which may provoke and offend him.

Obedience may be deſcrib'd to conſiſt in ſuch a ſubmiſſive Frame of Spirit, whereby a Man does always reſign and devote himſelf to the diſpoſal of his Maker, being ready in every Condition, to do or ſuffer that which he apprehends to be moſt reaſonable and acceptable, and whereby he may beſt expreſs his Love and Subjection. By which deſcription it appears, that *Obedience* is of two kinds,

Active,
Paſſive.

Active, which conſiſts in a Readineſs of Mind to do what God ſhall enjoyn.

Paſſive, in an Acquieſcence of Mind under what he ſhall inflict.

Attributes of the *Divine Will* diſpoſe us to *Love,* which is an eſteeming of him, and a ſeeking after him as our only Happineſs; So that there are two Ingredients of this Vertue, *Love,*

Eſtimation,
Choice.

An *Eſtimation* of the Judgment; a due Valuation of thoſe Excellencies which are in the Divine Nature, whereby we look upon God as the Supream Being *in genere boni*; from whom all created Goodneſs is deriv'd, and by Conformity to whom it is to be meaſur'd.

Our *Choice* of him, as being the only proper Object of our Happineſs, preferring him before any thing elſe that may come in Competition with him.

Attributes of the *Divine Underſtanding* lead us to *Affiance* or *Confidence.*

By *Affiance,* means an Acquieſcence of the Mind, whereby it is ſupported againſt all unneceſſary Doubts and Fears, upon account of the Divine All-ſufficiency in general, with more ſpecial reſpect as to his Knowledge, and Wiſdom, and Providence, by which he takes notice of our Conditions, and is able to order all things for the beſt, and does not permit any thing to befal us without his Knowledge of it, and being concern'd for it.

The *Precepts* which regulate our Duty towards our *Neighbour* may be ſum'd up in theſe two,

Juſtice,
Charity.

Juſtice is a Propenſion and Cuſtom of giving every Man his due. It is either

Negative,
Poſitive.

Negative is the not injuring or wronging any one.

Poſitive, to do right to all, to yield them whatever appertains or belongs to them.

Charity is the Love of our Brethren, or a kind of brotherly Affection one towards another. The Rule and Standard by which we are to examine and regulate this Habit, is that Love we bear our ſelves, or that which *Chriſt* bore us; that is, that it be unfeign'd, conſtant, and out of no other deſign but their Happineſs.

The *Precepts* belonging to our *Selves,* are either of

Temperance,
Humility,
Contentedneſs,
Repentance.

Temperance is that Abſtinence from ſenſual Pleaſures, which renders the Body tame and governable, ſerviceable to the Soul, and chearful in the Exerciſe of Religion; which frees the Mind of Man from its Captivity to Senſe, and eſtabliſhes its Dominion over the brutiſh Part; ſo that the Man lives the Life of Faith, and not of Senſe, and is from henceforth diſengag'd from the World, and the Allurements of it.

Humility is a mean Opinion, or rather the true Knowledge of our Selves, a ſober Contemplation of our Infirmities, and a real Perſwaſion of our Imperfection.

Contentedneſs is that firm Reliance upon the Providence of God, which works an Acquieſcence in every Man's Mind, and makes him ſatisfy'd and content with that State and Condition God has plac'd him in.

Repentance is ſuch a Converſion of a Sinner to God, whereby he is not only heartily ſorry for the Evil he has done, and reſolv'd to forſake it, but actually begins to renounce it, and to fulfil his Duty according to his Ability, with a ſtedfaſt purpoſe to continue God's faithful Servant unto his Life's end. The chief Ingredients of it are

Sorrow,
Confeſſion,
Prayer.

Sorrow, which leads to a true Repentance, is that godly *Sorrow* which proceeds from a Senſe of our Duty, and of the Obligation we lie under to the Performance of it. When we are ſorry for our Sins, upon the account of our having thereby offended God; broken the Covenant of the Goſpel; and griev'd the Holy Spirit which was given to us; and are therefore reſolv'd immediately to forſake our Sins, and never return any more to them.

The Deſign of *Confeſſing* our *Sins,* is not that God has any need of being inform'd by us of what we have done amiſs; but to the end we may thereby both raiſe in our ſelves a great Shame and Sorrow for our Evil Deeds; and give the greater Glory to God, by ſuch a ſolemn humbling of our ſelves in Confeſſion before him.

Prayer is a Religious Calling upon God, founded upon the Belief both of his infinite Knowledge, Power, and Preſence; and of his gracious Goodneſs and Mercy towards us in *Jeſus Chriſt*; and being publickly perform'd, is one of the higheſt Acts of outward Honour, that we are capable of giving to him. It is neceſſarily eſtabliſh'd upon theſe two Principles; 1. A due Senſe of our own Weakneſs and Wants; and, 2. A firm belief, that God is both able and willing to relieve us.

The *Ceremonial Precepts* are the *Sacraments.* A *Sacrament* is an outward and viſible Sign of an inward and ſpiritual Grace given unto us, ordain'd by *Chriſt* himſelf, as a means by which we receive the ſame, and a Pledge to aſſure us of it.

Sacraments two, { *Baptiſm,*
Lord's Supper.

Baptiſm is the *Sacrament* of our new and ſpiritual *Birth,* the Seal of our *Adoption,* and the ſolemn Means of our Admiſſion into the Communion of the Chriſtian Church. By the outward waſhing whereof, our inward waſhing from our Sins, by the Blood and Spirit of Chriſt, is both clearly exhibited, and certainly ſeal'd to us. The manner of performing is by dipping in, pouring on of, or ſprinkling with Water, in the *Name of the Father, and of the Son, and of the Holy Ghoſt.*

The Lord's Supper is the ſecond *Sacrament* of the *New Teſtament,* and is ſo call'd becauſe it was both inſtituted by our Lord at Supper, and was deſign'd to ſucceed into the Place of the *Paſchal* Supper among the *Jews.* It was ordain'd for the continual Remembrance of the Sacrifice of the Death of *Chriſt,* and of the Benefits which we receive by it. In which *Supper,* by the Elements of *Bread* and *Wine,* which the Lord has commanded to be receiv'd, the Body and Blood of *Chriſt* are verily and indeed taken and receiv'd by the Faithful.

The Motives to the Obedience of theſe Precepts or Laws, are the *Promiſes* and *Threatnings* of the Goſpel.

The *Promiſes* are the
- *Sending of the Holy Ghoſt,*
- *Pardon of Sins,*
- *Reſurrection of the Body,*
- *Reward of Eternal Life.*

The *Holy Ghoſt* is the third *Perſon* of the ever bleſſed *Trinity;* and partakes as ſuch, of the ſame Divine Nature, with the *Father* and the *Son.* It is he that ſanctifies all the Elect People of God. He regenerates us at our *Baptiſm,* unites us unto *Chriſt,* co-operates with us in all our Religious Undertakings, diſpoſes our Wills, ſettles us in the Faith of Chriſt, helps our Prayers, fortifies us againſt Temptations; and carries us thro' all the Dangers, that either our own Weakneſs, or the Cunning and Malice of the Devil may raiſe againſt us: to draw us away from, or hinder us in our Duty. And in ſuch caſes as he ſees needful, ſeals our Souls with that inward Senſe, and Aſſurance of God's Favour, which makes us fully ſatisfy'd of our future and everlaſting Salvation.

Pardon of Sins is that Act of Divine Mercy, whereby he waſhes away the Stains of them by his ſanctifying Grace; and remits the Puniſhment of them, for the ſake, and thro' the Merits and Mediation of *Jeſus Chriſt* our Saviour. Upon which *Promiſe* the Covenant of the Goſpel is founded; wherefore, if we believe that Chriſt dy'd for our Sins, we muſt alſo believe, that God for *Chriſt's* ſake will forgive all thoſe who truly repent of their Sins.

The Reſurrection of the Body, naturally ſuppoſes that we ſhall receive our own Bodies; and the End of it confirms it to us: Our Bodies being therefore rais'd, and reſtor'd to us, that we may be rewarded or puniſh'd, in the ſame State both of Soul and Body, in which we had done things worthy either of Reward or Puniſhment. Thoſe that ſhall be found alive at the laſt Day upon the Earth, ſhall not die, nor, by Conſequence, riſe from the Dead; but they ſhall be chang'd, and by the mighty Power of God, be put into the ſame State with thoſe, who being dead, were rais'd from the Dead, and ſo be brought with them before the Judgment-Seat of *Chriſt.*

The Reward of Eternal Life is generally comprehended in that one word *Heaven,* which may either be conſider'd as a

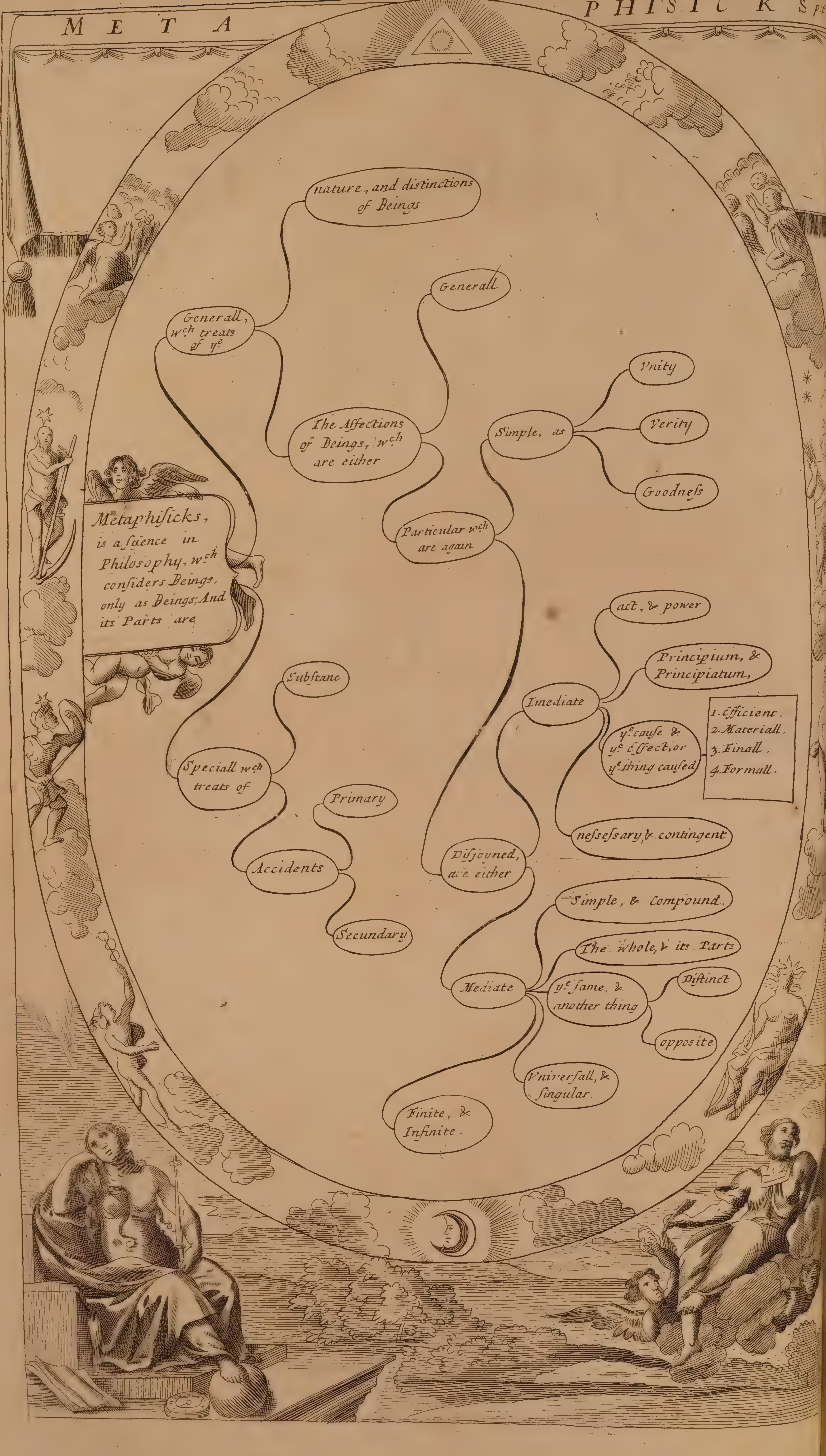
State,
Place.

State. In this ſenſe it is the ſame with Holineſs, conſiſting in ſuch God-like Diſpoſitions, as may make us Partakers of the Divine Nature.

In the Notion of a *Place,* it denotes that other World, where we hope to enjoy the beatifical Viſion, in the bleſſed Society of the Saints and Angels.

Threatning's comprehended under that general Notion *Hell,* which is a State of inexpreſſible Miſery, where the Wicked ſhall be tormented, without Intermiſſion, and without End.

METAPHYSICK.


META PHISICKS p:6.
Metaphiſicks, is a ſcience in Philoſophy, wch conſiders Beings, only as Beings; And its Parts are
Generall, wch treats of ye
nature, and distinctions of Beings
The Affections of Beings, wch are either
Generall
Particular wch are again
Simple, as
Vnity
Verity
Goodneſs
Imediate
act, & power
Principium, & Principiatum,
ye cauſe & ye Effect, or ye thing cauſed
1. Efficient.
2. Materiall.
3. Finall.
4. Formall.
neſseſsary, & contingent
Diſjouned, are either
Mediate
Simple, & Compound.
The whole, & its Parts
ye ſame, & another thing
Diſtinct
opposite
Vniverſall, & ſingular.
Finite, & Infinite.
Speciall wch treats of
Subſtanc
Accidents
Primary
Secundary

METAPHYSICK.

M*ETAPHYSICK* is the Knowledge of *Being* in general, barely conſider'd as ſuch.

The *Object* of *Metaphyſick*, or that about which it is converſant, is *Being* in General. For the Underſtanding not being confin'd or determin'd to one Thing, as the Senſes are to their proper Objects; has a diffuſive Power to comprehend whatſoever is intelligible. To avoid Confuſion, which would inevitably flow from the great Variety of Things which fall within the Compaſs of the Underſtanding, it is found neceſſary to reduce the *Species* of *Beings* to one *Genus*, in order to make them the Object of any *Art* or *Science*; ſo all the Conceptions in *Natural Philoſophy* are reduc'd to that one of a Natural Body; all the Obſervations concerning *Proportion*, *Figures*, and *Quantity* to *Mathematick*; and all the *Idea's* concerning the various *Modes* of *Being*, *Subſiſting*, and *Inhering*, are reduc'd to one *Object*, which is call'd *Being*.

Being is ſeveral ways divided.

1. *Being* taken in its utmoſt Latitude is either *Complex* or *Incomplex*. *Complex*, which in its Notion involves many *Idea's*; *Incomplex* which only takes in one.

2. *Being* is either *Poſitive* or *Negative*. *Poſitive* is that which has a real *Exiſtence* in the Courſe of Nature. *Negative* deſtroys this *Exiſtence*. If it deſtroys it *abſolutely* then it is a perfect Negative *Being*; but if it only prevents its Being in a *Subject* which was capable to receive it, then it is ſtil'd a *Privative Being*. For *Privation* may be properly defin'd, to be the Want or Abſence of ſome Natural Perfection, from a Subject capable to receive it, in which Subject it either was before, or at leaſt ought to have been: Beſides, as this *Privation* is either greater or leſs, ſo it is either call'd *Total* or *Partial*. *Total* is the worſt, for it deprives the Subject of its Natural Perfection, both as to the Exerciſe of any Preſent Action, and the Power of regaining it for the future; as when the Eye is perfectly put out. *Partial* is only in ſome particular reſpect, and relates principally to its preſent Actions, or ſome degree of them; as when one ſhuts his Eyes, or is purblind.

3. *Being* is either *Rational* or *Real*. *Rational Being*, which is the mere Product of Reaſon, has no *Exiſtence* but in the Mind in *Idea*, and when none thinks upon it, it ceaſes to be. A *Real Being*, which is not produc'd by the Strength of Imagination or Fancy, has a *Real Exiſtence* in the Courſe of Nature, antecedent to any Thought or Conception of the Mind.

4. *Being* is either *Actual* or *Potential*. *Actual* is that which actually Exiſts in the Order of Nature, whether it depend upon any *Cauſe* in order to produce it, as an Infant; or whether it be antecedent to all Cauſe, as God. *Potential Being* is that which can be produc'd by the Power of ſome Agent. Theſe are the Principal *Nominal* Diſtinctions of *Being*, and from theſe we may collect that that *Being* which is the *Object* of *Metaphyſick*, is an *Incomplex*, *Poſitive*, *Real*, and *Actual Being*.

Metaphyſick is divided into Two Parts, *General* and *Particular*.

The *General* Part of *Metaphyſick* gives an Account of *Being* in its moſt abſtracted Nature; under which Notion it may be thus defin'd; *Being is that which in itſelf has a real and poſitive Eſſence.*

Being may be conſider'd either with reſpect to thoſe Words which are *Synonymous or Equivalent to it*; or in reference to its *Affections or Modes.*

Words *Synonymous* to *Being*, are Terms which *Simply* have the ſame Signification, or elſe at the ſame time do imply a reſpect to ſome other Thing. Upon this Ground they are divided into Two *Claſſes*; ſome in every reſpect implying the ſame with *Being*, others either from the *Philoſophical* or *Grammatical* Uſe of the Words imply a Relation to ſome other *Being*.

In the Firſt *Claſs* are rankt *Eſſence*, *Thing*, *Something*.

Eſſence is the ſame with *Being*; tho' ſome wou'd make a Diſtinction to lie betwixt them in this, that *Being* has the ſame reſpect to *Eſſence*, that the *Concrete* has to its *Abſtract*. But *Eſſence* in *Metaphyſick* is taken in its moſt abſtracted Nature, and ſo it muſt of Neceſſity be the ſame with *Being*.

Thing is the ſame with *Being*; for there is nothing in the Notion of *Being* but what *Thing* implies in its *Idea*, and on the contrary.

Something as well as *Thing* and *Eſſence* is equivalent to *Being*. And this may be further prov'd from theſe following *Axioms*. For, *If it be impoſſible for the ſame Thing to have Eſſence, and not to have Eſſence at the ſame time; to be a Thing and not to be a Thing; to be ſomething and not to be ſomething*; are Maxims Equivalent to this firſt Principle of Knowledge, *That it is impoſſible for a Thing to be, and not to be at the ſame time*; then *Eſſence*, *Thing*, and *Something* are Words *Synonymous* to *Being*.

Synonymous Words of the Second *Claſs* are, *Exiſtence*, *Quiddity*, *Nature*, *Form*. Theſe are the ſame with *Being*, yet imply ſome reſpect in the *Philoſophical* Way of uſing them, which Reſpect is form'd by the Operation of the Mind upon hearing theſe Words.

Exiſtence, beſides the Signification of *Being*, implies a Reference to its *Cauſe*, whether it *poſitively* had its Original from ſome Cauſe, as an Houſe; or *negatively* was antecedent to all *Cauſe*, as God.

Quiddity is the ſame with *Being*, but inferrs a Relation to our Underſtanding; for the very asking what a Thing is, implies that it is the Object of Knowledge; upon which Account that which *really*

Exiſts in the Courſe of Nature, is accidentally made the *Object* of Knowledge.

Nature is the ſame with *Being*, but includes a Reſpect to its *Operations and Properties.*

Form is of the ſame Signification; for every *Being* as by its *Eſſence*, ſo by its *Form* is what it is. Yet this Term involves this Reſpect, that it is more generally by *Philoſophers* apply'd to *particular and determinate Beings.*

The *Modes* or *Affections* of *Being*, are Three General *Idea's* or Conceptions of *Being* which naturally flow from it, and are reciprocated with it, yet repreſent it in different States and Conditions.

- *Affections*
  - *United*
    - *Primary*
      - *Unity,*
      - *Truth,*
      - *Goodneſs.*
    - *Secundary*
      - *Duration,*
      - *Ubiety.*
  - *Diſunited*
    - *Primary*
      - *Immediate*
        - *Neceſſity and Contingency,*
        - *Power and Act,*
        - *Corruptibility and Incorruptibility,*
        - *Dependent and Independent,*
        - *Created and Increated,*
        - *Finite and Infinite,*
        - *Cauſe, and the Thing Cauſ'd.*
      - *Mediate*
        - *Simplicity and Compoſition,*
        - *The Whole and Part,*
        - *Identity and Diverſity,*
        - *Communicability and Incommunicability,*
        - *Natural and Artificial,*
        - *Complete and Incomplete,*
        - *Permanent and Succeſſive,*
        - *Definite and Indefinite.*
    - *Secundary*
      - *Subject and Adjunct,*
      - *Abſolute and Relative,*
      - *Sign, and the Thing ſignify'd,*
      - *Meaſure, and the Thing meaſur'd.*

The *United Affections* of *Being* are ſuch as *ſingly* and *ſolitarily* are predicated of *Being*, and without any Conjunction are convertible with it; as every *Being* is good, and all good is a *Being.*

The *Diſunited Affections* of *Being* are predicated of it with a Disjunction, and by taking in both Parts of the Sentence are convertible with it. As, *Being* is either neceſſary or contingent, and whatever is neceſſary or contingent is a *Being.*

The *Primary United Affections of Being* are *Unity, Truth* and *Goodneſs.*

Unity is either *Real* or *Rational. Real* is, which without any Operation of the Mind is really in every particular *Being. Rational Unity* is that common Nature which is diffus'd in all the Particulars of any Kind, yet by the Operation of the Underſtanding is made *one.*

Unity is the *Indiviſion* of any *Being*; i. e. the Diviſion of its Eſſence implying ſuch a Contradiction, that without we can divide a Thing from it ſelf it is impoſſible to divide it.

Union is the Concourſe of many *Beings*, in order to the making of one *Individual.*

Union is either *Verbal, Real, Eſſential, Perſonal*, or *Accidental.*

Verbal Union conſiſts in the bare Agreement of Words.

Real in the Concourſe of many diſtinct *Beings*, in order to the forming of one *Individual.*

That is an *Eſſential Union* when many *Incomplete Beings*, adapted to one another, do concurr to make one *Eſſential Individual:* So Matter and Form are *Eſſentially* united in the Compoſition of a Body. And this *Union* is not only viſible in *Eſſential* Compoſitions, but in *Integral*, becauſe even in ſuch a Compoſition there is one *Eſſence*; ſo the Elements in all mixt Bodies are united by an *Eſſential Union.*

Perſonal Union is by which Two Natures are ſo united as to make one *Perſon.* The only Inſtance that can be given of this is, in the *Union* of the Divine and Humane Nature in the *Perſon* of our Saviour.

Accidental Union is by which many Cauſes accidentally concurr to make one Thing by *Accident.*

The *Second of the United Primary Affections of Being* is *Truth.*

Truth is either *Metaphyſical, Logical*, or *Moral.*

Metaphyſical Truth is the Conformity of the Thing with the Divine Underſtanding.

Logical is the Conformity of the Idea with the Thing itſelf.

Moral is the Conformity of our Words, Geſtures, and Actions with our Hearts.

Logical Truth is particularly ſeen in True Propoſitions, ſuch as agree with their Rule, which is the Things themſelves of which they treat. That is a *Moral Truth* when a Man's Heart and Mouth go together, when he ſpeaks what he thinks, and is in Reality what he wou'd ſeem to inſinuate himſelf to be by his Shew and Appearance. It is not abſolutely requir'd to this *Truth*, that Things ſhould exactly agree with the Relation of them, upon Condition that he that tells 'em knows nothing to the contrary: So that one need not doubt to affirm that a Man at once, in the ſame Thing, may ſpeak *Truth* and tell a *Lye.*

Another Diviſion of *Truth* is into *Truth*, in *Being, Signifying*, and *Knowing.*

In *Being* is the Agreeableneſs of the Eſſence of any Thing to the Underſtanding of God.

In *Signifying*, when there is an Exact Correſpondence betwixt the Sign and the Thing ſignified.

In *Knowing*, when the Underſtanding by its Idea's repreſents the Thing which is to be underſtood exactly as it is.

The Third of the *United Primary Affections* is *Goodneſs*.

Goodneſs is the Agreeableneſs of any Thing. Some place the Eſſence of *Goodneſs* in the Agreeableneſs of the Eſſence and the Will: But ſuch a Conformity do's not lead us to the Nature of Goodneſs as it is *abſtractedly and abſolutely* conſider'd, but only *relatively*; i. e. as it is a Good of this or that ſort. Others place the *Eſſence* of Goodneſs in Deſire, which Opinion agrees very much with the former. But Deſire is a Conſequent of Goodneſs; for a Thing is therefore deſir'd becauſe it is good; and not that it is good becauſe deſir'd. For under the Appearance of *Good*, *Evil* is very often deſir'd. Others again place the Eſſence of *Goodneſs* in *Perfection*; but Perfection do's not give us an adequate Notion of *Goodneſs*.

Goodneſs is either ſuch as is abſolutely ſo in itſelf, or with *Reference* to ſomething elſe. That *Goodneſs* which is abſolutely ſo itſelf is call'd *Perfection*.

Perfection is either *Eſſential* or *Accidental*.

Eſſential Perfection, is when a Thing has no Eſſential Defect in its Nature.

Accidental Perfection, when a Thing is inveſted with all thoſe Accidents which uſually accompany its *Species*.

Again, *Perfection* is either *Abſolute* or *Comparative*.

Abſolutely every Being is perfect, which wants nothing to the compleating of its Eſſence.

Comparatively, one Being is more perfect than another; as God is more perfect than his Creatures, a Man than a Plant.

That *Goodneſs* which is *Relative*, and bears a Reference to ſomething elſe, is ether *Real* or *Apparent*.

Real Goodneſs is ſuch as is intrinſically ſo in its Nature, as Vertue.

Apparent is made ſo by the falſe Reaſonings of Men: Thus many look upon Idleneſs to be *Good*.

Again, *Goodneſs* is either *Metaphyſical*, *Phyſical*, or *Moral*.

Metaphyſical is the Agreeableneſs of any Thing with the Divine Will.

Phyſical is the Agreeableneſs of any Particular to the whole *Species*.

Moral is the Agreeableneſs of our Actions with the Law of Nature, and is the ſame that is meant by *Moral Vertue*.

The *Secundary United Affections* are *Duration*, *Ubiety*.

Duration is either *Imaginary* or *Real*.

Imaginary, which is only fram'd by the working of Fancy, there being no ſuch Thing in Nature: So the *Papiſts* imagine ſome to continue a long time, others a ſhort one in *Purgatory*.

Real is either *Extrinſical* or *Intrinſical*.

Extrinſical is the comparing *Duration* with ſomething elſe, making that Thing to be the Meaſure of it; ſo in *Natural Philoſophy*, Time, by the Heavenly Bodies is divided into Years, Months, and Days. This is improperly call'd *Duration*.

Ubiety is the Preſence of any Thing in its *Ubi*, or *Place*.

Ubiety is either *Infinite* or *Finite*.

Infinite Ubiety is the indeterminate Preſence of a Thing in every Place; it is call'd in one Word *Ubiquity*. This is the Property of God.

Finite Ubiety is the determinate Preſence of a being in a Place. It is *Definitive* or *Circumſcriptive*.

Definitive Ubiety is, when a Thing without any Circumſcription is ſo in a Place as to be no where elſe. After this manner Spirits, Material Forms and Accidents are in a Place. It is call'd *Definitive*, becauſe we can Define it to be here and not there.

Circumſcriptive Ubiety is that by which a Thing is exactly Circumſcrib'd in its *Ubi*, and this is properly call'd Place; this is the Condition of all Bodies.

The *Diſunited Primary Immediate Affections* of Beings are; *Neceſſity and Contingency*, *Power and Act*, *Corruptibility and Incorruptibility*, *Dependent and Independent*, *Created and Increated*, *Finite and Infinite*, *Cauſe and the Thing Cauſed*.

Neceſſity is that by which a Being is put into ſuch a Condition that it cannot be in any other.

Neceſſity is either *Abſolute* or *Hypothetical*.

Abſolute Neceſſity is when it is contrary to the very Nature of the Things, and its Principles to be otherwiſe. This is either *ſimply abſolute* or *reſpectively ſo*.

Simple Abſolute Neceſſity is, which upon no Terms will let a Thing be in another Condition than what it is in. This is never met with but in an Independent Being, *i. e.* God.

Reſpective Abſolute Neceſſity is when, according to the Order of the Creation, and the Settled Courſe of Second Cauſes, a Thing will continue as it is.

Power is by which a Being is able to effect or do ſomething. It is either *Active* or *Paſſive*. *Active* by which it is able to do ſomething. *Paſſive* by which it is made capable to ſuffer.

Act is that, by which a *Being* is in real Action: So Walking is an *Act*, not as it is in any ones Power, but as it is really perform'd.

Corruptibility is a Power not to be. *Corruptibility* proceeds either from *without* or from *within*. *Corruptibility* from *within* is when a Thing contains the Principles of its own Deſtruction. From *without* when a Thing may be deſtroy'd by an External Principle.

Incorruptibility is an Inhability not to be.

Dependent is a previous Want, whereby one Thing depends upon another as its Cauſe.

Independent is whereby one Thing do's not depend upon another as its Cauſe.

Creation is the Production of a Thing out of nothing, or out of indiſpos'd or unqualified Matter, by the Influence of an Almighty Power.

Created is that which by *Creation* has its Dependance upon another, as all Finite Beings.

Increated, which do's not depend upon another by Creation; as God.

Finite, which has Terms or Bounds of its *Eſſence*.

Infinite is either ſo *in itſelf* or with *Reſpect to us*. That which is infinite in itſelf is what properly belongs to *Metaphyſick*; not that which is only ſo with reference to us, as the Stars, and Sand, becauſe their Number cannot exactly be diſcover'd by any Man.

Infinite is that which implies a Contradiction to have Terms or Bounds to its *Eſſence*; ſuch God is only.

A *Cauſe* is an Active Principle influencing the Thing Cauſed. A *Cauſe* is either *Internal*, which partakes of the Eſſence of the Thing Cauſed, *viz.* *Matter* and *Form*. Or *External*, which has an outward Influence, *viz.* *Efficient* and *Final*.

Matter is an *Internal Cauſe* out of which a Thing is made.

Form is an *Internal Cauſe* by which a Material Being is conſtituted what it is.

Efficient is an *External Cauſe* from which any Thing by a real Action derives its Being or Eſſence.

The *End* is an *External Cauſe* upon whoſe Account the *Efficient* acts.

The *Thing Cauſed* is that which derives its Being or Eſſence from its Cauſes.

So far we have conſider'd the *Primary*, *Immediate*, *Disjoyn'd*, or diſunited Affections of Being. We come now to conſider thoſe which flow from *Being* thro' the Mediation of *the united Affections*.

From *Unity* flows *Simplicity and Compoſition*; The *Whole and Part*; The *Same and Different*; *Communicability and Incommunicability*.

Simplicity is an indiviſible Unity. It is either *Abſolute* or *Limited*. *Abſolute Simplicity* is when a thing is independently indiviſible. This is the Property of God.

Limited Simplicity, when a thing is really indiviſible, but yet that depends upon ſome external Being.

Compoſition is a diviſible Unity.

The *Whole* is that which is made up of parts united in due Order and Diſpoſition. The *Whole* is either *Eſſential* or *Integral*.

Eſſential, which conſiſts of ſuch parts as compleat the Eſſence of that Being; ſo Man is made up of Soul and Body.

Integral, which has the ſame Nature with its parts; as every drop of Water is call'd Water.

Part is that which conſtitutes the *Whole*.

Identity is the agreement of two or more things in a another.

Communicability is when one Being can partake of another.

Incommunicability, when one Being cannot partake of another.

From *Truth* follows *Natural* and *Artificial*.

Natural is that, of whoſe Truth the Underſtanding of God is the immediate Rule.

Artificial, the immediate Rule of whoſe Truth is the Underſtanding of the Artificer.

From *Goodneſs* flows *Compleat and Incompleat*.

Compleat is that whoſe Eſſence is bounded in its ſelf, and is not deſign'd to perfect any thing elſe.

Incompleat, whoſe Eſſence is not bounded in its ſelf, but is ordain'd of it ſelf to the Completion and Perfection of another Being.

From *Duration*, proceeds *Permanent* and *Succeſſive*.

Permanent, the parts of whoſe Eſſence are not in a perpetual Flux.

Succeſſive, the parts of whoſe Eſſence are in a continual Flux.

From *Ubiety* flows *Definite* and *Indefinite*.

Definite, which has a finite *Ubiety*, or Place.

Indefinite, which has an infinite *Ubiety*, or Place. Such a Being God is, whoſe Eſſence is boundleſs.

The *Secundary diſunited Affections*, are *Subject* and *Adjunct*; *Abſolute* and *Relative*; *Sign, and the Thing ſignify'd*; *Meaſure, and the Thing meaſur'd*.

Subject is a Being, which has another thing joyn'd to it, which other thing does not enter into its Eſſence.

The *Adjunct* is that which is joyn'd to another thing, ſo as not to conſtitute part of its Being.

A Being is then *Abſolute*, when it has no reſpect to any thing elſe.

Relative, when it has a reſpect to ſomething elſe.

A *Sign* is that which repreſents any thing to the Faculties of Knowledge; under which Faculties, are comprehended Senſe, as well as Underſtanding. The thing *ſignify'd* is whoſe *Idea* by its *Sign* is repreſented to the Faculties of Knowledge.

Meaſure is that by which the Quantity of any thing is found out.

The thing *meaſur'd*, is whoſe Quantity is determin'd by another.

Thus we have run thro' all the *Affections* of *Being*, which is the general part of *Metaphyſick*. We proceed now to the *Particular Part*, which is concerning the Diviſion of *Being*.

Being is divided into *Subſtance* and *Accident*.

Subſtance is a *Being* ſubſiſting by its ſelf. *Subſtance* is either *Compleat* or *Incompleat*.

Compleat Subſtance, whoſe Eſſence is bounded in it ſelf, and is not ordain'd to the intrinſical Perfection of any thing elſe. As God, an Angel, a Man, &c.

Incompleat Subſtance is which is ordain'd to the Perfection of another thing, and is a part of ſome Compound. As the Soul, a Hand, a Vein, &c.

Subſtance is divided into *Material* and *Immaterial*. A Body is a Subſtance made up of Matter and Form, and is the Object of a particular Science, *viz.* *Natural Philoſophy*, by which it is divided into *Simple* and *Mix'd*, *Animate* and *Inanimate*, &c. Spirit is a *Subſtance* void of Matter and Form, and is the Object of *Pneumaticks*.

Accident is a Being inhering in a Subſtance. *Accident* is either *Entitive* or *Modificative*. *Entitive* is either *Primary* or *Secundary*. *Primary* is *abſolute*, as *Quantity* and *Quality*; or *reſpective*, as *Relation*. *Secundary Action*, Paſſion. *Modificative Accidents* are, *Quando*, *Ubi*, *Situs*, *Habitus*.

Quantity is either *Continu'd* or *Divided*. Continued *Quantity*, which properly belongs to this place, is whoſe parts are joyn'd together by a common Term.

Divided Quantity is whoſe parts are not link'd together by a common Term, but are divided. *Divided Quantity* is Number, which may be defin'd, a multitude compos'd of Units.

Quantity is an Accident by which a material Subſtance is extended.

The Species of continu'd *Quantity* are a *Line*, a *Superficies*, and a *Body*; for *Quantity* is extended either into bare *Longitude*, and then it is call'd a *Line*, not a material one, but ſuch an one as the Mind can frame by Idea; or elſe it is extended into *Longitude* and *Latitude*, and that is call'd a *Superficies*; or elſe into *Longitude*, *Latitude*, and *Profundity*, and that makes a Mathematical Body, which is not to be underſtood as if it were a corporeal *Subſtance*.

Quality is an *Accident* which influences its Subject after the manner of an eſſential Form. There are four *Species*, or kinds of it. *Habit and (Diſpoſition;) Natural Power (and Weakneſs;) Paſſion; Figure or Form.*

Habit is a *Quality* ſuperadded to a Natural Power, which makes it very readily and eaſily perform its Operations. *Diſpoſition* is an imperfect *Habit*, or a *Habit* juſt begun.

Natural Power is a *Quality* rooted in our very Natures, which renders a Subject fit to do or ſuffer any thing. *Weakneſs* is a Diminutive Power.

Paſſion is a *Quantity* which affects the Senſes and the ſenſitive Appetite, but is quickly over.

Figure or *Form* is the outward Determination and Diſpoſition of *Quantity*, as Roundneſs.

Relation is an Accident by which one thing is referr'd to another.

Action is an *Accident* by which a thing is ſaid to act. It is either *Immanent* or *Tranſient*. *Immanent*, which does not go from the Agent to another Subject; as *Underſtanding*, *Thinking*, *Meditating*.

Tranſient which goes from one Subject to another, as *Beating*.

Paſſion is the receiving of *Action*. *Paſſion* is either *Perfective*, by which the Subject receives ſome Additional Perfection, as, *to be inform'd:* Or *Corruptive*, by which the Patient is either wholly, or in part corrupted, as, *to be wounded.*

Quando is the Duration of a Being in Time.

Ubi is the Preſence of a Being in a Place.

Situs is the Reſpect of the Parts of the Body to a Place.

Habitus is the Application of a Body to that which is near to it.

PHILOSOPHY.

BEFORE we enter upon *Ethicks* and *Natural Philoſophy*, which are Branches of *General Philoſophy*, it will not be improper to ſay a Word or two of *Philoſophy* in *General*; in which we ſhall obſerve our accuſtom'd Brevity.

'Tis certain, that in Ancient Times, the Name of a *Philoſopher*, or a *Lover* of *Wiſdom*, tho' a very modeſt one, was preferr'd to the moſt illuſtrious Characters of Honour. Princes apply'd to Philoſophers for Advice, and eſteem'd it a Glory to have been their Diſciples. 'Twas *Philoſophy* which taught *Pythagoras* that Integrity and Sincerity of Life and Manners which drew after him ſo numerous a Train of Followers; 'Twas by Philoſophy that *Empedocles* refus'd a Crown, and preferr'd Privacy and Peace to Pomp and Greatneſs; 'Twas by Philoſophy that *Democritus* renounc'd the Pleaſures of the Body to enjoy thoſe of the Mind; That *Socrates* was enabled to lay down his Life without either Arrogance or Weakneſs; That *Cato* was inſpir'd with ſuch an utter Contempt of Life, after the Ruin of the Roman Republick; And in ſhort, That all the great and glorious Things were done in the Pagan World by thoſe who were term'd Philoſophers.

The *Egyptians* were the firſt who ſtudy'd Philoſophy, to which they gave ſuch an Air of Myſtery, that the People reverenc'd it as they did Religion. Their Prieſts, by veiling their Obſervations under Figures and Hieroglyphicks, deſign'd to ſurpaſs the Capacity of the Vulgar, and diſtinguiſh themſelves from the Multitude. They had no way of Teaching but by Tradition, and were not very communicative to Strangers; ſo that whatever is pretended to be ſaid of their Philoſophy, is on ſlender Authority.

The *Greeks* were the firſt who left any ſuch Pieces of Philoſophy behind 'em, as to give Poſterity a clear Knowledge of their Principles and Inquiries. There were more Diſcoveries made in Phyſicks from the Time of *Thales* to that of *Plato*, than in many Ages that follow'd. But it muſt be by the force of long and ſevere Study that Men attain'd to apprehend in ſome degree the moſt conſiderable Motion of the Heavenly Bodies, to diſtinguiſh their Periods and Revolutions, and to form the firſt Draught of an Univerſal Syſtem, to diſcern the Obliquity of the Zodiack, and lay open the Secrets of Natural Things. Among thoſe who engag'd in this Attempt, *Thales*, *Anaximander*, *Anaxagoras*, *Heraclitus*, *Hippocrates*, *Democritus*, *Empedocles*, *Archelaus*, ſignaliz'd themſelves in an eſpecial manner. And while Learning and Application made Philoſophers in *Greece*, Nature produc'd others in *Scythia*, ſays *Juſtin*, *Prorſus ut Admirabile videatur, hoc illis dare Naturam, quod Græci longa ſapientia præceptis que Philoſophorum conſequi nequibant.* *Thales* and *Pythagoras* are look'd upon as the Two great Founders of Philoſophy among the Ancients, *Thales* in *Greece*, and *Pythagoras* in *Italy*. *Pere Rapin* tells us, That in the School of *Pythagoras* we find ſomewhat more regular and ſolid than in that of *Thales*. His common Method of Teaching was by Geometry and Numbers. By the former, he explain'd material and ſenſible Things; by the latter, intellectual Things; in which he alſo made uſe of Muſick. This Science of Numbers has been a Secret ever ſince. His Morality is loſe and diſorder'd. His Phyſicks much the ſame with thoſe of the Platoniſts. His Doctrines of two Principles, the one Good, the other Evil, on which the *Manichæan* Hereſy was grounded, ſhews that this Philoſopher was not always Infallible. For there can be but one firſt Cauſe of all real and ſubſtantial Effects. What *Pythagoras* ſays in *Plutarch*, That the chief Benefit he deriv'd from Philoſophy, was to be incapable of Wonder and Surprize, as being inſtructed in the Cauſe and Reaſon of every Appearance, has more Vanity than Solidity in it. *Socrates* and *Plato* are indebted to him for moſt of their fine Notions. The former was the firſt that began to reduce the confus'd Idea's of his Predeceſſors into ſome Method and Order; 'Twas *Socrates* who firſt trac'd out the Plan of Logick and Morality, and ſupply'd Principles to Phyſicks. Yet his Conceptions, according to a great Critick, are rather Principles than Deciſions, and his Philoſophy ſeems much more proper to pull down than to build. But then the ſame great Author gives us ſuch a Character of him, as makes one ready, with the Oracle, to pronounce him the Wiſe *Socrates*. *He had*, ſays he, *beſides all that Agreeableneſs of Wit which ariſes from a Faculty of Genius and Felicity of Parts, all the Depth and all the Solidity imaginable; and yet this Height of Underſtanding, and this Abundance of Light, was attended with true Simplicity, and perfect Meekneſs; he preſerv'd an Air of Pleaſantry in Treating of the graveſt Subjects*, &c. But 'tis not for us here to enlarge on the Character of any one Philoſopher, even not of *Socrates*, upon whom great Pens have laid out all their Eloquence. Monſ. *Charpantier*, Secretary to Cardinal *Richlieu*, wrote his Life in a pretty large Volume, and with ſo much ſucceſs, nothing can be added to it. And ſuch as read that Author, will be as well acquainted with *Socrates*, as if they had been bred in his School. *Plato's* is a more ſhining Genius. *Rapin* ſays of him, *He is the fineſt Speaker of all Antiquity, and therefore is more deſirous to be heard than ſollicitous to be believ'd; he is always florid, but not always ſound. There's ſo natural a Grace in all he ſays that we can conceive nothing more Charming.* As to his Capacity, what *Quintilian* ſays of it is ſufficient to give an Idea of its Extent. *Quæ ars digna Literis Platoni defuit? What Art is there worth knowing, which* Plato *did not know?* Tho' he had an admirable Genius for the Sciences, he rais'd the Credit of his Philoſophy more by the Vertues of his Life, than by his Speculations of Doctrine. For twas he who firſt taught that true Philoſophy conſiſted more in Fidelity and Conſtancy, in Juſtice and Sincerity,

and

aturall, & Morall Philosophy. p:72.

he Rt. Honourable William
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s Plate is
mbly D.D.
R. Blome

Philosophy is either Naturall, or Morall.
Naturall Philosophy, or Phisicks is the knowledg of nature, and is divided into
Generall wch treats of
Comon Principles of Body
Matter
Forme
Privation
Comon Affections of Body
Internall
Motion
Finiteneſs, or termination of quantity
Externall
Place
Time
Particular wch treats of ſeverall kinds of Bodys, as
1 ye World as it makes one Sphere
2 of ye Elements as they are the cause of Naturall changes in
Action & Paſsion
Generation
Alteration
Mixion
3. of Bodyes imperfectly mixt, or Meteors
Pure as
Torches, hanging fires, Fiery Darts, Dancing Goats, flying Sparkles, falling Stares, Burning Lances, fiery Dragons, Ignis fatui, or goeing fires
Mixt as
Comets, Thunder. Lightning, Clouds. Showrs, Snow. haile, Dew, Miſt. Ice, Fountains, Rivers, Seas, Winds. Earthquaks.
4 of Bodyes perfectly mixt
Inanimate
Stones, Mineralls, Baſtard-Mineralls,
Animate
Plants, Animalls.
5 of ye parts of mans Body
6. of ye soul
Vegetitive, Senſitive, Rationall.
Morall Philosophy is the Doctrine of Virtue, in order to attaine ye greateſt happineſs, & hath theſe three Parts
Ethicks, treats of mans Duty, as a private Perſon & hath three parts
ye first treats
De fine: of the End & deſign of all Actions, which by Philosophers is said to be ſomething yt is good
De Bono, of Good as it is ye last end of all humane Actions
of Felicity or Beatitude
Objective
Formall
The Second treats of Principles of humane Actions
Internall
Naturall
Acquired
Externall
ye principle that moves alwayes effectually, that is God.
other Externall Principles, as Angells and men.
The third treats of
Actions
Generally
Particularly
Paſsions
Generally
Particularly
Virtues
Generally
Perticularly as
Prudence, Iuſtice, Fortitude, Temperance
Vices
Oeconomick is that part of morall Philosophy ye contains a mans duty towards a family, either as a
father
husband
maſter
Politicks, is that part of Morall Philosophy wch contains ye duty to the Publick whether the Government be by
one which is called Monarchy,
or a few, which is called oligarchy, or Ariſtocracy,
or many wch is called Democracy
Right
Truth
Equity
Loyalty
Concord
Peace

and the Love of our Duty, than in a great Knowledge and Capacity. He was *Socrates*'s Diſciple, and *Ariſtotle* his, whom having mention'd, let us content our ſelves, as to his Character, to repeat *Rapin*'s Expreſſion of him; *He is a Genius ſo much above the Standard, as not eaſily to be comprehended; He's an Eagle mounted out of Sight*, &c. He was the firſt that gather'd the various Parts of Philoſophy, in order to caſt them into a regular Syſtem. Indeed, ſays that Critick, *It may be ſaid of him there's ſcarce any thing Juſt and Rational that has been advanc'd in Philoſophy, but what ſhews ſome Trace, or bears ſome Impreſſion of* Ariſtotle's *Spirit.* We are of late us'd to hear other things ſaid of *Ariſtotle*, and Modern Philoſophy has gone a great way to explode the Ancient in many Branches of it. This is allow'd by all who have made any Progreſs in the Study of Philoſophy in latter Times; for in former, that of the Ancients, and particularly *Ariſtotle*'s, was made Sacred in the Schools. But conſidering the Reputation it is in at preſent, who can help wondering to hear *Pere Rapin* affirm, *'Tis in vain therefore that a whole Volly of little Wits have let fly againſt the Reputation of this great Man*, &c. *Cauſabon* upon *Laertius* tells us, *That none but Sophiſts and Pedants, that is, none but ſuperficial Pretenders have ſpoken ill of* Ariſtotle: *He cites an Ancient Philoſopher for this Remark, and if we conſider who theſe Criticks are, from whom* Ariſtotle *has ſuffer'd moſt in the preſent Age, we ſhall find their Character coming much within the ſame Deſcription.* If we had Room in this ſhort Eſſay, how many Names might we inſtance among *Pere Rapin's Superficial Pretenders*, which are now reckon'd among the moſt Celebrated in *Europe*? But we ſhall content our ſelves with Mr. *Boileau's*, he being his Country-Man, and in Poſſeſſion of a Reputation at leaſt equal to his own. The Univerſity of *Paris* finding this Ancient Philoſopher, who had ſo long reign'd in their own as well as all other Academies, was almoſt entirely laid aſide, and that they could not reinſtate him by the force of their Arguments, reſolv'd ſome Years ago to call in the Authority and Aſſiſtance of the Parliament to oblige the Academicks to read *Ariſtotle*. This was a very merry Deſign, and *Boileau* treated it accordingly in the ridiculous *Decree out of the High Court of* Parnaſſus, which he wrote in favour of *Ariſtotle*'s Philoſophy, as he pretended; but the Turn is ſuch, that 'tis very plain, *Ariſtotle* could not be reſtor'd, unleſs Reaſon, who had taken his Place, was turn'd out of the Univerſity: And it ſeems the Gentlemen of the Academy were generally fonder of *Ariſtotle* than of Reaſon, in which they are not without Companions. We might have mention'd the Authority of the *Port Royal* againſt *Rapin* in this Caſe, but refer the Reader to the Eſſay on Logick. May we not ſay, That *Ariſtotle*, by reducing Philoſophy into Syſtem, and his vaſt Diſcoveries, was the moſt ſerviceable of all the Ancients to Philoſophy in general, without affirming he is preferable to all the Moderns, and indeed, to Experience and Reaſon. May we not admire without adoring him; nor think him Excellent, without making him Infallible. Thoſe who are far gone in theſe Matters, will aſſure us, that if we truſt to his Philoſophy, we ſhall in many Parts of it find our ſelves miſtaken. True it is, that he brought Philoſophy to the greateſt height it ever was in among the Ancients: And 'tis no wonder, that in Matters depending on Experiments, we who have the Advantage of Two Thouſand Years Experience more, may pretend to know a little more than the Ancients, without being guilty of Vanity or Preſumption. 'Tis true, after *Ariſtotle*'s Time, Philoſophy degenerated from its noble Birth; that Purity which is maintain'd in its firſt Originals, was ſoon corrupted by the Multitude of Sects that ſprung up under its Protection. For, according to the learned Jeſuit beforemention'd, *Zeno*'s School was fill'd with falſe Vertues, *Epicurus*'s with real Vices. Philoſophy became Impious under *Diagoras*, Impudent under *Diogenes*, Selfiſh under *Demochares*, Railing under *Lycon*, Voluptuous under *Metrodorus*, Fantaſtical under *Crates*, Drolling under *Menippus*, Libertine under *Pyrrho*, Litigious under *Cleanthes*, Turbulent under *Arceſilaus*, and Unconſtant under *Lachydes*. In fine, it was abandon'd to all the Extravagancies that can enter into the Mind of Man. The old *Platonick* School was by the Sentiments of the New, debas'd into the Tribe of *Scepticks* and *Pyrrhonians* that profeſs'd to doubt of every Thing. And after *Theophraſtus*'s Death, the Order of *Peripateticks* cool'd very much in their Application to Natural Things, as preferring the Purſuits of Eloquence.

Philoſophy declining thus in *Greece*, it declin'd conſequently in all other Parts of the World, *Greece* being the only Seat of Philoſophy. After *Alexander*'s Death, the Kings of *Egypt* and *Pergamus* rival'd each other a while in their Encouragement of Learning; but one of the *Ptolemy*'s baniſhing the Profeſſors of Philoſophy from *Alexandria*, they return'd to *Greece*; and about the Time that the Romans grew powerful there, there was a lucid, but ſhort Interval of Learning at *Athens*, where flouriſh'd *Panætius*, Inſtructor to *Lælius* and *Scipio*, *Polybius*, *Carneades*, *Clitomachus*, *Apollonius*, *Milo*, Maſter to *Cæſar* and *Tully*.

Athens was then the Academy for all the Roman Youth of Quality; and 'tis plain, that 'twas by this means the Latins began to ſignalize themſelves in Philoſophy. *Lucretius* was the firſt of this Nation, who explain'd Philoſophy in Writing, as he himſelf informs us,

> *Denique Natura hæc rerum ratioque reperta*
> *Nuper & hanc primus*, &c.

Terentius Varro was a great Philoſopher; *Quintilian* mentions another *Varro Atacinus*, who wrote in Philoſophy; and what are many Parts of *Virgil* but of the ſame kind? However, it muſt be own'd that of all the Romans *Cicero* diſcover'd the moſt generous Paſſion for Philoſophy; he compos'd numerous Treatiſes in Proſecution of it, and explain'd the Doctrine of *Plato* and his Succeſſors, in his Books of Academical Queſtions. *Plutarch* is of Opinion that he valu'd himſelf more on the Glory of being a Philoſopher, than on that of being an Orator. *Brutus* compos'd alſo ſome Philoſophical Pieces. The Romans follow'd the *Greek* Syſtems, and we hear of none founded at *Rome*, 'till towards the latter end of the Reign of *Auguſtus*, when *Potamon* of *Alexandria* eſtabliſh'd a new Sect at *Rome*. He choſe out the more rational Parts of all the other Syſtems, and re-united them in his own, whence his Followers took the Name of *Eclecticks*. The Chief of whom were in the Number of the Primitive Chriſtians; for 'tis very plain by what is left us of Antiquity, that many Principles of *Socrates*, *Plato*, &c. are founded on ſuch good Morality, that Chriſtian Ethicks are not at all diſhonour'd by being united with them. Who can expect we ſhou'd have much to ſay of Philoſophy or Philoſophers, in the Times of Imperial Tyranny at *Rome*, when the *Tiberius's*, the *Caligula's*, and the *Nero's* were Maſters, and enſlav"d, as far as in them lay, the Minds as well as the Perſons of their Subjects. There's no need of any Philoſophy, but Stoiciſm, under a Tyrannical Government; Liberty alone is a Friend to that Generous Spirit which produces Wonders in the Rational World. Why have we in *England* had more Philoſophers, conſidering the Extent of our Country, than any other Part of *Europe*, but becauſe we live under a Government regulated by Excellent Laws, and have not had the Minds of our Men of Learning checkt by the Tempers of our Princes? If it be objected, How comes it that *France* has produc'd the *Gaſſendus's*, the *Deſcartes's*, &c. May it not be anſwer'd, 'tis perhaps becauſe the *French* have of all Mankind the moſt Complacency for Tyranny, and are by Nature beſt qualify'd to accommodate themſelves to Slavery. *Longinus*, in his Treatiſe of the Sublime, has handled this Argument; and tho' living under a Foreign Power, he gives a great way into the contrary Opinion, yet 'tis viſible he agreed in the main with the Philoſopher, who aſſerted to him, that the Decay of Humane Wit proceeded from the Loſs of Liberty. *Caligula*, *Nero*, and *Domitian* baniſh'd all Profeſſors from *Rome*; and *Nero* ſent for *Arabian* Magicians to refine upon his Maſter *Seneca*'s Philoſophy. *Seneca* was himſelf leſs a Philoſopher than a Courtier. *Quintilian* tells us his Morals were ſevere, but his Principle not ſo exact. Thoſe who profeſt Learning muſt now alſo profeſs Flattery, or leave both Schools and Country; and thus it will always be where Princes are afraid of Reaſon. Aſſoon as *Rome* was again happy in a Good Prince Philoſophy return'd, and ſeveral Emperors ſucceſſively made it a Part of their Glory to be themſelves Philoſophers. Nay *Commodus*, tho' one of the moſt Cruel Tyrants that ever liv'd, had the Vanity of aſſuming the Title of a Philoſopher, tho' he had no more Reaſon to do it than to take on him that of a God. *Pliny* went farther than any Man before him in Inquiries into Nature. *Dionyſius Chryſoſtome* wrote about the ſame Time on Moral and Natural Philoſophy: But *Plutarch*, one of the Wiſeſt and moſt Senſible Philoſophers that ever wrote, having been *Præceptor* to Two Emperors, *Trajan* and *Adrian*, reviv'd the Philoſophical Spirit ſo much by that means, that in few Years we find *Antoninus Philoſophus* on the Imperial Throne now flouriſh'd, *Epictetus*, *Arrian* his Diſciple, *Galen* the Famous Phyſician, *Diogenes Laertius*, *Herodes Atticus*, *Pauſanias*, *Aulus Gellius*, *Ptolemy* the Aſtronomer, *Maximus* of *Tyre*; and about the ſame time, *Taurus* of *Berytus*, *Athenæus*, *Alexander*, *Aphrodiſæus*, *Plotinus*, *Apuleius* and *Porphury*, by whom for a long Time Philoſophy was kept in Faſhion; and it being the Mode, *Lucian*, who found it in a State of Corruption, in Compariſon to what it was in its Primitive Purity, fell grievouſly upon the Profeſſors; many of whom had groſly abus'd their Profeſſion.

As the Light of the Goſpel prevail'd the Chriſtian Philoſophy ſhone with a Superior Brightneſs, and with Rays ſtronger than thoſe of the Sun. Heathen Wiſdom ſoon appear'd dark and obſcure. But however, many of the Fathers thought fit to Study it to overcome the Pagans with their own Weapons: But St. *Paul* admoniſh'd the *Coloſſians to beware leſt any Man ſpoil 'em thro' Philoſophy and vain Deceit*. *Juſtin Martyr*, *Clemens Alexandrinus*, *Tertullian* and *Euſebius*, employ'd all the Force of their Eloquence to expoſe the Fooliſhneſs of Heathen Wiſdom. By Humane Wiſdom they certainly meant only what endeavour'd to impoſe Falſhood for Truth, and not that Science which is ſerviceable to Truth and an Enemy to Falſhood; for many of 'em were Eminent Philoſophers, as *Ariſtides* a Philoſopher of *Alexandria*, *Juſtin Martyr* himſelf, *Tatian*, *Athenagoras*, *Bardeſanes*, *Athenogenes*, *Apollinaris* Biſhop of *Hierapolis*, *Melito* Biſhop of *Sardis*, *St. Irenæus* and *Tertullian* alſo, who, to uſe *Pere Rapin*'s Expreſſion, was oblig'd to Study Philoſophy in defending the Cauſe of Religion, which paſt with the Heathens of thoſe Times for a new Philoſophical Sect. To theſe may be added, *Pantænus*, Maſter of the Catechetick School at *Alexandria*, *Clemens* his Scholar, *Origen*, who ran thro' all the various Schemes the better to confute his Adverſary *Celſus*, *Lactantius*, *Arnobius*, *Gregory Thaumaturgus*, *Ammonius*, whom the Pagans admir'd. He was the Firſt who taught *Ariſtotle*'s Philoſophy in the Chriſtian Schools. *St. Baſil* is ſaid to have been the Ableſt Logician of his Time; St. *Chryſoſtom* was no leſs Eminent for his Philoſophy than for his Eloquence; St. *Auſtin*, who, beſides his Three Books againſt the *Platoniſts*, Compos'd a Syſtem of Logick ſtill extant. How many others might be nam'd, but we need only imagine that when by the Favour of the Chriſtian Emperors the Schools came under the Direction of Chriſtian Maſters, there were no Profeſſors who neglected any Part of Learning which was neceſſary to form Good and Uſeful Scholars, and then certainly Philoſophy was not omitted, at leaſt as much of it as help'd to extend the Knowledge and refine the Manners of Mankind, without oppoſing the Truths of Chriſtianity which it now ſerves to defend.

We have omitted making mention of the Magicians who made a mighty Buſtle in the Firſt Centuries of our *Æra*, and aſſum'd the Names of Philoſophers. 'Twas by *Nero*'s Encouragement that they firſt pretended to make a Figure in the Learned World; and the Pagans obſerving that the Chriſtians got ground chiefly by the Miracles wrought by Chriſt and his Apoſtles, the Truth of which were not to be Conteſted againſt the Teſtimonies of ſo many hundred thouſand Eyes that had ſeen 'em, ſet up theſe Magicians to work pretended Miracles by the Power of Magick. How far the Omnipotent may ſuffer 'em to be deluded by the Great Deluder and his Emiſſaries, we will not pretend to determine; but 'tis very probable ſome of our moſt Dextrous Operators in the *German* Art, ſome of our Modern Profeſſors of *Hocus Pocus* might have paſt for as Good Magicians, had they had the ſame Encouragement, the ſame Opportunities, and met with the ſame Diſpoſition in People to believe 'em.

The Chief of theſe Magick Philoſophers was *Apollonius Tyanæus*, whoſe Life and Impoſtures were blaſphemouſly oppos'd to our Saviour's Life and Miracles by *Hierocles* and *Philoſtratus*. And *Eunapius* wrote the Lives of the *Sophiſts*, who were moſt of them Magicians, to vie with the Lives of the Primitive Chriſtians. We are very unfit to ſay any thing of the Power of Magick Philoſophy, having no manner of Notion of the Magicians Science. If they deal with the Devil they may do much; if they don't, their Art is of the ſame Importance with the Cabaliſtical Doctrine, which, as *Delrio* informs us, took its Riſe from it.

The *Barbarians* over-running both Eaſtern and Weſtern Empire, Philoſophy and all Learning had the ſame Fate with the Government, and were overwhelm'd with Barbariſm. The Moſt Victorious of all theſe Barbarous Nations were the *Saracens*, who over-ran almoſt all the Eaſtern, and a good Part of the Weſtern Empire, by which means what little Learning they had among them, they in a great meaſure impos'd on thoſe they Conquer'd, and made a Revolution in the Republick by Letters. Father *Rapin* tells us, " Their Genius " was ſubtile, deep, and muſing; and by fixing too " cloſe on the Text and Letter of *Ariſtotle*, they got " an abſtracted way of Reaſoning ſomewhat different " from the Solidity of the *Greeks* and *Romans*." It had an Appearance of great Sagacity, but was falſe and full of wild Conceits, as may be ſeen in the Works of theſe *Arabian* Philoſophers, *Avicenna*, *Alkindus*, *Algazel*, *Averroes*, *Alpharabius*, *Albehaſen*, &c. *Ludovicus Vives* cenſures *Avicenna*'s Metaphyſicks and *Averroe*'s Philoſophy as the Dreams of a roving Imagination, and a-kin to the *Alcoran*. However, 'tis by Certain that they had ſo many Opportunities by their Victories and Plenty to follow and enlarge their Studies, that eſpecially in the Mathematicks, they were for ſome Ages the moſt diſtinguiſh'd Scholars in the World. *Averroes* follow'd Ariſtotle, and Study'd him ſo much, that he deſerves a Name amongſt his Commentators. He founded a new Sect of Philoſophy under his own Name. *Avicenna* follow'd *Plato*, and there was a Contention between theſe Two *Saracens* about thoſe Two Philoſophers whoſe Followers they had declar'd themſelves.

The *School-men*, the laſt Sect of Philoſophers, as *Rapin* terms them, came after the *Arabians*, and framing their Genius on *Arabian* Comments, it thence became ſo knotty and ſo ſubtile. *Thomas Aquinas* is lookt upon as the Founder of this Sect. We do not know whether Gentlemen will be veryfond of knowing who were the Chiefs of this Scholaſtick Philoſophy; for, as to the Philoſophy itſelf, moſt certainly they, nor no reaſonable Men will concern themſelves about it, and few wou'd have been troubled had it dy'd in thoſe Countries where Superſtition and Sophiſtry were bury'd; when True Religion and Learning reviv'd with the Reformation, School-Divinity ſerv'd rather to perplex than explain Things; and truly the Darkneſs of Popery was ſuch at that Time, that the leaſt Ray of Light was enough to have attracted the Eyes of the Chriſtian World, had they not been blinded by the Subtleties of the Schools. But becauſe we have given an Account of Philoſophy from the Firſt Sects to the Laſt, let us ſay ſomething alſo of the School-men who come under the Claſs of Philoſophers. They tell us that *Lanfranc*, whom the *Norman* made Arch-Biſhop of *Canterbury*, *Abelardus*, *Peter Lombard*, &c. fram'd the rude Draught of this Sect from St. *John Damaſcen*, which Notable Monk was the Firſt who introduc'd Tranſubſtantiation in the Form as 'tis now Eſtabliſh'd in the Church of *Rome*; ſo that we ſee what a Fine New Philoſophy we are like to have, ſince 'tis probable 'twas only accommodated to that and other extravagant Principles in Popery. *Thomas* of *Aquin* perfected this Noble Method, and reduc'd the Scholaſtick Way into Form. It has been divided like the *Platonick* Sect into Three Periods; the Old, the Middle, the New. The *Engliſh* had a great Hand in this Revolution in Learning. *Alexander Hales*, whom *Rapin* calls *Alexander* of *Ales*, and that Error is continu'd in ſome Tranſlations, was an *Engliſh* Man, and the moſt conſiderable in the Firſt Period of School-men. The Second Period was begun by *Albertus Magnus*, and now was the *Ariſtotelian* Doctrine carry'd to its Height of Glory by *Thomas Aquinas*; and *John Duns*, Sirnam'd *Scotus*, our Country-man, who, ſays *Rapin*, ſeem to have been the Two Greateſt Genius's for Philoſophy in our latter Ages. *Durandus* began the Third Scholaſtick Age; the Firſt of which laſted about Two Hundred Years, the Second One Hundred, and the Laſt about the ſame Time. During theſe Ages there aroſe a Famous Diſpute between the *Normaliſts* and *Realiſts*. *Ocham*, the Chief of the *Normal* Way, taught, *that Univerſal Natures were but Names and Notions*; and *Scotus* the Leader of the *Realiſts* maintain'd, that *Univerſal Natures were Things truly Exiſtent*. The Merrieſt Part of this Hiſtory is, That in *Germany* the Diſputants fell from Words to Blows, and knock'd one another on the Head in oppoſing and defending thoſe *Univerſal Natures*, of which doubtleſs the Reader has a very Clear Idæa by the very naming the Terms. We ſhall Conclude what we have to ſay of theſe Worthy Gentlemen, with what *Pere Rapin* himſelf, who has a great *Tendre* for 'em ſometimes, ſays of their Philoſophick Diſputes; *Hence proceeded that dead Weight of Summs and Courſes which ſtifled all the Remains of Good Letters in the World.*

While the School-men were Eſtabliſhing their *Sentences* and *Summs*, there appear'd Three other Philoſophers who deſerted the Scholaſtick Rules, and ſet up a quite oppoſite Method; as *Rapin* and *Lully*, *Cardan* and *Paracelſus*. *Lully* by his Commerce with the *Arabians* acquir'd a great Knowledge in Natural Philoſophy, Aſtronomy and Medicine. Out of theſe Three Sciences he Compos'd a Fourth, that of Chymiſtry, of which he deſir'd to paſs for the Reſtorer in *Italy* and *Spain*. *Cardan* brought the *Dark* and Cabaliſtical Learning upon the Stage; and *Paracelſus* had more the Air of an Operator than Philoſopher: He was for framing a New Philoſophy, New Phyſick, and a New Religion: He affected to be Myſterious, and even Unintelligible, a Happy Diſpoſition in one who is to teach. The Cabaliſtical Occult Philoſophy obtain'd very much in the Thirteenth Century; *Cornelius Agrippa*, *Arnaud de Villeneuve*, and *Petrus de Opono* were the Chief of it; the Magick, of which *Pere Rapin* is ſo much afraid, will not appear ſo terrible to ſuch as are not fully confirm'd in the Belief of Modern Witchcraft, and 'tis likely they were greater Cheats than Conjurers.

Thus we have rather gone thro' Philoſophy than the Account of its Tenets; and as we took the Form and Part of the Matter from *Pere Rapin*, ſo we doubt not but his Authority will very much contribute to the Credit Gentlemen will give this Eſſay. We might have follow'd the ſame Method, with reſpect to Logick, as he has done, but the *Port Royal's* being the more perfect Treatiſe on that Science, we preferr'd it to *Rapin's*, which is ſhort and Hiſtorical, and will rather amuſe than inform. As for Philoſophy in general, ſuch an Hiſtorical Account was not improper, becauſe we ſhall in the Branches, treat of Philoſophy in particular.

Philoſophy did not continue in this State of Chimera and Confuſion long after the Reformation in Religion, for when that great Truth hath broken its way, People were animated by it in the ſearch after all other Truths, and the Liberty of Learning made it ſpread and flouriſh. The Roman Catholicks found it neceſſary to put themſelves forwards as well as the Reform'd, who got Ground of 'em by their Science, as well as by the Truth of what they maintain'd; and had the Papiſts abandon'd the Field of Learning to the Proteſtants, they muſt ere now have abandon'd their Religion too, which they have hardly been able to defend with all the Art and Induſtry humane Wit and Application could maſter, againſt even ſome of the weakeſt Attacks of the Reform'd. This Emulation produc'd abundance of great Men in all Sciences, and eſpecially in Philoſophy. *Pere Rapin* gives us a ſhort Character of the Philoſophical Genius of the ſeveral Nations of *Europe*. "The *Spaniards*, ſays he, grew ſubtle in their Reaſoning, great Formaliſts and Metaphyſicians, as having an Head turn'd for ſevere Reflection and grave Diſputes." Whether this great Critick has not rather painted the Character of the People in *Spain*, than their Philoſophers, or conſider'd them more as *Spaniards* than Men of Learning, let thoſe determine who underſtand the *Spaniſh* Philoſophy, which has not made a mighty Noiſe in the World. As to the *Italians*, he tells us, "They aſſum'd a more agreeable Character of Wit, and were choice and curious in fine Idea's. The Works of *Nipilus* gave them a Value for *Ariſtotle's* Philoſophy, as thoſe of Cardinal *Beſſarion*, and *Maralius Ficinus* inſpir'd them with a Paſſion for the Doctrine of *Plato*, to which they were more inclin'd than their Neighbours, by the Beauty of their Genius, which is publick and lively, and impatient of hard Labour." Now we come to his Character of the *French* in Philoſophy; and tho' he is doubtleſs one of the greateſt Criticks that Nation ever produc'd, yet he is ſtill a *Frenchman*, Self-love and Vanity are a little apparent. "The *French*, as they found themſelves capable of all Sciences, ſo they ventur'd upon all." But now he remembers himſelf, as a Man of Learning, and will not ſacrifice his Judgment to flatter his Country-men; for to this he only adds, "By their Ingenuous and Inquiſitive Temper, they ſucceſsfully copy'd whatever was Excellent in other Nations." 'Twas the ſame excellent Judgment that forc'd him to do juſtice to the *Engliſh*, of whom he ſays, "The *Engliſh*, by that Depth of Genius which is Natural to them, undertook the more abſtruſe Inquiries into the Cauſes of Things; and by an invincible Application to Labour, excell'd the reſt of *Europe* in their Improvements of Natural Knowledge, as appears from the Works they have publiſh'd on this Subject." None can ſuſpect that this learned Jeſuit ſaid what he did not think; for never did *Frenchmen* love the *Engliſh* ſo well, as to Compliment 'em on their Underſtanding, but when they were forc'd to do it by the Brightneſs and Sublimity of their Genius. In his Character of the *Germans*, he trifles ſomewhat more than he has hitherto done. "The *Germans*, by the Neceſſity which their Climate lays upon 'em of coming near the Fire, and by the convenience of their Stoves, apply'd themſelves to Chymiſtry, together with other People of the North. Of Modern Philoſophers, thoſe who have made the greateſt Noiſe, are *Galilæo* an *Italian*, *Bacon*, *Hobbs*, and *Boyl*, *Engliſhmen*; *Gaſſendus* and *Deſcartes*, *Frenchmen*; and *Van Helmont* a *Flemming*; to whom may be added Sir *Iſaac Newton* an *Engliſhman*, and Monſ. *Leibnitz* a *German*, who in their ſeveral Studies have gone a greater Length than any that went before 'em, Ancients or Moderns. What Father *Rapin* ſays of the Philoſophers before-mention'd, will certainly be agreeable to an *Engliſh* Reader, becauſe there's ſo much ſaid of *Engliſhmen*, who, however they differ now and then among themſelves, are paſſionate Lovers of their Country-men in general. We ſhall make uſe of the Criticks own Words, as near as they can be render'd.

"*Galilæo* ſeems to have had the fineſt Genius, and ought, in my Opinion, to be look'd upon as the Father of Modern Philoſophy. His Method holds a near Reſemblance with that of the *Platoniſts*, &c.

"*Bacon's* Genius is Extenſive and Vaſt; the largeneſs of his Capacity hinders him from being ſtrictly Accurate, and he cannot ſtay to go to the bottom of Things. The greateſt part of his Maxims are rather Heads of Meditations, and noble Structures of Thought, than Rules of Practice, more like ſudden Sparks of Fire than like a continu'd and natural Light.

"*Hobbs* is Obſcure and Unpleaſant; ſingular in his Notions; learn'd, but not ſolid; inconſtant in his Sect and Party; ſometimes an *Epicurean*, ſometimes a *Peripatetick*.

"*Boyl* is Exact in his Obſervations; no Perſon in *Europe* has enrich'd Philoſophy with ſo many Experiments, which yet are not always infallible, becauſe the Principles on which they proceed have no abſolute Certainty; after all, he muſt be own'd to be a noble Philoſopher, and a great Maſter of Nature." What he ſays of Mr. *Boyl*, is enough to make ſome late Pretenders to Philoſophy in *England* bluſh with Ingratitude, by endeavouring to leſſen the Reputation of a Gentleman, to whom Foreigners acknowledge themſelves to be very much indebted. And how will ſome Perſons, who without having gone ſo far in Philoſophy, as to be able to tell us what Sciences it includes, decide arbitrarily as to the Merit of this noble Philoſopher. To continue *Rapin's* Characters.

“ *Gaſſendus*, who acts only as a Reſtorer of the Philoſophy of *Democritus* and *Epicurus*, advances little himſelf, and has ſcarce any thing of his own but his Beauty of Stile, *&c.*

“ *Deſcartes* is one of the moſt extraordinary Wits that has appear'd in theſe latter Ages, of a fertile Invention and profound Meditation; The Thread of his Doctrine is finely drawn out; The Method, according to his Principles, exactly contriv'd; And his Syſtem, tho' partly Ancient and partly Modern, very well put together. Indeed, he inclines too much to *Scepticiſm*, and is a very ill Pattern for thoſe who are naturally of an incredulous Temper; but ſtill he is more of an Original in his Way.

“ *Van Helmont*, by the Skill in Natural Cauſes, which he had obtain'd after his peculiar manner, perform'd ſo prodigious Cures, that he was ſuſpected of doing things beyond the Powers of Nature, and put into the Inquiſition.

Thus we have given a ſhort Account of Philoſophers and Philoſophy, from the Ancients down to our own Times: What remains, is to obſerve ſome of the Uſes and Inconveniences attending Philoſophy in general, and therein we ſhall be directed by the Jeſuit, who has hitherto been our Guide. He begins this Part of his Treatiſe with a Compariſon between the Ancient and Modern Philoſophy; and 'tis his Opinion, That the Ancient is grounded more upon Authority, the Modern upon Experience. The Ancient is Simple and Natural; the Modern, Artificial and Refin'd; the former has more Gravity and Modeſty, the latter a more Aſſuming and Magiſterial Air. Much more he ſays of the Compariſon; but the Cloſe of it all is, That the Ancients deſerve the Prize, in as much as their good Senſe alone ſeems preferrable to all the Art and all the Refinement of the Moderns; wherein the greateſt part of the Moderns will diſſent from our Critick, for he having yielded up Experience to Modern Philoſophy, 'tis very much to be queſtion'd whether in the Compariſon, the word Experiment is not worth more than theſe, Authority, Simplicity, Gravity, Modeſty, and even Natural, if Experience in Philoſophy is not the beſt Sign of Nature. He indeed adviſes all to be very careful not to favour the one or the other, more by Paſſion than Judgment; and cautions young Students to be modeſt in their Opinions of the Ancients, for which he gives ſeveral good Reaſons. *Pythagoras*, 'till the Fiftieth Year of his Age, was a Scholar under the greateſt Maſters of the World. *Euſebius* teſtifies, that *Democritus* ſpent no leſs than Fourſcore Years in hard Study. *Parmenides* ſhut himſelf up Eighteen Years in a Cave, to finiſh his Logical Speculations. *Plato* gave Forty Years Attendance to the Lectures of *Socrates*, *Archytas*, and *Eurytas*; and *Ariſtotle* labour'd more than Twenty Years under *Plato:* Whereas, ſays my Author, *We, after ſome Two Years ſlight Practice under indifferent Maſters, dare enter the Liſt againſt thoſe Heroes.* The young Gentlemen at the College will do very well to conſider of theſe things before they declare War with Antiquity. But becauſe the Ancients were excellent in abundance of things, muſt they therefore be perfect in all? Muſt we do like *George Trapæzund*, accommodate *Ariſtotle*'s Doctrine to the Holy Scriptures? Or, like *Maralius Ficinus*, affirm, That *Plato* acknowledg'd the Myſtery of the Holy Trinity? Which, had there been any thing in it, he muſt do by a Prophetical Genius, he writing Three or Four Hundred Years before our Saviour's Birth, and the Second and Third Perſon were preach'd. The Paſſion of *Hermolaus Barbarus*, Patriarch of *Aquileia*, for *Ariſtotle*, is much more Notorious. For if we truſt this learned Jeſuit, he conſulted the Devil, a very odd Commentator upon *Ariſtotle*, about the meaning of the word Ἐντελέχεια. This Story paſſes on the Believers of the Legend; and if we do not believe it, 'tis not becauſe we think the Patriarch made a Conſcience of it; but much doubting whether the Devil would take the Character of a Critick on him in Complacency to that Prelate. There's another Failing, in making a Judgment of Philoſophers and Philoſophy, by partially engaging to one Man's Sect or Principles, and condemning all others; whereas, in the Purſuit of Wiſdom, every thing True in all is alike valuable; yet ſo great has been the Obſtinacy of ſome Men on this Occaſion, that *Pythagoras*'s Followers choſe rather to be burnt, than abjure their Maſter's Doctrine. *Hegeſius*'s Diſciples, by too ſtrict an Adherence to the Rigour of his Precepts, ſtarv'd themſelves to Death.

Now ſince there is not the leaſt Certainty in the Maxims of the greateſt Philoſophers, and 'tis hard to ſeparate Truth from Appearance, 'twould be prudent to ſtick to none ſo implicitely, as never to examine them, or embrace Things for Infallible Truths, which are liable to Exception or Doubt. *Deſcartes* built a new Syſtem of Phyſick upon Principles not altogether new; he himſelf look'd upon this Syſtem as no better than a Fiction or Romance, which was the Name he gave his Philoſophy among his intimate Friends: And ſhall that be Sacred to me, which was a Jeſt to the Author. In Philoſophy, we ought to proportion our Aſſent to the different Degrees of Certitude in the Subject of Debate, ſo as never to entertain Truth as Probability, nor Probability as Truth. Another Weakneſs in Philoſophical Studies, is the being fond of Novelties. Men are very much in danger of loſing themſelves, when they are inclin'd to Travel in by Paths. 'Tis very difficult to preſerve the Character of a wiſe Man, and yet to recede from common Opinions. How Capricious would it ſeem in a Poet never to introduce the Stars or Conſtellations, without talking like *Deſcartes*, of their *Vortices* and ſubtle Matter? And yet this is the Spirit which reigns among the Pretenders to Philoſophy in our days, they attempt to ſignalize themſelves by thinking out of the way, and relinquiſh common Senſe only becauſe 'tis Common. If they happen to imagine ſomething new, they are tranſported in advancing what was never before aſſerted. *Tully* compares *Arceſilaus*, who over-turn'd the old Philoſophy to eſtabliſh the new, to *Gracchus*, and the other ſeditious Diſturbers of the Civil Government. But with all due Submiſſion to *Tully*, and Monſieur *Rapin*, who tells it us, if *Arceſilaus*'s new Philoſophy was true, he was no more to blame than

Gracchus, whoſe Sedition is by ſome look'd upon as the laſt Struggle of the People of *Rome* to preſerve their Conſtitution. If 'tis the good Fortune of a great Genius to hit upon ſomething Juſt as well as True, his Diſcovery is glorious to him, as it is uſeful to Mankind. Should any one charge Sir *Iſaac Newton* and Monſieur *Leibnitz* with ſeeking after Novelties, becauſe by their Search after Perfection, in the Science of Geometry, they found out the *Infinitely Littles*, which has given ſuch a Defeat to the Ancient Geometry? Or is *Copernicus*'s deſire of going out of the way blameworthy, for reviving, as *Pere Rapin* terms it, the Syſtem of the Earth's Motion? Certainly, ſuch Diſcoveries as theſe are not meant, when he cautions us not to ſeek after Novelties. But an Inconſtancy of Study, to which young and light Heads are moſt apt, and a Turbulency in the Minds of others, who like nothing but what derives in ſome meaſure its Being from themſelves, and are fond of advancing and eſtabliſhing new Notions upon this Head. This learned Jeſuit aſſerts a Thing which ſmells rankly of the Slavery of *French* Principles. *This ſhews how neceſſary it is that the Civil Law ſhould interpoſe their Authority in regulating Mens Sentiments, and the Government be enabled to reduce the Exorbitance of Imagination.* To ſet Limits to Peoples Thoughts, and Confine their Fancy, which we believe is not in the Power of that Monarch, who has bid as fair for an Empire over the Mind, as any Prince ever did ſince *Diocleſian*'s Days.

Our Critick proceeding in his Treatiſe, gives his Reaſons why ſome Philoſophers, eſtabliſh'd their Opinions and Maxims ſo ſovereignly, that others ſubmitted readily to 'em. He imputes it to a Superior and Commanding Genius in the one, and a Dependant and Precarious Genius in the other. Myſtery, he ſays, and with a great deal of Judgment, has been ſerviceable to ſome in promoting their Syſtems, they being reverenc'd for that Obſcurity which is eſteem'd as Depth, and ſometimes as Divine. *Paracelſus*, and according to him *Deſcartes*, ow'd their Reputations to the like Meaſures.

Men of too quick and ſubtle Spirits are not fitteſt to commence Philoſophers; it is better to ſettle the Imagination, and as it were condenſate it with ſomething groſs and filling, than let it evaporate in nice Speculations. The plain *Good Senſe* of *Socrates* triumph'd over all the *Art* of the *Sophiſts*. *Philoſophy* never becomes abſtracted 'till it ceaſes to be ſolid. Men retire to *ſhew* when they have nothing *real* to advance. 'Twas by this the Stoicks made a Notional King of their wiſe Man, inveſted him with empty Titles of Majeſty, and enrich'd him with Treaſures that conſiſted only in Magnificence of Speech, as *Tully* pleaſantly expoſes them.

Miſtaken Philoſophy has ſpoil'd many a good Head, and Wiſdom miſunderſtood has been fertile in the Production of Fools. *Empedocles* ran Mad with Study, and threw himſelf into *Ætna*, in Purſuit of an Apotheſis, as *Horace* ſays. *Cornelius Agrippa* owns that he was infected with ſuch a ſort of Frenzy. *Peter de Opono* went ſo far into the Depths of *Aſtrology*, that he was put into the Inquiſition for a *Conjurer*, which perhaps was more a ſign of the Inquiſitor's Ignorance than of his Learning. 'Twould be endleſs, if we ſhould go about to mention all the Extravagancies which miſtaken *Philoſophy* has made Men guilty of.

He ought to be look'd upon as a good Proficient in *Philoſophy*, who has diſcover'd how full of Doubt thoſe things are of which he is beſt appriz'd, and who is contented to be ignorant of that which he is not in a Capacity of knowing. But as 'tis a Folly to doubt of Nothing, or to doubt of all Things; ſo to approve of all Things, or to approve of Nothing, cannot be a greater Argument of Wiſdom. The Preſumptious and Obſtinate ſubſcribe to no Aſſertion, becauſe they will not diſparage themſelves by yielding. The Light and Inconſtant ſubſcribe indifferently to any, becauſe they will not be at the Trouble of Inquiring. 'Tis an Argument of Weakneſs, to hang upon other Mens Lips, and to be a Slave to their Opinions. But it ſeems a more dangerous Eſtate to hover in Habitual *Scepticiſm*, and by a Pride of Spirit reſiſt that Natural Bent and Inclination which Man has to be convinc'd by Truth, and concluded by Reaſon. Let us be as diligent in examining what is Doubtful, as in embracing what is Certain. If we examine the Motives by which the greateſt part of *Philoſophers* are determin'd to their peculiar *Sect*, we ſhall find that *Philoſophy* has the leaſt Share in them. 'Tis often by Prevention, of Age, or Accident, without Deliberation or Choice, and ſometimes without Thought, that they embrace one Opinion rather than another.

Pere Rapin declares for *Diſputations* in Schools, to *awaken the Powers of younger Minds, and exerciſe their growing Wit*, &c. whereas Experience ſhews us that it tends rather to inſtil into thoſe *younger Minds* a Spirit of Contradiction and Sophiſtry. He ſays himſelf, the Ground of moſt Diſputes is that the Parties don't underſtand one another. *Thales* declar'd againſt a *Vacuum* which *Democritus* admitted without Scruple. Let both explain themſelves on the Point, and both will be agreed. *Epicurus* rely'd on the Teſtimony of Senſe in all things. *Empedocles* would truſt it in nothing. The Diſpute would drop, if they could once come to a Reſolution about the Nature of that Error of Senſe which ſometimes defeats its Teſtimony. If we could explain to *Deſcartes* the true Nature of Senſation, he would make no difficulty of allowing an Horſe to be an Animal. Now as to ſuch notable Diſputes as the laſt, what would be the uſe of it? How would that awaken the Powers of younger Minds, and exerciſe their growing Wit, to diſpute againſt the Certainty of Senſe, as that a Horſe is an Animal, or that a Dancing-Maſter moves in a Jig. Yet there are abundance of young Students who had rather triumph by proving there's no Motion in the one, and that the other is no Animal, than by convincing another of an Error in Opinion, or a Miſtake in Judgment. *Peter Ramus* and *Gaſſendus* were for baniſhing this Diſputative Genius; and whatever this learned Jeſuit ſays for reviving or confirming it, will have little weight againſt Experience, which ſhews how apt it is to Corrupt, rather than Improve younger Minds, by making 'em

Affected, Opinionative, Superficial, and Obſtinate. This Argument might have been continu'd to a great length, and this Eſſay will to ſome appear too curt, as to others it may ſeem even too long. But we all along deſire the great Maſters of Science, who are poſſeſs'd of all the Treaſures of Knowledge by Inheritance, from Father to Son, in the Academick World, not to think we are ſo daring as to write for the Gentlemen at the College, who are to Teach others, and cannot themſelves be Taught. They certainly will find many things deficient, and perhaps Philoſophy, Metaphyſicks, Ethicks, &c. are not a part of their *Recreations*, whatever it may be of their Buſineſs. We write to thoſe Country Gentlemen and others, who having forgot the Things which they learn'd there, or never been hitherto at the Trouble to learn 'em, come now with a willing Diſpoſition to know as much of the Sciences as is neceſſary to diſtinguiſh them from ſuch as are entirely Ignorant of them; who, if they read with Candour, and if they approve of what they read, will think themſelves oblig'd to this Deſign, and having a Stock of Good Nature, Generoſity, and Humanity, if they do not approve of it, will at leaſt commend the good Intention of the Undertaking.

MORAL

Moral Philoſophy.

BEFORE we attempt to Treat of this Science in Form, we ſhall obſerve to whom the Preſent Age is indebted for the *Ethicks* of the preceding, and look a little into the Hiſtory of *Morality*.

Democritus was the Firſt Philoſopher who began with wonder to reflect how Man being ignorant of himſelf, ſhou'd yet engage his Curioſity in Studying the Heavenly Bodies; this latter was the whole Buſineſs of Philoſophers 'till *Socrates*'s Time: He was the Firſt who apply'd himſelf to the forming of Manners. *Pythagoras* indeed ſhew'd him the way, but the Specimen he made was very imperfect; and he deduc'd the Rules of Morality from the Obſervations of Nature, which Part of Knowledge he acquir'd by his Converſe with the *Ægyptian* Prieſts. The great Aim of his Moral Doctrine was to purge the Mind from the Impurities of the Body, and from the Clouds of the Imagination, which he term'd the *Meditation of Death*. It ſeems to have had more Purity and Piety than the other Syſtems, but leſs Exactneſs. His Maxims were but a bare Explication of Divine Worſhip, of Natural Honeſty, of Modeſty, Integrity, Publick Spiritedneſs, and other Common Offices of Life. The *Golden Verſes* which go under his Name, are aſcrib'd to his Diſciples, who were as remarkable in the Practice as the Theory of *Ethicks*, inſomuch that at *Rome*, in the Time of the Firſt Conſuls, to be a Wiſe Man and a *Pythagorean*, were eſteem'd Equivalent Terms.

Socrates to this Morality added Settled Principles, and reduc'd it into Method. Much has been ſaid of his *Dæmon*, which *Apuleius* calls the *God of Socrates*. Some think it was a Peculiar Spirit; Some will have it to be an Evil one, as *Tertullian* and *Lactantius*: Some an Inſtinct of Conſcience, as *Maximus* of *Tyre*: Some a Lucky Planet, as *Pomponatius*. His Diſciple *Plato* wou'd perſwade us 'twas an Inviſible Angel or Genius that was his Conſtant Guide and Director; and conſidering what Reverence this Man was in by Antiquity, 'tis probable the Evidence of *Plato* was very prevalent in Mens Opinions: But *Pere Rapin*'s Thoughts of it are moſt reaſonable, and what others often have thought on the like occaſion, tho' he was before 'em in expreſſing it. "It ſeems probable that *Socrates*'s Genius, "which conducted him in all his Actions, was "really no more than his Habitual Prudence, which "he had gain'd by his Experience of Things, and "his Reflections upon their Events, in which he "was ſeldom miſtaken." He ſuffer'd Death upon the moſt unjuſt Charge of Impiety; for that which made him ſuſpected of Irreligion was, his Deſign of ſtill reforming and purging *Pythagoras*'s Philoſophy: His Doctrine was one continu'd Leſſon of Vertue: His Morals gain'd Admittance by a ſeeming Eaſineſs and Agreeableneſs: He Eſtabliſh'd it as a Rule of Diſcourſe to treat of the moſt Serious Subjects, without an Air of too much Seriouſneſs, knowing that to pleaſe was the ſureſt Method to perſwade.

Plato ſtill improv'd upon the Draught of Morality which *Socrates* had left him; for by mixing his Idea's on the Univerſal Principle of Philoſophy thro' the whole Deſign, he carry'd each Vertue to its laſt Height and Accompliſhment. In his *Phædon* he explains the Nature of Moral Philoſophy, the great End of which is to clear the Underſtanding from the Falſhood and Obſcurity of Imagination by the help of Philoſophical Reflexion.

The Morality of this Philoſopher abounds with Good Leſſons, tending either to the Authorizing of Vertue or diſcountenance of Vice; and this Morality is diffus'd thro' his Writings. *Diogenes*, who was his Co-temporary, commenc'd a ſevere Pique againſt him, whoſe Eaſineſs and Gentility he deſign'd to expoſe by an Affectation of Rigour. The Edge of his Philoſophy was always turn'd againſt Vertue and Greatneſs: His Morals were built upon no other Foundation than a Vain Haughtineſs and Moroſeneſs of Temper; ſo that 'twas an eaſie Task for *Plato* by the Solidity of his Doctrine and the Strictneſs of his Vertue, to deſtroy the falſe Morals of the *Cynicks*. 'Twas he who firſt Rectify'd the Doctrine of the Immortality of the Soul, which, ſays *Rapin*, Socrates *learnt from* Pythagoras, Pythagoras *from the* Ægyptians, *and the* Ægyptians *from the* Hebrews, *by the Travels and Converſe of* Abraham. If this is any more than gueſs'd at, 'tis much for the Advantage of *Plato*'s Doctrine that it had ſo Divine an Original; for the *Hebrews* had it from God. We wiſh well to all the Parts of Hiſtory, favourable to that which we believe to be the Inſpiration of the moſt Holy, becauſe every Thing helps to confirm what wou'd want no ſuch mean Proofs, if the Wickedneſs and Infidelity of Mankind were not ſuch, that they are almoſt always ready to believe any thing ſooner than what is of the laſt Importance to believe. But whether the *Jews* had ſo much Credit in the World as to ſpread their Doctrine; or whether the Light of Natural Reaſon, where it ſhone ſo brightly as in *Pythagoras*, *Socrates*, and *Plato*, would not carry a Philoſophical Genius ſo far of itſelf, is what may be doubted at leaſt. We have not room here to enlarge our Reflections, however ſatisfactory it might be to our ſelves and others.

Ariſtotle form'd *Plato*'s Doctrine into a more Regular Body, not only by diſtinguiſhing the Characters of Publick and Private Vertue, the Prudence of a Civil Governour, and that of a Maſter of a Family, but by Eſtabliſhing the Two Things which make the very Life and Soul of Morality, a Laſt End or Happineſs of the means of attaining it. But nothing has ſo much advanc'd the Glory of *Ariſtotle*'s Morals as the General Polity of the World, there being ſcarce any well Regulated Government but what is founded upon this Bottom. But after all, this Moral Doctrine, as well as that of *Socrates* and *Plato*, is only capable of making a Philoſopher, and has not Strength enough to make an Honeſt Man without the Sublime Philoſophy of Chriſtianity, Morality had a fine Notion ſufficient to teach a Man to know his Duty, but not to engage him to love and embrace it. 'Tis worth obſerving what the Learned Jeſuit, to whom we ſtand ſo much indebted for what has Relation to Philoſophy, ſays upon this, *He that owes all his Vertue to his Philoſophy is Vertuous only by Force.*

The Great Principle of Morality advanc'd by *Zeno* Chief of the *Stoicks*, was to live conformably to Nature founded upon a Pretended Maxim of *Plato's* School, *That we ought to look for the Soveraign Good in Nature only, Nulla in re, niſi in Naturâ quærendum ſummum bonum.* But as this Maxim too much favour'd Senſuality, and fell in with the impudent Doctrines of *Antiſthenes* and the *Cynicks*; it ſcandaliz'd many Philoſophers, and gave them a Prejudice againſt *Zeno*; and therefore, that he might repair his Credit with the Publick, he gave a more Honeſt Turn to his Opinion in explaining this Conformity to Nature by an Agreeableneſs to Right Reaſon. But his Diſciples differently interpreted this Explication, and their Principles were generally exploded. Nothing was thought more ridiculous than their Parity of Sins, and nothing more falſe than that Tranquility grounded on an Indifference to External Good and Evil. The *Stoick*, as drawn at full Length by *Seneca* and *Epictetus*, is but an Imaginary Wiſe Man, and ſuch as the World never ſaw; and *Plutarch* proves *Zeno's* Morals to have been more Romantick than others, as being Compos'd of Specious Maxims and aſſuming Expreſſions, as *Quintilian* Phraſes it, *Stoici rebus acuti, Oratione Magnifici*; but the Vertue they profeſs is a meer Shadow, and every thing is vain in a *Stoick*, to his very Modeſty, according to a Modern Author, who adds further,

There is nothing that has a fairer Shew of Honeſty than the Moral Doctrine of *Epicurus:* It propoſes no other End but the pureſt Pleaſures of the Mind, and profeſſes only to lead Men into a State of Perfect Liberty, by curing their Weakneſſes and reſtraining their Paſſions, and veſting them with the true Character of Wiſdom: He took a Large Round the better to come at his Point, and ſalve falſe Appearances. *Gaſſendus* has made an ample Apology for the Opinion of this Philoſopher, and pretends that the Pleaſure in which he fix'd the Soveraign Good was nothing elſe but the Higheſt Tranquility of Mind, in Conjunction with the moſt perfect Health of Body; but *Tully*, *Horace*, and *Plutarch*, as well as almoſt all the Fathers of the Church, give us a very Indifferent Repreſentation. Indeed the Nature of his Pleaſure, in which the Chief Happineſs is ſuppos'd to be Seated, is a Grand Problem in *Epicurus's* Morals. Sometimes he ſpeaks like a Philoſopher, and very gravely declaims againſt the Pleaſures of Senſe. At other Times his Rigours are all ſoften'd, and he appears a very diſcreet Advocate for Debauchery. In Publick his Diſcourſes ſtill ran upon the Pleaſures of the Mind, but he knew how to change his Language among his Confidents, at eaſier Hours; and thus, ſays my Author, *We have the whole Myſtery of this Celebrated Doctrine.* We may allow that *Epicurus* had great Vertues; and that his Followers were Rational, Faithful, Commodious, and Friendly: As alſo that he himſelf was particularly Sober, yet this Sobriety was at the Bottom, according to the ſame Author, nothing but a Regimen of Health, in which the Weakneſs of his Conſtitution oblig'd him to be ſo exact, that the beſt Hours of his Life were ſpent in attending his Digeſtion. 'Tis ſaid he confin'd his Notions to that Pleaſure which Reaſon and Vertue will allow in the moſt abſtracted Spirits, yet no Man who has any Spark of Common Honeſty can bear its Inſolence in preſuming to oppoſe Religion.

Zeno's and *Epicurus's* Morals had made ſo much Noiſe, that from their Time *Ethicks* began to be more Cultivated than any other Part of Philoſophy, and Happineſs was banded about according to the Opinions, and ſometimes the Complexions and Conſtitutions of Philoſophers. *Herillus* plac'd it in Science, and *Caliphon* and *Dinomachus* in Honeſt and Lawful Pleaſure. And that *Happineſs conſiſts in Pleaſure*, is what we have ſo often heard of from a Modern Author, that we can with good Reaſon confirm *Dinomachus* and *Caliphon* have had their Diſciples ſince the Reformation. *Theophraſtus* was for mixing the Ingredient of Fortune with that of Vertue, in order to make the Compoſition of Felicity, in which he will certainly be follow'd by the Court Philoſophers. Others added other Ingredients, as Health, a very neceſſary one; for a *Stoick* wou'd have had a hard Matter to have pronounc'd himſelf happy in a good Fit of the Stone. Others put Beauty and Indolence, but theſe ſeem to have accommodated their *Ethicks* to the Beaux and Belles of their Age and ours; for 'tis not abſolutely neceſſary that a Man ſhou'd be handſome, ſtupid, or lazy, to be happy. Some were for Fame and Honour: To theſe we have nothing to ſay while 'tis ſo much for the Publick Intereſt that Men ſhou'd place Happineſs in a Reputation acquir'd by Great and Glorious Actions, as far at leaſt as Chriſtians are allow'd to place any Part of their Felicity on this Side Heaven. The *Summum Bonum* was very many Ages, the Subject of Philoſophical Controverſies. *Varro* reckons up no leſs than Two Hundred Eighty Eight different Opinions, after which the Reader will excuſe us from mentioning any more of 'em; for the Number might as well have been as unconfin'd as the Fancies of Mankind, or indeed as their Faces, as to imagine there were near Three Hundred Chiefeſt Goods.

After *Zeno* and *Epicurus*, we have no Remains of any new Draught of Morality. The Characters of *Theophraſtus* are very good Leſſons of Manners, and what will be an Eternal Mortification to the Enemies of the *Drama*, if they have any Value for Father *Rapin's* Authority, *Menander's*, *Plautus's* and *Terence's* Comedies are, as he ſays, *alſo very good Leſſons of Morality, tho' without any Principles.* He goes on with a Character of ſome Heathen Syſtems. *Tully's* Offices are founded on the ſevereſt Vertue. *Seneca's* Morals are not ſo pure and exact; *Plutarch* is more real and more in earneſt; *Pliny* has ſome bright and forcible Stroaks of Morality. *Epictetus* is the moſt Rational of all the *Stoicks*; but the Chriſtian Revelation open'd a way for ſuch Refin'd *Ethicks*, that all the Pagan Morality appear'd at once to be dark and trivial, and nothing elſe to be pure and perfect. The Brightneſs of it amaz'd even the Heathen, and the Lives of the Primitive Chriſtians were ſo ſeverely ſober, that they were conſtant Leſſons to the Pagans, and prevail'd in their Converſion equally with the Divine Truths they profeſt. This put the Heathens upon reducing their Morals to a Purer Standard, and they at laſt became ſo ſevere, to vie with the Chriſtians, that under *Antoninus* moſt of the Philoſophers joyn'd themſelves to the *Stoicks:* But all their Morality appear'd to be ſo weak, that they ſoon fell into Contempt with all ſuch as were ſeriouſly diſpos'd to the Study of Vertue and a Good Life. For beſides that, the Indifference to Pleaſure and Pain, Glory and Infamy, Wealth and Poverty, which *Zeno* pretended to teach, was never really found but under the Diſcipline of Faith. Beſides that, the Concernment and Felicity under Sufferings, which the Heathen Sages ſo much boaſted, was never made good but by Chriſtian Examples; the Sum of Philoſophical Vertue prov'd, upon a ſtrict Inquiry, to be nothing elſe but an Art of concealing Men's Vice and of flattering their Pride, becauſe the utmoſt it cou'd perform was to fill the Mind with falſe Idea's of Conſtancy and Reſolution, while the Chriſtians brought them acquainted with their real Infirmities, and taught them to reſtrain thoſe Irregular Deſires which the former Inſtitutions allow'd them to enjoy. It was the Doctrine of theſe Lights that Eſtabliſh'd the New Goſpel-Morals; and the Fathers who have been the moſt Eminent Expoſitors of this Divine Morality are, St. *Baſil*, St. *Chryſoſtom*, St. *Jerom*, St. *Ambroſe*, St. *Auſtin*. Thus far have we gone with *Pere Rapin*, but cannot name the reſt, St. *Gregory*, St. *Bernard*, and *Thomas Aquinas*, without complaining that he mix'd his Pretended *Romiſh* Fathers with the Pure Primitive Aſſertors of Chriſtian *Ethicks*. Of the Moderns, beſides *Thomas Aquinas* and St. *Bernard*, who are Moderns to the Fathers he names, *Javellus*, who next to *Aquinas* wrote the beſt on this Part of Philoſophy, and reckons *Petrarch* the *Italian* Poet among the Moral Writers. The Honour he does to our Country-man, the Lord *Verulam*, is no more than Juſtice. *There is a Nobler Spirit in* Bacon's *Moral Eſſays than in any other of his Works; every Thing there is finely thought*, &c. *Cardan*, according to him, was never more at a Loſs than about the Manners. *Deſcartes* has only touch'd upon a Moral Principle or Two; but *Puffendorf* has gone farther than any who went before him in all Parts of *Ethicks*, and from him we ſhall therefore take the greateſt Part of what follows in this Eſſay.

E*thicks* is that Art which teaches us to ſeek out thoſe Rules and Meaſures of Humane Actions that lead to True Morality and Happineſs, and which acquaints us with the Means to practiſe them.

Such is the Definition generally given of Moral Philoſophy, by ſuch as do not go ſo far in their Inquiries into it as *Puffendorf* has done, who, in treating of Morality begins with Moral Entities, "which he defines to be Certain Modes ſuperadded to Natural Things and Motions by Underſtanding Beings, chiefly for the guiding and tempering the Freedom of Voluntary Actions, and for the procuring of a Decent Regularity in the Method of Life." They are call'd Modes becauſe *Ens* or *Being* in General is conceiv'd to be more conveniently divided at large into Subſtance and Mode, than into Subſtance and Accident. The Original of Moral Entities is juſtly to be referr'd to God, who wou'd not that Men ſhou'd paſs their Life like Beaſts without Culture and without Rule, but that they and their Actions ſhould be moderated by Settled Maxims and Principles, which are not to be effected without the Application of Terms and Notions. As the Original Way of producing Natural Entities is by Creation, ſo the manner of framing Moral Entities cannot be better expreſt than by the Term of Impoſition. Since Moral Entities were Inſtituted for the Regulation of Mens Lives, 'tis neceſſary that thoſe who are to obſerve this Rule ſhou'd bear ſome ſettled Relation to one another, ſhould govern their Actions by a fix'd Method, and act with determinate Reſpect and Titles about ſuch Goods and Poſſeſſions as the Occaſions of Life require. We may hence conceive 'em to be principally inherent in Men, and in the Actions of Men, and in ſome wiſe in Things which Nature, either by her own Strength, or with the Aſſiſtance of Human Induſtry, may produce.

As the Natural Subſtances ſuppoſe ſome kind of Space in which they fix their Exiſtence, ſo Moral Perſons are ſaid to be in ſome State, which in like manner contains them. The State of Man is either Natural or Adventitious. The Natural State of Man, conſider'd with Relation to other Men, is that which affects us upon the bare Account of our Univerſal Kindred. The Adventitious State is that which obliges Men by the Authority of ſome Humane Conſtitution. Tho' every State ſuppoſes, in the Perſon whom it affects, a Reſpect and Diſpoſition towards others, inaſmuch as 'tis attended with ſome Right or Obligation, neither of which we can conceive without an Object to employ their Force upon; yet ſome kinds of States do more expreſly include and denote a Relation towards other Men, while they ſignifie the manner by which the mutual Buſineſs of Men is done. Of this ſort the moſt material are Peace and War. Peace is that State by which Men live quietly together without the Diſturbance of Violence or Injuries, and voluntarily diſcharge their mutual Duties, as matters of neceſſary Obligation. War is a State of Men mutually engag'd in offering and repelling Injuries, or endeavouring forcibly to recover their Dues.

Moral Entities fram'd with Analogy to Subſtances are call'd *Moral Perſons*, and admit of too many Diſtinctions to be mention'd in this ſhort Treatiſe. Titles are reckon'd among Moral Attributes, and are apply'd for the Diſtinction of Perſons in Civil Life, with reference to their State and Eſteem. Power is that by which a Man is enabled to do Things lawfully, and with a Moral Effect. Right is that Moral Quality by which we juſtly obtain either the Government of Perſons, or the Poſſeſſion of Things; or by the Force of which we may claim ſomewhat as due to us. An Obligation is that by which a Man is bound under a Moral Neceſſity to perform or admit, or undergo any thing.

It is very plain that all theſe Things ſhou'd be expatiated on that ſeveral Things ſhou'd intervene to make way for them, that their Brevity will render 'em a little too obſcure; but it will be alſo, we hope, as plain that we take notice of ſuch Parts only of Moral Entities as are moſt noted, and ofteneſt met with in Reading and Commerce, and have kept to the Definitions at large, farther than which we had no Room to go.

There has been ſomething ſtarted by *Ariſtotle* and others, which makes it doubtful whether Moral Philoſophy is a Science capable of that Certainty as the Mathematicks, and others which, after having explain'd the Nature of Demonſtration in General, he gives in the Affirmative, and his Reaſons will weigh with all that are capable of Conviction by Reaſon; and 'twas neceſſary he ſhou'd do ſo before, he was at ſo much Trouble upon this Knowledge in his Voluminous Tract, wherein he next treats of the Underſtanding, that Power of the Humane Soul which it bears as a Light for its Guidance and Direction, and in which; as it is concern'd about Voluntary Actions, we conceive Two Faculties; one is, that by which the Object is ſhewn to the Will with a General and Confus'd Notice, whether it be Agreeable or Diſagreeable, Good or Evil: The other is that by which the Reaſons of Good and Evil, which in ſeveral Objects offer themſelves numerouſly on both Sides, are weigh'd and compar'd, and Judgment is given when, and in what manner we are to act. The *Will* in the Soul of Man is the Internal Guide of his Actions, that the Objects being propos'd and known this Power might by an Intrinſick Principle, and without any Phyſical Neceſſity move itſelf towards them, and might chooſe that which ſeem'd moſt Agreeable and Convenient, and reject that which appear'd Unſuitable and Incommodious. There are Two Faculties of the Will, by one of which it is ſaid to act Spontaneouſly, and by the other Freely. *Volition* is that Act of the Will by which it is ſimply carry'd towards ſome End, without regard had whether the End be preſent or abſent. Intention is the Deſire efficacious towards the obtaining an End. Fruition is the Reſt or Delight of the Will in the End obtain'd: To which is oppos'd Repentance or an Averſion. Conſent is our Simple Approbation of Means as we judge 'em proper for our Work; and thoſe Means, when they are plac'd within our Reach and Power, employ the Two remaining Acts of the Will, *Eliciti* and *Imperati*. The *Eliciti* are Acts immediately produc'd by the Will, and terminated by the ſame Power. The *Imperiati* are Acts enjoyn'd, perform'd by other Humane Faculties, on the Motion and Appointment of the Will.

Liberty is a Faculty of the Will by which all Requiſites of Action being given, it may out of many propos'd Objects chuſe one or more and reject the reſt: Or if any one Object be propos'd, may admit that or not admit it, may do it or not do it. But the Chief Affection of the Will, and what ſeems immediately to flow from its Nature is an *Intrinſical Difference*, upon the Account of which it is not reſtrain'd to any certain, fix'd, and unalterable way of Acting, and which cannot be entirely extirpated by the Force of any External Means. For the Right Underſtanding of this Indifference of the Will, ſomething ought to be premis'd of the Nature of Good in General. The Nature of Good ſeems to conſiſt in that Aptitude, by which one Thing is diſpos'd to benefit, preſerve or compleat another. Now 'tis apparent that the Nature of the Will is to be always deſirous of Good in General, and always averſe to Evil in General; and therefore in this General Inclination of the Will there can be no Indifference admitted, as if it cou'd ſometimes deſire good and ſometimes evil: But they are the particular Goods and Evils which give Room for the Indifference of the Wills of particular Men, who at different Times and upon different Occaſions, are various in their Purſuits. However, it do's not fall out that the Mind maintains a kind of *Æquilibrium*, and applies itſelf to Acting or not Acting, without any Conſiderable Advantage on one Side more than on the other. Various are the Cauſes of its Tendency to one Thing more than another, as *Genius, Diſpoſition, Force, Repetition, and Cuſtom of Actions*, the *Paſſions* and *Vices*, eſpecially *Drunkenneſs*, particularly nam'd by *Puffendorf*, the more remarkable for that his Ethicks were written in the North; and that there are other Vices which have as much Power over the Will; upon which he talks with great Reaſon and Clearneſs, which cou'd not be convey'd entirely to the Reader in ſo contracted a Piece as this.

After he has treated of the Underſtanding and Will he comes to Moral Actions, which are the Voluntary Deeds of Men conſider'd in Common Life, as they include the Imputation of their Conſequences and Effects. The Formality of a Moral Action conſiſts in the *Imputativeneſs* of it, by which the Effect of a Voluntary Action may be imputed to the Agent, or eſteem'd as ſomething properly belonging to him, whether he himſelf Phyſically produc'd that Effect, or whether he caus'd it to be produc'd by others. This Imputativeneſs bears the Nature of a Poſitive Form from which, as from Spring and Root, all the Affections, Properties and Conſequences of ſuch an Action reſult. Now that a Moral Action ſhould be imputed to any Man, there can be no other Cauſe but that the Man had Power and Ability to do it and not to do it; and 'tis a Prime Maxim in Morals, That a Man is accountable for thoſe Actions, the Performance or Forbearance of which were both in his Power: But thoſe Things cannot be imputed to a Man which proceed from a Phyſical Neceſſity, or from any Cauſes plac'd beyond the Direction of Men. Neither can it be imputed to Man that Natural Cauſes produce this and no other Effect; but when this Active Force is drawn out or confounded by Man, the Effects of Natural Cauſes furniſh large Matter for Imputation. How large might this Part of Moral Philoſophy, Imputation, be, if we had room to particularize what may, and what may not be imputed to Man? Bnt it will not be expected from us in this Eſſay; and the greater Number of thoſe Imputative Things or Non-Imputative, are to be reduc'd under the before mention'd Obſervations, and brought to this Conſideration, Whether ſuch Things were or were not in his Power, or were or were not dependent or independent of him.

We come now to one of the moſt Important Branches, the Rule of Moral Actions; and this Rule or Law muſt be accurately diſtinguiſh'd from ſome other Things which ſeem to bear ſome Relation to it, and theſe are *Counſel*, *Covenant*, and *Right*. Now Law differs from Counſel in this, that by the latter a Man endeavours, with Reaſons taken from the Nature of the Thing to induce another Perſon to ſome Performance or Omiſſion, over which Perſon at leaſt, as to the preſent Buſineſs, he has no proper Power, ſo as that he can lay no direct Obligation on him, but muſt leave it to his Pleaſure and Choice, whether he will follow the Counſel or not. The Ancients are condemn'd by *Puffendorf*, for applying to Laws the Name of *Common Agreements.* For beſides that, neither the Divine Poſitive Laws, nor the Laws of Nature had their Riſe from the Agreement of Men, and therefore that Title can only be attributed to Civil Laws; even theſe are not properly Covenants and Agreements, tho' there was **Indeed ſome Intervention of Compact at the Original of Civil Law**, to uſe *Puffendorfs's* own Words, as they are faithfully tranſlated. A Compact is a Promiſe, but a Law a Command; a ſhort, but plain Mark of the difference between Laws and Covenants. As for the Term of Right, as it imports a Power of Acting, granted or left free by Laws, we muſt take care not to let it paſs for the ſame thing as the Law it ſelf. Right denotes a Liberty, but Law includes ſome Bond and Engagement, by which our Natural Liberty is reſtrain'd. A Law may conveniently enough be defin'd to be *A Decree by which a Sovereign obliges a Subject to conform his Actions to what he Preſcribes.* Law may be beſt divided with reference to its Original, into Divine and Humane; the former having God, the latter Man for its Author. But 'tis alſo divided into Natural and Poſitive; Poſitive Law is that which flows from the ſole Pleaſure of the Law giver; the Natural Law is that which is exactly fitted to ſuit with the Rational and Social Nature of Man, ſo that Humane Kind cannot maintain an honeſt and peaceful Fellowſhip without it. As to the various Obligations of Men to ſubmit to theſe Laws, how uſeful ſoever it would be to touch upon them all, we cannot do it unleſs we would ſwell this Eſſay to a Bulk, which would not ſuit with that of the others, ſo we are oblig'd to paſs them over, and proceed to conſider

The Qualities of Moral Actions; according to which, Actions are ſaid to be *Neceſſary*, when, by Virtue of the Law or the Command of a Superior, the Perſon to whom the Law or the Command is given, is bound abſolutely to perform them. Oppos'd to theſe are *Forbidden* Actions, expreſly prohibited by the Laws or Orders of the Superior. And lawful or allow'd Actions, neither commanded nor forbidden by the Laws, but left to every Man's Pleaſure. Actions morally good, are ſuch as are agreeable to the Law, and morally evil, as are diſgreeable. This *Goodneſs* and this *Evil* of Actions as they conſiſt formally in ſuch an Agreeableneſs or Diſagreeableneſs to the Law, as we have been ſpeaking of, ſo they depend entirely on him, as their Efficient Cauſe, who performs an Action, which the Law either Commands or Forbids. The Juſtice of Actions differs from their Goodneſs chiefly in this, that Goodneſs barely denotes Conformity to the Law, but Juſtice further includes a Reſpect to thoſe Perſons towards whom the Action is perform'd. Next comes the Quantity of Moral Actions, or to conſider on what account they fall under different Rates and Meaſures; and then the Imputation of Moral Actions, or to ſee how and by what means they may be actually imputed, ſo as to produce ſome Moral Effect in the Agent, or ſome other Man; and herein might be conſider'd Imputation of Favour and Debt; what Merit is, and how the Effects of Moral Actions are revers'd or diſanull'd, but for the Reaſons ſo often hinted, we muſt deny our ſelves and the Reader that Satiſfaction. True it is, without going farther into Ethicks, the Gentleman who looks into this Book, will know but little of the Matter *here*, but we will endeavour that what he does know, ſhall be faithful and clear, and give ſuch an inſight into it, that it may ſerve for more than Recreation, if he is diſpos'd to make more of it, otherwiſe he will ſoon be turning to other Parts more conformable to the Gaiety and Eaſe of a Gentleman's Life.

Mr. *Puffendorf* is at a great deal of Pains to prove that 'tis not in the Nature of Man to live without Law. Abſolute Liberty would be ſo far from being uſeful, that it would be deſtructive to Humane Nature, and therefore the binding and reſtraining it with good Laws is highly conducive to the Good and Safety of Mankind. An Univerſal Liberty, void of all Hindrance and all Defect, is applicable to God only. The Liberty of Brutes, which ſeem to be more abſolute than that of Man, is treated of by this great Author; and the Superiority of Man's State, even by the Reſtraint of Laws, aſſerted and prov'd, which leads him to

The Natural State of Man. And by the Natural State of Man he does not mean that Condition which is ultimately deſign'd him by Nature as the moſt perfect and the moſt agreeable, but ſuch a State as we may conceive Man to be plac'd in by his bare Nativity, abſtracting from all the Rules and Inſtitutions, whether of Humane Invention, or of the Suggeſtion and Revelation of Heaven. As to the Miſeries and Inconveniencies of ſuch a State, they are too many to find a Place in our Brevity; and what kind of Rights attend Men in a State of Nature, we may eaſily gather, as well from that Inclination common to all living Things, by which they cannot but embrace and practice with the greateſt Readineſs and Vigour all poſſible ways of preſerving their Body and their Life, and of overcoming all ſuch Things as ſeem to drive at their Deſtruction, as from this other Conſideration, that Perſons living in ſuch a State, are not ſubject to any Sovereignty or Command. For from the former Reflection it follows, that Men plac'd after this manner in a Natural State, may uſe and enjoy the common Goods and Bleſſings, and may act and purſue whatever makes for their own Preſervation, while they do not injure the Rights of the reſt. We are ready to own, that all Mankind did never exiſt together in a meer Natural State. *Eve*, 'tis plain, was ſubject to *Adam*, and their Children to Paternal Authority; which Subjection deſcended to ſucceeding Generations. A State of Nature did never exiſt, unleſs qualify'd, and as it were in part, as when ſome Party of Men joyn'd with ſome more in a Civil Body, or in ſome Confederacy like that, but ſtill retain'd a Natural Liberty againſt all others. Mr. *Hobbs*, who makes this Natural State to be a State of War, is fully anſwer'd by this learned Author, who proves that Right Reaſon ought not to be baniſh'd from the Conſideration of a State of Nature, and ſhews that the Manners and Rights of barbarous Countries do not conſtitute a State of Nature. That Natural Peace requires not the Intervention of Covenants, but he is oblig'd to confeſs that ſuch a Natural Peace is too full of Suſpicion and Uncertainty.

Of the Law of Nature in general, ſomething more muſt be ſaid, it being a very important Obligation on Mankind, which few, very few know much of. This Law, is that moſt General and Univerſal Rule of Humane Actions, to which every Man is oblig'd to Conform, as he is a Reaſonable Creature. It binds the whole Body of Humane Race, and is not ſubject to change, which is the diſadvantage of Poſitive Laws. The Ancients pretended that Beaſts had this Law in common with Men, which Notion is now diſcarded, becauſe 'tis impoſſible to conceive how a Creature ſhould be capable of Law, and at the ſame time incapable of Reaſon. Thoſe Authors who ſearch for the Law of Nature in God himſelf, are divided into two Parties; for ſome placing the Spring of it as it were in the Divine Will, conclude thence, that in as much as that Will is in the higheſt manner free, the Law of Nature may therefore be chang'd by God. Others affirm this Natural Law to be founded after ſuch a manner in the Eſſential Juſtice of God, as to expreſs a kind of Image of his Attributes; and hence ſay they, proceeds the Immutability of the Law of Nature. That God will alter this Law is not to be imagin'd, for many Reaſons too long to be inſerted here. Neither does Mr. *Puffendorf* allow of the ſecond Opinion. And from this Conſideration among others, that we ought not to admit any Law common both to God and Man. Thoſe who found the Law of Nature on the Conſent of Mankind in general, produce Arguments which are very ſlippery and uncertain. He ſhews how near it is to Impoſſibility, that ſuch a Conſent ſhould ever be procur'd, and the Inſtances of the vaſt difference between the Laws and Cuſtoms of Nations, are not one of his leaſt weighty Reaſons. That being lawful in one, which was highly criminal in another Religion. In one Pious, which in another was Impious, from whence ſome conclude there's no Natural Law, which is anſwer'd with the ſame Succeſs as other Objections meet with from this Philoſopher. *Actions*, ſays he, *perform'd in Conformity to the Law of Nature, have a double Excellency, not being only honeſt that is conducive to the increaſe of the Honour and good Credit of Men, but alſo uſeful or profitable, promoting their Intereſt and Advantage, and contributing largely to their Happineſs.* 'Tis by moſt agreed, that the Law of Nature is to be drawn from Man's Reaſon, flowing from the true Current of that Faculty when unperverted, on which account the Holy Scriptures declare it to be written in the Hearts of Men. But that the general Principles of the Law of Nature are *Innate*, neither this Author nor the Right Reverend Father in God Doctor *Cumberland* think neceſſary, and their Arguments are unanſwerable. The former tells us there ſeems no way ſo directly leading to the Diſcovery of the Law of Nature, as the accurate Contemplation of our Natural Condition and Propenſity. But there is a neceſſity of ſuppoſing, what no Man in his Senſes will deny, that there is a God, and that his Wiſe Providence Overſees and Governs the whole World, and in a particular manner the Lives and Affairs of Mankind. For the Philoſopher declares that the Obligation of Natural Law proceeds from God himſelf, who, by Virtue of his Sovereignty, has bound Man to the Obſervation of it; for the Supream Being having ſo form'd and diſpos'd the Nature of Things and Mankind, as to make a ſociable Life, neceſſary to our Subſiſtence and Preſervation; and having on this account endu'd us with a Mind capable of Entertaining ſuch Notions as conduce to this End, and having inſinuated theſe Notions into our Underſtandings by the Movement of Natural Things, deriv'd from him the firſt Mover; and alſo moſt clearly repreſented to us their neceſſary Connexion and their Truth, hence it follows, that 'tis the Will of God, Man ſhould frame his Life according to that Diſpoſition and Method which he ſeems peculiarly to have aſſign'd him, above the Life of Brutes. And ſince this cannot otherwiſe be compaſs'd than by the Obſervance of the Natural Law, it muſt be ſuppos'd God has laid an Obligation on Man to obey this Law. The wiſeſt of the old Heathens acknowledg'd the Authority of the Law of Nature, and deriv'd it rightly from God. *Plutarch* ſays, *To follow God and obey Reaſon is the ſame thing*; and *Tully* is large on this Argument in his Books *de Republicâ*. As to the matter of the Law of Nature, that in obeying Reaſon we promote as much as in us lies the Safety, Preſervation, and Happineſs of our ſelves and Fellow-Creatures, to enter into the Particulars of ſo Copious a Subject, would be too tedious in ſo Conciſe an Eſſay.

The Law of Nations is the next thing to be treated of, and if we are a little longer on this Head than the others 'twill be excus'd, becauſe we ſeem to be great Strangers to this Rule in Ethicks. When the Czar's Ambaſſador was lately Arreſted, contrary to this ſacred Law, who was there that did not in the praiſe of our Common Law ſeem to vindicate an Affront offer'd to the moſt ſacred of Laws, without which the Band of Society would be broken, and Ruin and Slaughter over-run the World? We have ſeen how the Law of Nature ought to be rever'd; and ſince moſt Philoſophers make no difference between that Law and the Law of Nations, all that has been ſaid for the Sanction of the one ſerves for the other. *Puffendorf* agrees in a great meaſure with *Hobbs* in this. Under the Title of the Law of Nations are many Things rank'd, we ſhall only hint the moſt material. As ſeveral Cuſtoms mutually obſerv'd by Tacite Conſent among moſt People pretending to be out of a State of Barbariſm, eſpecially in the Affairs of War; but in this *Puffendorf* diſtinguiſhes the Law of Nature from the Law of Nations, for by the Law of Nature, whoever wages a juſt War may ſlight theſe Formalities at pleaſure, unleſs he thinks it more for his Intereſt to obſerve them, as a means to render the Enemy leſs ſevere towards himſelf and his Men. Now, as to Ambaſſadors, take *Puffendorf*'s own Words, "The Perſons of Ambaſſadors are Sacred and Inviolable, even among Enemies, by the meer Law of Nature, provided they do not come purely as Spies, nor enter on any Hoſtile Deſign againſt the Perſon to whom they are ſent. Though in the ordinary Courſe of Buſineſs and Treaties, they preferr their Maſter's Intereſt to all others. For in as much as ſuch Perſons are neceſſary for the procuring, the preſerving, or ſtrengthening of Peace by Leagues and Covenants; and ſince the Law of Nature enjoyns us to embrace Peace by all honeſt Ways, it muſt

“ at the ſame time be ſuppos'd to have provided for the Security of thoſe Men, without whoſe Intervention this good End cannot be obtain'd. To this Right of Perſonal Safety is joyn'd another of being exempted from the Juriſdiction of the Sovereign to whom they are ſent.” This is enough to prove that all ſuch as ſhall at any time inſult an Ambaſſador's Perſon are to be look'd upon as Violaters of the Law of Nations, and conſequently of Nature; which Law being written in our Hearts by God himſelf, is infinitely more Sacred than all Laws, Ordinances, and eſpecially *Cuſtoms*. For narrow muſt be the Spirit of that Nation, that would have their particular and fallible Uſages preferr'd to this general, eternal, and infallible Rule.

We ſhould now diſcourſe of the Duties and Performances of Man towards himſelf, as well in regard to the Improvement of the Mind, as to the Care of his Body and Life. And herein we find the Culture of the Mind is in the firſt place aſſerted and prov'd to be a neceſſary Duty; that it ought firſt to be inſtructed in Religion, and all contrary Opinions extirpated, which is the principal Care; and then the main Concern is for a Man accurately to examine his own Nature, and to ſtudy to know himſelf. From this Knowledge it follows, that a Man muſt apprehend his Subjection to Almighty God, and the Obligation that lies upon him, according to the meaſure of the Gift he has receiv'd, both to Celebrate the Divine Majeſty, and ſhew himſelf a ſociable Creature in his Tranſactions with his Fellows. A Man by ſtudying his own Strength, will ſoon diſcover 'tis of a finite Nature, and look higher for Support and Aſſiſtance. He will learn alſo not to attempt things that are not within his finite Capacity, and know how to govern himſelf in the Purſuit of the beſt worldly Enjoyments, which we might have call'd moral Enjoyments, and have kept more to our Title, eſpecially if he conſiders what our Author recommends to him, on ſeveral of them, as,

Firſt, Concerning Fame, which is ſo far to be purſu'd, as it redounds from worthy Actions, agreeable to Reaſon, and promoting the Good of Humane Society, and as it opens a wider Field for ſuch generous Undertakings. *Eſteem*, which ſimply ſo call'd, is the bare good Opinion of good Men, which flows from the Obſervance of the Law of Nature, and our Duty; and we ought, as far as in us lies, to endeavour to procure and preſerve it, becauſe the want of it may lay open an occaſion to a thouſand Miſchiefs and Inconveniences. *Riches* are alſo an Object of our Induſtry, and we may take hold of all Opportunities conſiſtent with our Strength and Honeſty to acquire them: But the Mind ought to be put into ſo even a Temper as not to loſe it ſelf, if it ſhould happen to loſe them. *Expences* are to be manag'd with ſuch Moderation, that we may moſt willingly undertake thoſe our Duty requires of us, but not waſte our Fortune at a venture, without Neceſſity and Reaſon. Pain is what Reaſon permits us and adviſes us to avoid, to the utmoſt of our Power, and all unneceſſary Trouble and Diſquiet; That we ſhould not only endeavour to keep our ſelves free from Grief and Care, but likewiſe entertain our ſelves with ſuch Objects as are agreeable and delightful to them, which is term'd *Pleaſure*. 'Tis very rational for us to allow our ſelves the moderate Taſte of lawful Pleaſures, without ſuffering them to over-whelm us. But this is to be fix'd as an inviolable Rule, that no Pleaſure muſt be purchas'd at ſo dear a Rate, as the Neglect or Tranſgreſſion of our Duty. The *Paſſions* muſt be kept under the Government of Reaſon; for the greateſt part of 'em do not only impair the Health of the Body, and the Vigour of the Soul, but caſts ſuch a Cloud over the Underſtanding, as to wreſt it violently from the ways of Reaſon and Duty. It cannot be thought tedious to give the Characters of them in a few words from the before-mention'd Philoſopher. *Joy* is of all Paſſions moſt agreeable to Nature, but care muſt be taken that it does not break out on improper Occaſions, as on other Mens misfortunes. *Sorrow* is a Canker that waſtes the Body and Mind, and not to be encourag'd, unleſs for the Misfortunes and Deaths of others, as or the great Work of Repentance. *Love* is a friendly Motion to Mankind, but muſt not be thrown away on an ill Object, nor procure baſe and unworthy Fuel to its Flames, nor hinder the Exerciſe of other Duties, nor degenerate into Diſquiet and Diſeaſe. *Hatred* is pernicious, as well to the Perſon who employs it, as to him againſt whom it is employ'd. If ſome Perſons deſerve our Averſion, 'tis folly to create Uneaſineſs to our ſelves on their Account. *Envy* is a deform'd Monſter, ſometimes producing ill Effects in others, but always in the envious Perſon. *Hope*, tho' a more eaſy and mild Paſſion than others, muſt not aim at Things vain and uncertain, or beyond its ſtrength and reach. *Fear*, as it is a dangerous Enemy to Humane Minds, ſo it is a Motion uſeleſs and unſerviceable. *Anger* is a moſt deſtructive, as well as a moſt violent Paſſion; and nearly related to it is the *Deſire* of *Revenge*, which when it exceeds a moderate Defence of our ſelves and our Dependants and Concerns, and a juſt Aſſertion of our Rights againſt the Invaders of them, turns to Vice, and is, with Anger, to be carefully avoided.

Having gone thus far towards the Culture of the Mind, we come now to Learning, the Benefits of which we would hope are not to be Taught now in one of the moſt learned Countries of the World. The Philoſopher takes it almoſt for univerſally granted, that Learning is one of the chiefeſt Improvements of the Mind, and proceeds to divide it into three kinds, as uſeful Learning, ſuch as Morality, Phyſicks and Mathematicks. Elegant and Curious, as Hiſtory, Criticiſm, Poetry, and Oratory. And vain and inſignificant Learning, among which *Puffendorf* places the School-Learning, which *Rapin* has been at the Pains to commend; and 'tis not a little Satisfaction to us, to find that ſo great a Philoſopher ſhould confirm what has been ſaid of it in the preceding Chapter, with reference to the Service the School-men did Popery. For ſpeaking of 'em, he ſays, *'Tis the manifeſt Intereſt of the Papal Monarchy to keep Mens Heads on Trifles, for fear they ſhould make ſome very dangerous Diſcoveries.*

The Care of the Body is as well a Duty as that of the Mind; and under this Care comes the Conſideration of our Health and Strength, which we ought to preſerve to the utmoſt, by avoiding Gluttony, Drunkenneſs, and the immoderate Uſe of

Women, &c. In this Treatiſe of Ethicks we might with the Original diſcourſe of the Uſe of Life, and examine whether we lie under any Obligation to preſerve our Lives; how far Life may be ſpent for the Advantage of others; and how far expos'd to reſcue others from Danger; but we are too much confin'd in Room, and on thoſe Heads muſt refer the Inquiſitive to the Original itſelf. As to Self-Murther, he denies that Man has Abſolute Power over his own Life. But what ſignifies Reaſons and Arguments to prove what is ſo very plain. Can any one think that a Self-Murtherer deliberates with himſelf as to the Legality or Illegality of the Crimes he is about to Commit? Is a Man in ſuch a Diſpoſition capable of Arguments and Reaſon? Will they weigh with him in his Frenzy? and out of it ſure there's no Reaſonable Creature can imagine 'tis Lawful for a Man to terminate a Being given him by God for the Diſcharge of ſo many Excellent Duties. Tho' he has largely treated of Self-Defence, which one wou'd think is ſo well and is really ſo ill underſtood, yet we muſt for our uſual Reaſon content our ſelves with ſome Hints only.

Self-Defence may be undertaken two ways, either without hurting him who deſigns the Miſchief againſt us, or elſe by hurting and deſtroying him; but whether the latter be an obligatory and neceſſary Duty is not eaſy to be determin'd, and *Puffendorf* ſeems to be more againſt it than for it. And in Caſes of Injury a Wiſe Man ought to try all Expedients before he proceeds to Arms: For inaſmuch as all Combat and forcible Contention is of uncertain Iſſue, it wou'd be adviſeable firſt to make Experiment of ſafer Remedies. If I can cut off an Invader's Acceſs to me, I'm a Fool to meet him. If I could defend my ſelf with a Wall, 'twould be abſurd to expoſe my Breaſt. Thoſe who live under the ſame Government ought to be ſo moderate in the Uſe of *Violent Self-Defence*, as never to have recourſe to it but when Time and Place will not admit 'em to apply to the *Magiſtrate*. A Perſon aſſaulting another by Miſtake, without any Evil Deſign againſt the Man he aſſaults, the Perſon aſſaulted may kill him; for tho' there was an Error in the Perſon there was no Error in the Deſign: And the Common Determination, That the killing a Man in our own Defence is then only innocent, *when we cannot poſſibly eſcape the danger by other means*, is not to be interpreted in too ſtrict a Senſe, it admitting of a reaſonable Latitude on Account of that Perturbation of Mind which ariſes from ſo Surprizing and Imminent a Miſchief. We have, eſpecially ſince the Swarming of the Soldiery, introduc'd ſuch fine Notions of Honour, with reſpect to Duels, that it will not be improper to obſerve under what Acceptation they ſtand in Morality, which is certainly as Good a Judge of Reaſon and Honour, as Vanity, Inſolence, and Debauchery.

In might be obſerv'd on this Head, ſays our Author, *That the Plea of Self-Defence ſhall not Excuſe or Indemnifie him, who being challeng'd to meet in the way of Duel, do's by ſo appearing, put himſelf into ſuch a Condition that he muſt either kill or be kill'd; for in the Eſtimation of ſuch a Fact, the Danger will not be conſider'd ſince the Laws forbad him to meet it; and therefore he will not only be guilty of Homicide, but will ſtand obnoxious to thoſe other Penalties which are particularly ordain'd againſt the Cuſtom of Duelling.* And ſpeaking of Affronts, *as a Box of the Ear*, he adds; *Nor is the Vulgar Notion of any Weight which fancies the Courage of Men, and eſpecially of Soldiers, to be endamag'd in its Character by the receiving theſe kinds of Affronts: And that therefore Credit muſt be vindicated by Sword or Duel: for that Man ſhews ſufficient Teſtimonies of his Courage, who bravely maintains and diſcharges the Office aſſign'd him by the State. And there are more noble and more ſhining Occaſions of Exerciſing Valour, than contrary to the Laws of Reaſon and our Country, to purſue an immoderate Paſſion, or to engage in the Hazard of an unneceſſary and unprofitable Combat.* Againſt all this Reaſon and Morality, nothing is ever urg'd by Bravo's, for what other Name do they deſerve, but *Honour*. Now the Honour of a Man who values not the Purity of Body or Mind, of a Man who is every Day diſhonouring Common Honeſty and Vertue; the Honour of ſuch a one is a Dream, a Vapour which aſcends into his Head with the Fumes of the Bottle, and is no more worth defending than the Strumpet for whom this Duel is often occaſion'd. Thoſe who are not quite ſo rampant in their Morals, and yet give into this Weakneſs, muſt be well ſtockt with Vanity, but much more with Ignorance. As to the Defence of Chaſtity, of Perſon and Goods againſt Night-Thieves, and the like, 'tis very plain how a Philoſopher will determine the Matter as to its Guilt or Innocence, ſo we ſhall ſay no more on this Article but go on.

The Right and Favour of Neceſſity are of much larger Extent than ſome may at firſt imagine, and our Learned Author has gone thro' them, but we are forbid to follow him by our General Conſtraint, or elſe we might with him have obſerv'd of how many Kinds Neceſſity is, on what Principle the Right and Favour of Neceſſity are grounded, what Degree of Power and Right is hence convey'd to us either over our ſelves or over others *directly*, what is *indirectly* indulg'd by the ſame Principle, what Power we obtain from hence over the Things or Goods of others, what Freedom we may be allow'd to uſe with the Goods of others for the Preſervation of our own; all which are at large handled in this Treatiſe of the Law of Nature and Nations, to which we muſt again referr the Reader.

We come now to the Natural Precepts which contain the Duties we are to practiſe towards other Men, having already taken Notice of thoſe a Man is enjoyn'd to exerciſe towards himſelf; and the Firſt Precept is, *That no Man hurt another, and that in Caſe of any Damage done by him he fail not to make Reparation.* The Word *Damage*, which ſeems properly to refer only to Goods and Poſſeſſions, is here us'd in an extended Senſe, ſo as to make it take in all manner of Harm that may be offer'd to a Man's Body, his Chaſtity, or his Good Name. In Stating who are the Eſteem'd Authors of Damage, we muſt have recourſe to *Imputative* Actions, of which we have taken ſome Notice, but were forc'd to abridge our ſelves in that Place as well as others, and cannot here enter far into them. A Perſon may damnifie his Neighbour, not only immediately by himſelf but likewiſe by the Miniſtry of others. And farther, a Damage immediately done by one Man may be Chargeable upon another, (who is conſequently oblig'd to make Reparation) inaſmuch as he contributed ſomewhat to the Action either by doing what he ought not, not by omitting what he ought to have done; where therefore many Perſons have concurr'd to one Act of Damage, this Order ſhall be obſerv'd in making Reparation. Thoſe ſhall be in the firſt place Chargeable, who ſet forwards the Miſchief either by their Commands or by ſome other Powerful Means, amounting almoſt to a neceſſary Influence; and the immediate Actor of the Crime, or he who was thus forc'd to Lend his Hands for its Performance, ſhall in theſe Caſes be eſteem'd only as the Inſtrument. We muſt break off here too, tho' 'tis very neceſſary, in order to aſcertain the Meaſures of Guilt as to Damage, to proceed in it farther. Whenever we hurt or endamage another, we do it either out of full Purpoſe, or a Fault of Negligence, or by Chance. The Firſt is certainly bound to make Reparation to the full Value of the Wrong. The Second too is deem'd Reſponſible, but the Third not. Thieves muſt reſtore, notwithſtanding Puniſhment; and other Criminals and Damnifyers might be nam'd, if we did not conſider this Eſſay is not deſign'd for Lawyers and Civilians, but for Gentlemen.

The next Thing our Author advances is, That all Men by Nature are to be accounted equal. Some reſtrain this Equality to a Parity of Strength, as Mr. *Hobbs*, which is anſwer'd in the Treatiſe that has been our Guide hitherto, and will be to the End of this Eſſay. The Equality of Right is what he means by it; and the Principle from which that Equality ſprings is this, That the Obligation to a Social Life equally binds all Men, inaſmuch as it is the Inſeparable Companion of Humane Nature, conſider'd ſimply as ſuch. We might add further; Our Bodies are all Compos'd of the ſame Matter: We owe our Exiſtence to the ſame Method of Propagation; Our Growth and Nouriſhment are perform'd alike: Our Death and the Corruption of our Bodies are the ſame, which indeed reduces all Men to a Great Parity, from whence flow ſeveral Precepts: we ſhall only name the Chief. From hence it is manifeſt, That he who wou'd uſe the Aſſiſtance of others, ought as freely to be at their Service when they want his Help on the like Occaſions; for he muſt certainly eſteem others unequal to himſelf, who conſtantly demands their Aid, and as conſtantly denies his own. This Equality teaches a Man how to carry himſelf in caſe he be appointed Arbitrator of any Right betwixt others, to treat them as Equals, and give no Favour or Indulgence to one above the reſt, except ſuch as he can Claim by Virtue of ſome Peculiar Right. This Rule is tranſgreſs'd by Pride, when a Man, for no Reaſon, or without ſufficient Reaſon, preferrs himſelf to others; as alſo to ſhew his Contempt of others by outward and open Signs.

Beſides the ſeveral Things that are forbidden by the Rules of Morality, there are ſeveral enjoyn'd; Every Man is oblig'd to promote the Good of another, either indefinitely and abſolutely, or definitely and relatively; we ſhall only relate what *Puffendorf* terms the Vulgar Degrees of Humanity, the Omiſſion of which implies a moſt Baſe and Abject Mind. As in what relates to Paſſage thro' others Grounds, either to Perſons or Goods; Whether an Impoſt or Duty may be laid on Paſſage what concerns Acceſs to a Foreign Shoar, the Admiſſion of Strangers, the Granting them a Seat and Habitation, the Allowing a Mart, whether we are oblig'd to Buy of others, what relates to Marriage with Strangers; whether what is Granted in Common to all may be particularly with-held from one. Theſe he has ſeverally enlarg'd on; but, as 'tis further from the Degrees of Humanity, which Gentlemen will find often Occaſion to exerciſe, than what follows, ſo we ſhall ſay no more of them, that we may have the more room to enlarge a little on *Beneficence*, *Gratitude* and *Ingratitude*. *Beneficence* is the higheſt and moſt illuſtrious Strain of Humanity, when a Man out of pure Inclination ariſing either from a Native Generoſity of Soul, or from Pity and Compaſſion to a Perſon in Diſtreſs, is at ſome Pains or Charge in beſtowing freely upon another what may relieve his Neceſſity, or promote his Advantage. The Vertue anſwering to Beneficence in the Giver, is *Gratitude* in the Receiver, by which he demonſtrates that the Kindneſs was acceptable to him, and upon this Score entertains a hearty Reſpect for the Author of it, ſeeking all Occaſions of making a Requital. *Ingratitude*, tho' it does not imply a real Injury, yet generally paſſes for a Vice more foul than Injuſtice; for 'tis lookt upon as an Argument of a moſt Abject and Degenerate Soul for a Man to declare himſelf unworthy of the fair Opinion which another entertain'd of his Honeſty, to be Proof againſt Benefits, and conſequently paſt all Senſe of Humanity.

We are in the next Place to treat of the Duties of keeping Faith, and the Diviſion of Obligations. Many are the Reaſons why in order that the True Fruits of a Social Nature, and that the mutual Offices of Mankind, may be Practis'd with the more Frequency and more Regularity, it was neceſſary for Men to Bargain and Agree among themſelves, that they wou'd perform to each other ſuch and ſuch Services as they cou'd not be abſolutely ſecure of by the Law of Humanity. And when Men once have engag'd themſelves by Pacts, their Nature obliges 'em as Sociable Creatures, moſt religiouſly to obſerve and perform them: But, inaſmuch as Pacts and Covenants, thoſe eſpecially which are expreſs'd, do impoſe an Obligation on us which Nature did not before enjoyn, at leaſt not in ſo preciſe and determinate a manner, there are ſeveral ſorts of thoſe Obligations upon us to perform them, as *Connate* Obligations, which are ſuch as all Men fall under, by Virtue of their being Creatures endu'd with Reaſon, or ſuch as neceſſarily attend and accompany the *Rational Nature*, conſider'd in that Simple and General Notion. Adventitious Obligations are ſuch as fall upon Men by the Intervention of Humane Deeds, not without the Conſent of the Parties, either expreſs, or at leaſt Preſumptive. The moſt Eminent is that which lies in all Men, with reſpect to God's Commandments and Laws. Whoever breaks this Obligation ſtands guilty of the moſt Heinous Charge of Atheiſm. Obligations may be again divided into Natural and Civil. By Natural Obligations are meant ſuch as bind only by Virtue of the Law of Nature; and by Civil Obligation ſuch as is ſupported and aſſiſted by Civil Laws and by Civil Power,

Power. They may again be divided into Temporary and Perpetual. The Perpetual is that which cannot be taken off as long as the Perſon exiſts in whom it adheres. Such are our Obligations towards God and towards our Neighbour. Temporary are ſuch as may ceaſe while the Perſons in whom they inhere do exiſt. Much more might be added on this as well as on other Articles. As to Adventitious Obligations, Promiſes and Pacts in General are the moſt Eminent. A Perfect Promiſe is when a Man not only determines his Will to the Performance of ſuch or ſuch a Thing for another hereafter; but alſo ſhews that he gives the other a Full Right of Challenging or requiring it from him. Bare Aſſertions are not to be an Obligation; neither do Expreſſions in the future transfer a Right.

Conſent is always neceſſary in making Pacts and Promiſes, and muſt be ſignify'd either expreſly or tacitly, by ſuch as have the Uſe of Reaſon, which is ſuſpended by the higher Degrees of Drunkenneſs. Minority and Force invalidate Promiſes, and ſeveral other Cauſes mention'd at large by our Author.

Obligations lie only to Things Poſſible; wherefore Promiſes about Impoſſible Things are null, when the Thing, at the Time of making the Pact, appear'd Poſſible, and afterwards becomes Impoſſible, if it happen'd by Chance the Pact is diſannull'd. To make a Pact truly obligatory, 'tis requiſite we have a Moral Power of performing the Thing agreed upon; and if the Thing be unlawful, and we conſequently want this Power, we cannot tie our ſelves by any ſuch Engagement.

We come now to the Conditions of Promiſes. A Condition is an Appendage added to ſuch Acts as are Productive of Rights and Obligations, by Virtue of which their whole Force and Efficacy are made to depend on ſome Particular Event, proceeding either from Fortune or Humane Pleaſure; ſo that to the True Nature of a Condition, theſe Two Things are requiſite: Firſt, That it have the Power of deferring and ſuſpending the Force of the Obligation; and Secondly, That the Event expreſt in it do not yet appear, at leaſt that it be at preſent uncertain as to our Underſtanding.

If we follow'd our Original Step by Step, we ſhould now treat of Agents concern'd in Contracting Obligations for other Men: But we muſt come off of that by the ſame Excuſe that we have come off of other Things. The greateſt Part of what remains in this Excellent Moral Tract relates to the Civil Law in a particular manner; and tho' it has alſo relation to Ethicks, yet we think we ſhall be excus'd for not entring upon Oaths, the Power of Mankind over Things, of the Origin of Dominion or Property, of the Object of Property, of Occupancy, of Acceſſions or Additional Improvements, of the Right over other Mens Poſſeſſions, of Transferring, of Property in General, of Wills and Teſtaments, of Succeſſion to Perſons who die Inteſtate, of Preſcription, of the Obligations which flow immediately from Property, of Price, of Contracts in General that preſuppoſe the Price of Things, concerning the Equality that ought to be obſerv'd in Chargeable Contracts, of Gainful, Contracts in Particular, of Chargeable Contracts in Particular; and of Bartering, Buying and Selling, of Renting and Hiring, of the Loan of a Conſumeable Commodity, of Partnerſhip, of Contracts that depend upon Chance, of Acceſſory Pacts, by what means Obligations founded upon Compact may be diſſolv'd, of Interpretation, of the way of deciding Controverſies in the Liberty of Nature. Let it not be wonder'd at how we came to ſay ſo little on ſo Copious a Subject, but rather, how we ſaid ſo much in ſo little Room. Whoever has the Curioſity or Occaſion to inquire into any of the Heads which we have omitted, *Puffendorf* will give him Perfect Satisfaction. There remain Two Branches of Moral Philoſophy to be handled, *viz.* Oeconomicks and Politicks, which we ſhall undertake to treat of from the ſame Author without leaving him once, but where we give the Reader notice of it.

Oeconomicks is not touch'd upon by him particularly: They teach a Man to Rule and Govern his Family, as a Husband, a Father, a Maſter; and every one of theſe have their particular Duties or Obligations, as Conjugal, Paternal, and Magiſterial. The Obligations of a Wife, Children and Servants are alſo Parallel to theſe, and are comprehended in Love and Obedience. As the Maſter of the Family's Duty is in Love and Care of providing for them, according to their ſeveral Capacities or Qualifications: For the Duty of the Maſter of the Family is one Thing towards his Wife, another towards his Children, and ſtill different from them both towards his Servants. The ſeveral Duties of the Wife, Children and Servants are diſtinct and ſeveral in regard of their Relation to him. The Firſt State Mr. *Puffendorf* treats of is that of

Matrimony, which being the Source of Private Families, does conſequently ſupply Matter for the Compoſing of all Sovereignties and States. In this, after having aſſerted the Neceſſity of Marriage, and prov'd the Inconveniences attending Licentious Amours to the Propagation of Mankind, and Civil Peace and Right, he ſhews the Authority of the Husband over the Wife, and then proceeds to

Paternal Power. And here the Author granting but in Part that the Act of Generation gave the Father this Right over the Child, adds, this Power ariſes from that Duty which Nature (in enjoyning Man to be a Sociable Creature) lays on him to take care of his Offspring, ſhe having at the ſame time, to ſtir up his Diligence, wiſely implanted in him a moſt Tender Affection towards theſe Little Pictures of Himſelf. The Sovereignty of the Parent is alſo built on the preſum'd Conſent of the Child, and conſequently on a Tacit Pact. The Power which a Father enjoys on the bare Score of his being a Father, inaſmuch as it accrues to him as a neceſſary means of diſcharging his Obligations towards his Iſſue which Nature lays upon him, muſt conſequently be ſo great, as ſufficiently to Anſwer and Effect that Deſign; to Educate, Nouriſh, Protect, Inform and Govern them. To Abdicate or Diſinherit a Son is the Severeſt Penalty that a Father, by Virtue of his being a Father, can inflict.

The next Power is the *Deſpotical*, or the Authority of the Maſter over his Servant; the Authority of which is thus trac'd out. In the Early Ages of the World, when Men began to quit their Primitive Plainneſs and Simplicity, to Cultivate the method of Living, and enlarge their Fortunes and

Poſſeſſions; 'tis very likely the Wiſer and Richer Sort invited thoſe of leſs Parts and leſs Wealth to aſſiſt them in their Buſineſs for Hire. Afterwards, when both Parties form'd their Benefit in this way of Proceeding, the meaner Tribe were by Degrees to joyn themſelves Perpetual Members to the Families of the Greater, under theſe Conditions, that the latter ſhou'd engage to ſupply Food and all Conveniencies of Living; and the former ſhou'd bind themſelves to undertake all Proper Labours and Employments, as their Patrons ſhould direct; ſo that the firſt Riſe of Servitude is owing to the voluntary Conſent of the poor and more helpleſs Perſons, and is founded on that Common Form of Contract, *Do, ut facias*; I promiſe to give you conſtant Suſtenance upon Condition you aſſiſt me with your conſtant Work. Thus every Maſter may enjoyn his Servants what Task he pleaſes in proportion to their Strength and Skill, may Correct their Sluggiſhneſs, but his higheſt Puniſhment is to Expel them. The Author treats of Slaves alſo, and traces them originally from War. Thus we ſee he takes Care not to break in any where on the Opinion he would advance, that Subjection was at firſt *Voluntary*. He cloſes what he has to ſay on that Part, which may be call'd Oeconomicks, with his Diſcourſe on Servitude, and all that he ſays of them is to make way for his

Politicks, on which he enlarges, and begins with the Cauſes and Motives inducing Men to eſtabliſh Civil Societies. Here again he remembers Paternal Power, and ſuppoſes all Government to be originally in the Fathers of Families, who conſented to reſign up their Government, and form a Common-wealth, to guard themſelves againſt thoſe Injuries which one Man was in danger of ſuſtaining from another. The bare Reverence of the Law of Nature was not ſufficient to ſecure the Peace of Mankind, nor the ſole Force of Arbitrators or Covenants. The difference of Mens Opinions was even greatly prejudicial to the Peace of the World, and theſe Cauſes made them ſtand in need of a much more ſevere Reſtraint, which was that of Publick Government. Men are only a ſufficient Defence againſt the Wickedneſs of Men, and it being to this end neceſſary that many ſhould joyn together, and agree in their Reſolutions, mutual Preſervation produc'd the firſt League, and prevail'd with the Fathers of Families to reſign their Authority, and to enter into Compacts or Covenants, for the Structure of the firſt State.

The Nature and the Number of thoſe Covenants by the Mediation of which a Civil State is to be compacted, may be diſcover'd by the following Method of Enquiry. Let us conceive in our Mind a multitude of Men, all Natural, Free, and naturally Equal, going about voluntarily to erect themſelves into a Common-wealth; here it will be neceſſary firſt of all that they Covenant with each in particular, to joyn in one laſting Society, and to Correct the Meaſures of their Welfare and Safety by the Publick Vote. Now what *Puffendorf* ſays afterwards is very remarkable, *Tho' in a Compact of this Nature, 'tis the moſt uſual way for particular Perſons to reſerve to themſelves the Liberty of departing if they ſhall ſee fit.* Farther, when this Covenant is to be tranſacted, 'tis requiſite that all of 'em give their Conſent; Then 'tis requiſite that a Decree be made, ſpecifying what Form of Government ſhall be ſettled among them; There will then be occaſion for a new Covenant, when the Perſon or Perſons on whom the Sovereignty is conferr'd, ſhall be actually Conſtituted; by which the Rulers on one hand engage themſelves to take Care of the Common Peace and Security, and the Subjects on the other to yield them faithful Obedience. This Method of producing a Civil State, by the means of two Covenants and one Decree, is moſt natural, and what agrees in general to every kind of Government. Yet a *Monarchy* may ſometimes happen to be Conſtituted by one Covenant alone; as, Suppoſe many Perſons, without any Antecedent Agreement, ſhould each Man for himſelf, ſubject himſelf to a ſingle Maſter. Every State had certainly once a Beginning, before the fixing of which the Perſons of whom it was to conſiſt, could not be united to each other by the ſame Ties as they are after the State is actually ſet up, nor could they yet be ſubject to thoſe to whom afterwards they owe Subjection. And here we cannot underſtand how either this Union or this Subjection could be made without the Covenants before-mention'd. 'Tis neceſſary that the ſaid Covenants muſt tacitly at leaſt have paſs'd in the Inſtitution of Commonwealths. Nor is there any thing to hinder, but that the Original of ſome things, not committed to the Monuments of Time and Hiſtory, may be trac'd out by the Diſquiſitions of Reaſon. What Mr. *Hobbs* has ſaid concerning the Original Compact, is fully confuted by this Author; but we muſt forbear enlarging upon it. The State thus form'd in exerciſing its Will, makes uſe either of a ſingle Perſon, or a Council. Where the Sovereignty is lodg'd in one Man, there the State is ſuppos'd to chuſe and deſire whatever that one Man, who is preſum'd to be Maſter of perfect Reaſon, ſhall judge convenient in every Buſineſs or Affair, which regards the end of Civil Government. Where the Supream Authority is conferr'd on a Council, according to the regular Courſe, the Votes of the Majority in Aſſemblies have the Force and Virtue of a general Decree; and 'tis ſo plain, that Aſſemblies muſt neceſſarily be determin'd by a Majority, that there's no occaſion of giving Reaſons for it. The Civil State being thus fram'd and ſettled, the Perſon or Perſons on whom the Supream Authority is conferr'd, whether one Man or a Council, either particular or general, obtains the Name of a *Monarch*, a *Senate*, or a *People*.

The next Thing to be treated of is *Civil Sovereignty* or *Majeſty*; and in order to find out how it is produc'd, we muſt ſuppoſe firſt that Civil Authority, for the obtaining its juſt Effect, requires as well natural Strength, by means of which the Subject, if he preſumes to decline Obedience, may be terrify'd into his Duty thro' the Fear of Puniſhment; as alſo a Title, by Virtue of which, as by juſt Right, the Performance or Omiſſion of any Action may be impos'd on others; to which *Title* there anſwers in the Subject an Obligation to comply with what is thus enjoyn'd. Now both theſe Requiſites do immediately flow from thoſe Parts by which the State is united and ſubſiſts. For tho' no Perſon can transfer his Strength to another by any real and natural Conveyance, yet he is ſuppos'd to be Maſter of other Mens Strength, according to whoſe Pleaſure they are bound to exert and apply it, not having any Power to reſiſt or to refuſe his Command. By which it appears, that he who holds the Sovereign Rule, is poſſeſs'd of ſufficient Force to compel any Perſon to the diſcharge of the ſeveral Injunctions which he lays upon them. So alſo the ſame Covenant affords a full and eaſy Title, by which the aforeſaid Sovereignty appears to be eſtabliſh'd not upon Violence, but in a lawful manner, upon the voluntary Conſent and Subjection of the Reſpective Members. And he who affirms Sovereignty to reſult immediately from Compact, does not in the leaſt detract from the Sacred Character of Civil Government, or maintain that Princes bear Rule by Humane Rights only, not by Divine. Governours are call'd God's Vicegerents, which, according to our Author, may very fairly and conveniently be explain'd in this Senſe, That whereas the Peace and good Order of Mankind was not ſufficiently procur'd by a bare Reverence towards the Law of Nature, and towards the Author of it, that End is now happily produc'd by the Virtue and Efficacy of Civil Dominion. What *Puffendorf* ſays in Anſwer to thoſe who aſſert that Sovereignty is conferr'd on Princes immediately by God himſelf, will probably be ſatiſfactory to an *Engliſh* Reader. *'Tis manifeſt it tends to the breaking aſunder all thoſe Compacts and Fundamental Laws which paſs between Princes and Subjects, with regard to the Publick Adminiſtration. We cannot admit that they ſhould aſcribe Majeſty to Kings alone, and utterly deny it to Free States and Democracies. The Definition of Majeſty, the chief Power every where over the State, poor and dry as it is, agrees as well to the Senate, or to a popular Aſſembly.* It cannot be expected from us that we ſhould ſtrengthen every Aſſertion as he does, by Reaſon and Examples, but let the Reader once for all be inform'd, that he never lays down any thing without giving Reaſons, and very often Inſtances, in both of which he is always Inconteſtable.

The Parts of Sovereignty, and their Natural Connection, are now to be diſcours'd of; for tho' the Supream Authority in its own Nature be but one individual Thing, yet becauſe it Exiſts it ſelf in different Acts, 'tis generally conceiv'd as conſiſting of many Parts. 'Tis term'd the *Legiſlative Power*, as it is buſy'd in preſcribing general Rules of Action; The *Judiciary Power*, as it determines the Controverſies of the Subjects by the Standard of theſe Rules. 'Tis the Power of Peace and War, as it either Arms the Subjects againſt Foreigners, or Commands them to lay down their Hoſtility. 'Tis call'd the *Right or Power of appointing Magiſtrates*, as it takes in the Aſſiſtance of Miniſters in the diſcharge of Publick Buſineſs; and ſo with regard to its other Offices and Functions, as the Right of levying Taxes, and of examining Doctrines, as far as it tends to the Publick Peace and Safety, is lodg'd by our Author in the Supream Authority. Theſe Parts of the Sovereign Power are naturally ſo united, and, as it were, interwoven with one another, that ſhould we ſuppoſe ſome of them to inhere in one Perſon, ſome in others, the regular Frame of the State muſt abſolutely be deſtroy'd; for if we appropriate the Legiſlative Power to one, and to another the Judiciary, each Primarily and Independant, it will of neceſſity follow that either the former is Null and Void, or that the latter only miniſters to the former; 'twill hold as ſtrong in all the Branches of the Sovereignty; and this is very ingeniouſly and learnedly handled by our Philoſopher.

We go now to the Forms of Common-Wealths, which are Three only, ariſing from the proper or particular Subject in which the Supream Power reſides, which is either a ſingle Perſon or a Council, Select or General; for the Sovereignty is committed either to one Man, or a Council of ſeveral Men; and this Council is made up either of all the Members, or of the ſmaller indeed, but the better or ſelect Part. One Species or Form therefore is when the Sovereignty is lodg'd in a Council conſiſting of all the Members, and where every Member has the Privilege of a Vote, and this is call'd a *Democracy*. Another is when the Sovereignty reſides in a Council compos'd of ſelect Members, term'd an *Ariſtocracy*. A third, when the Sovereignty is in the Hands of one Man, call'd a *Monarchy*. *In the firſt, the Sovereign,* ſays *Puffendorf, is ſtyl'd a* People; *in the ſecond,* Senators; *in the third, a* Monarch. *Democracy* has ſomething peculiar in it from other Forms of Government, as indeed each Form has from the other. When a Number of free Perſons aſſemble together in order to enter upon a Covenant about uniting themſelves in a Civil Body, this Preparative Aſſembly has already ſome Appearance of a *Democracy*; properly in this reſpect, that every Man has the Privilege freely to deliver his Opinion concerning the Common Affairs; yet he who diſſents from the Vote of the Majority, ſhall not be oblig'd by what they determine, 'till by means of a ſecond Covenant, a Popular form ſhall be eſtabliſh'd, and the Rights of ſettling Matters, relating to the general Safety, is conferr'd for ever on a general Aſſembly. An *Ariſtocracy* is thus conſtituted, when the Aſſembly who by means of their firſt Covenant united themſelves into the Rudiments of a State, as we may term it, do by common Decree entruſt the Supream Adminiſtration in the Hands of a Council, conſiſting of ſome ſelect Members. *Monarchy* is ſettled when the Sovereign Authority is conferr'd upon one Man. *And,* our Author proceeds, *this is done by means of a Covenant intervening, as we have already ſufficiently demonſtrated againſt Mr.* Hobbs. A *Monarchy* differs from the two former Species of Government in this reſpect, that under them, before any Matter can be debated or determin'd, 'tis neceſſary that certain Times and Places be aſſign'd for this purpoſe; whereas, in a *Monarchy* (at leaſt if ſuch as we term Abſolute) Deliberations may be held, and Reſolutions taken at all Places and Times. A *Monarch* is always furniſh'd with an immediate Power of exerciſing his Sovereign Command. In Bodies Politick, there may be Vices of Men and Vices of State. The Vices of Men, in a *Monarchy,* are when the Sovereign is deſtitute of the Arts of Government, and very little or not at all affected with any Care or Concern for the Common Intereſt, which he proſtitutes to the Ambition or Avarice of bad Miniſters; when he renders himſelf Cruel by Paſſion or Cruelty; when he expoſes the Common-wealth to unneceſſary Hazard; when he waſtes the Publick Revenues or hoards 'em up; when he is notoriouſly abuſive and unjuſt. The

Vices of Men in an *Ariſtocracy* are, when by Corruption and Baſe Acts, Perſons of no Honeſty and no Ability find an Eaſy Admiſſion into the Senate; when Merit is Excluded; when Parties and Factions are Predominant, and Senators are enrich'd at the Expence of the Publick. In a *Democracy* the Vices of Men are theſe; when ſuch as really want Judgment turbulently and importunately maintain their own Opinion; when Extraordinary Vertue, yet not dangerous, is oppreſs'd; when Laws, thro' Levity and Inconſtancy are raſhly made and repealed; when Sordid and Worthleſs Perſons are Entruſted with the Adminiſtration. Thus we ſee there's no Form of Government but what is attended with the General Imperfection of Humane Nature; and this ſhould be a Leſſon to us who live under a Conſtitution that comes neareſt to Perfection, to beware how we endeavour to ſtretch it on either Side beyond its Legal Bounds in hopes of getting nearer it by Change. The *Vices* of a *State* are, when the Laws are not accommodated to the Nature of the People or the Place; when ſo fram'd as to breed Diſtractions, *&c.* As for the Moderns, ſome of them have Invented many Kinds of *Mixt States.* In ſome the Parts of the Sovereign reſide ſeparately and independently in Different, Perſons or Bodies of the ſame Common-Wealth, ſo that each Perſon or Body hold their reſpective Part. In ſome the Sovereign Authority inheres indiviſibly in many together, yet ſo as that neither the moſt Conſiderable Majority without ſome Diſſenting Members, nor indeed all the reſt, when any one of the Members ſtand out, can exerciſe any Part of the Supreme Power: But theſe and other Mixtures may perhaps, where any Regularity is obſerv'd, be reduc'd under one of the Three Capital Forms; where entirely Irregular, we leave 'em to their own Anarchy and Confuſion.

Let us ſay a Word or Two of the Properties belonging to Sovereignty. The Sovereign muſt be acknowledg'd to be Unaccountable, not Obnoxious to Humane Judgment or Puniſhment; for both theſe ſuppoſe a Superior, but a Superior to the Supream in the ſame Order of Men, and the ſame Notion of Government is a Contradiction. I may give Account Two Ways to a Superior, who may reverſe all my Acts, to an Equal whoſe bare Approbation I am willing to obtain. In the former manner Supream Rulers are not Accountable to any Earthly Power; but in the latter way, Princes who are tender of Reputation, commonly endeavour to lay open their Actions and Counſels to the View of the whole World, which being done only to ſecure the Credit of their Reign, cannot imply the leaſt Shadow of Subjection. Tho' Sovereigns are far from Humane Puniſhment *Divine Juſtice*, ſays *Puffendorf, finds many ways of ſhewing itſelf on thoſe High and Potent Princes who violate the Laws of Nature in Contempt of all Earthly Tribunals.* Notwithſtanding his Original Compacts, we find our Philoſopher no ſuch Stanch Republican as ſome may imagine him. He further proves, That he who is Inveſted with the Sovereign Power is above Humane Laws: That a King may be Superior to a whole People, and refutes all the Arguments to the contrary. But then he diſtinguiſhes between Abſolute and Limited Monarchies, and ſeems to attribute all thoſe Boundleſs Prerogatives to the former. He thus defines Abſolute Government: As we cannot conceive in Single Perſons a Higher and more Abſolute Liberty than that they ſhall determine and diſpoſe of their Goods and Actions, not by the Will of another, but by their own Judgment and Pleaſure; yet ſtill with a full Obedience to the Law of Nature: And as this Liberty naturally belongs to all Perſons who are not Subject to the Command of others, ſo where many Men cleave together in one Eſtabliſh'd State, there too as in a Common Subject, muſt neceſſarily reſide the ſame Liberty, or the Power of Chooſing by their own Judgment, all Means and Methods tending to the Preſervation of the whole Society. And this Liberty is attended with an Abſolute Command, or a Right of preſcribing thoſe Means to the Particular Members, and of compelling them to a Due Obedience and Conformity: Therefore, in every State properly ſo call'd, there muſt always be ſuch an Abſolute Authority at leaſt in Habit and Power, if not always in Exerciſe and Act. And that this Abſolute Soveraignty implies nothing that can be term'd Unjuſt or Intolerable, we may eaſily apprehend from the End of Civil Eſtabliſhments. Limited Monarchies need no Explication, the Terms ſufficiently expreſs the Thing. How Monarchial Sovereignty may be acquir'd ſhould come next under our Conſideration, as alſo the way of Acquiring Soveraignty in *Democratical* and *Ariſtocratical* States; but we muſt on this Head referr the Reader entirely to the Original, where he will find how far Government may be Seiz'd on by Juſt Force, and how far Unjuſt; how a Perſon may be releas'd from the Government of another; how many kinds of Election there are; what an *Interregnum* is, and *Inter-reges* are, the Caſe of Poſthumous Iſſue in the Hereditary Line of Succeſſion in a Patrimonial Kingdom, of the ſame in Kingdoms Eſtabliſh'd by the free Act of the People; and this either Simply Hereditary, or Lineal, or Tranſverſe. He aſſerts and demonſtrates that the Supream Power is to be held Sacred in Civil States; ſhews the Duty of Sovereigns; Treats of the Power to direct the Actions of the Subject; of the Power of the Sovereign over the Lives of the Subject for the Defence of the Common-Wealth; over the Lives and Fortunes of the Subject in Criminal Caſes; of the Power of the Sovereign in determining the Value of the Subjects; of the Power of the Sovereign both over the Publick Patrimony, and the Eſtates of Private Subjects; of the Right of War; of Compacts that relate to War; of Compacts that reſtore Peace; of Leagues; of Promiſcuous Compacts of Sovereign Princes; of the Ways by which a Man may ceaſe to be a Subject; of the Changes and Diſſolution of the Common-Wealth. But we cou'd not enter into any of theſe Articles, having already too far tranſgreſs'd our Bounds; we ſhall only obſerve ſomething as to the Changes and Diſſolution of the Common-Wealth, and therein paſs over many Cauſes which he aſſigns, to come to the Laſt. I ſhall make uſe of his own Words; "The Laſt Change by which a Common-Wealth ceaſes to be, happens when the People themſelves are diſſolv'd or deſtroy'd. 'Tis a common

“ Saying, *That Kings are Mortal but Common-Wealths Eternal*; by which it is not meant that 'tis impoſſible that a People ſhou'd ever be ſcatter'd or utterly extinguiſh'd by any Violence or Fatal Period; but that they do not ſuffer any ſuch Decays of Nature, as Particular Men do after certain Courſe of Years; for tho' Individuals change, yet there continues a conſtant Succeſſion of Freſh Supplies, either by a Reſort from the Neighbouring States, or by the Natural Iſſues of Procreation at home; By a continual Courſe of which Succeſſions the People always appear the ſame, and poſſeſs the ſame Rights and Privileges, though the Particular Subjects are frequently chang'd: As *Virgil* ſays of his Bees.

Ergo ipſas quamvis anguſtus terminus ævi
Excipiat, (neque enim plus ſeptima ducitur Æſtas)
At Genus Immortale manet, multoſq; per Annos
Stat Fortuna Domûs, & avi numerantur avorum.

Which Mr. *Addiſon* has thus elegantly render'd.

Tho' Seven ſhort Springs conclude their Vital Date,
Yet by Re-peopling their Decaying State,
Their Ancients Stocks eternally remain,
And in an Endleſs State their Childrens Children Reign.

Natural Philoſophy.

THIS Science call'd alſo *Phyſicks*, is ſo well known in our Times, by the Advantage of many Excellent Treatiſes upon it; and ſo much Improv'd by Modern Diſcoveries and Experiments, that what the Ancients have written upon it, ſhews rather how well they could gueſs than what they knew; and is a plain Evidence of the Weakneſs and Preſumption of Humane Reaſon, for with how much Aſſurance did they aſſert Things for Principles, which we now find to be equally Falſe and Ridiculous, not by the Help of our Reaſon only, but that of Experience, the only ſure Guide. *Rapin* ſays, *All the Power of Ancient Philoſophy was not able to ſettle one Principle of Nature. Thales* maintain'd that Water was the great Source of all Things; *Heraclitus* declar'd for Fire; *Anaximenes* for Air; *Pythagoras* for Numbers; *Democritus* for Atoms; *Muſæus* for Unity; *Parmenides* for Infinity. And under this profound Darkneſs of Natural Things, and this wide Diſtance of Conjectures about them, it was impoſſible to be ſure in the leaſt Particular. *Protagoras* affirm'd, That every Thing was really True that appear'd to be ſo. *Ariſtippus* allow'd nothing to be True but what Men are throughly convinc'd of by the inward Perſwaſion of the Mind. *Chryſippus* declares that the Senſes are always in the wrong. *Lucretius*, that they are always in the right. Quite contrary. Yet both maintain'd with all the Strength and Pomp of Argument. From whence we are taught, that in all Phyſical Diſputes, which are not grounded on *Experiments* or *Mechanicks*, let the Learning of the Diſputants be never ſo Abſtruſe and Extenſive, we of Common Capacity, and as the Scholars term us, *Meer Mortals*, muſt not however be led away by them, or think they are by ſo much the more in the right, by how much the leſs we underſtand them. We ſhould admit of no Syſtem, but upon thoſe Conditions, upon which *Ptolemy* publiſh'd his, that is, only as an Hypotheſis, and without obtruding Authority inſtead of Reaſon and Demonſtration. *Ariſtotle*, of all the Ancients, is he who went fartheſt without the Help of Modern Experiments; and it muſt be granted, that as he has given us a Rehearſal of all that had been propos'd in Phyſicks before his Time, in order to refute it, ſo there has been ſcarce any thing rationally advanc'd in this Science, which did not paſs thro' his Invention, and derive its Principles from his Store. Thus, ſays *Pere Rapin*, in his Phyſicks, and ſhews us what is to be ſaid for, and what againſt *Ariſtotle*'s Natural Philoſophy. Now this Philoſopher being certainly the greateſt of all the Ancients, it will be acceptable to any curious Gentleman, to ſee what Judgment is made of him by Judges.

This then is what our learned Jeſuit ſpeaks in his Favour, at leaſt the Subſtance of it; for we have not Room to give the Whole, which would be more Improving and Entertaining. *Ariſtotle* begins with a kind of Hiſtory of the Opinions of all the Philoſophers before him. His Phyſicks are an Abridgment of thoſe of *Pythagoras, Ocellus, Lucarius, Timæus, Leucippus, Parmenides, Hippocrates, Meliſſus, Democritus*, and the reſt of the elder Sages. He refutes the Notions of *Parmenides* and *Meliſſus*, who held but one Principle, Infinite and Immoveable; and having evinc'd the Abſurdity of *Democritus, Empedocles*, and *Anaxagoras, &c.* he ſubſtitutes his own three Principles, Matter, Form, and Privation, as thoſe by which we may beſt comprehend the Change that is made in all Natural Productions; in which we may always ſuppoſe ſomewhat that receives, and ſomewhat that is receiv'd, or ſome Common Subject of the Form excluded, and the Form admitted in its place. And this is ſo true and certain, that we can form no Idea of a Natural Generation without it. *Plato*, who allow'd of two of *Ariſtotle*'s Principles, Matter and Form, did not diſtinguiſh *Privation* from Matter. And therefore *Ariſtotle*, the Author of the Diſtinction, boaſts of it as his own peculiar Work. What he calls Form, is no more than the Cauſe and Original of the ſeveral Diſpoſitions, Qualities and Operations in every Compound Being, or that which conſtitutes a Thing in its eſſential Perfections. In the firſt Book of his Phyſicks, he refutes the Opinions of the other Philoſophers, and eſtabliſhes his own in their room. In the ſecond Book he diſcourſes of Nature, and ſtates the true meaning and import of that Term. In the Third, Fourth, and Fifth, he treats of the Diviſion of Cauſes, of Motion and Place, and the Affection of Natural Bodies. In the Sixth, he explains the Nature of Quantity. In the Seventh Book he ſettles the Doctrine of a firſt Mover. And in the Eighth he diſcourſes of Time, the Natural Rule of Meaſure and Motion. He deſcribes the Heavenly Bodies, their Matters or Subſtance, their Qualities, Motion, Situation, and Figure, and all that relates to the Syſtem of the World, in his Firſt and Second Book *de Cœlo*. In the Third and Fourth, he treats of the Gravity and Levity of the Heavenly Bodies, and of the different Opinions of the Ancients on that Subject. In his Firſt Book of Motion he repreſents thoſe that are produc'd in the Air. In the Third and Fourth, thoſe that are generated in the Earth and Sea; here alſo he treats of Winds, Thunder, Lightning, Exhalations, the Rainbow, and the *Parhelia*. In the Fourth, of Heat and Cold, Dryneſs and Moiſture; of Putrefaction, and of Salts; of the various Qualities of mix'd Bodies; their Compoſition and Temperament. In his Three Books of the Soul, he explains all that belongs to its Nature and Operations, whether in reſpect of the outward Senſes, or of the inward Faculties. In his Book of *Parva Naturalia*, he enlarges on the Subject of Senſation, Memory, and Reminiſcence; of Sleeping, Waking, Dreams, Prognoſticks of Dreams; of the Motion of Animals, their Gate and Pace; of the length and ſhortneſs of Life; of Reputation; of Health and Sickneſs. Having not read *Ariſtotle's* Phyſicks, we cannot tell what Reaſons he gives us for bringing Reputation into Natural Philoſophy, which certainly belongs to Ethicks. We deſire the Reader wou'd not take this Confeſſion of ours ill, that we never read *Ariſtotle's* Philoſophy, and yet talk ſo much of it: For *Rapin*, who had read him, furniſh'd us with what is ſaid of it, and his Authority is of much more weight than ours. The *Hiſtory* of *Animals* is *Ariſtotle's* Maſter-Piece; he repreſents their different Species, he examines their various Ways of Multiplication, and enriches the Whole with a vaſt Number of Experiments and curious Diſquiſitions; among which, upon a cloſer View, we may perhaps obſerve the firſt Lines of all the famous Diſcoveries ſo much boaſted of by Modern Philoſophy. We might here mention his Books of Colours, Phyſiognomy, Mechanick Queſtions, Problems, Plants, of Generation and Corruption, *De Mundo*, compos'd for the Uſe of *Alexander*, &c. Upon the whole, the Critick ſays *Ariſtotle's* Natural Doctrine is the moſt Ample and Extenſive that ever appear'd in the World, nothing having eſcap'd ſo vaſt a Genius, which ſtretch'd it ſelf to the univerſal Compaſs of Beings.

What may be ſaid againſt this Natural Philoſophy, is to this Effect in our Author. His Phyſicks are confus'd, without Natural Order and Dependance. The *Materia Prima*, and bringing Forms out of this Matter, extreamly difficult to our Apprehenſion. The whole Treatiſe of Motion, dark. His Arguments to prove it Eternal, unintelligible. His Explication of Comets and the Rainbow, not true in all its Circumſtances. The Situation he gives the Element of Fire, has no manner of Foundation. His pretending the Eaſt uninhabitable under the Equinox, contradicted by Experience, which dreadful Thing will perhaps in time contradict all the Opinions that are not founded upon it, or Demonſtrative Reaſon. What have *Patricius*, *Ramus*, *Gaſſendus*, made of *Ariſtotle's* Phyſicks? What would *Newton* or *Leibnitz* make of 'em, who know much more of the Matter than *Rapin*? Whoever will give themſelves the Trouble to compare Sir *Iſaac Newton's* Book of Colours with *Ariſtotle's*, will doubtleſs find a vaſt difference between the Science of the Men, in this part of Learning at leaſt.

In this little Eſſay we could not talk of the *Egyptians*, *Chaldæans*, and *Ethiopians*, who all are ſaid to have made ſome Progreſs in Natural Philoſophy; and indeed, if we had had more room, it would have been to little purpoſe to have ſaid any thing of what is ſo little known. We are told the *Aſſyrians* were great Aſtronomers. The *Ionick* Philoſophers great Naturaliſts, as were *Democritus* and *Empedocles*. *Plato* borrow'd his Phyſicks from *Pythagoras*. *Theophraſtus* wrote well on Plants. *Zeno* eſtabliſhes two Principles, God and Matter; he ſuppoſes a Soul of the World, diffus'd in all its Parts, and informing it as one great Animal. *Epicurus* builds on the Principles of a *Vacuum* and Atoms. The *Greeks*, as they were Maſters of all the Parts of Learning, ſo they poſſeſs'd this in a ſovereign Degree, in Compariſon with the reſt of the World. The *Romans* ſcarce made any Efforts in Natural Philoſophy. *Lucretius* is founded on *Epicurus*. *Seneca* affects to Moralize, when he ſhould be only Natural. No Latin Author has written ſo largely and elegantly of Phyſicks as *Pliny*. *Plutarch*, *Dioſcorides*, *Ælian*, and *Solinus*, improv'd Phyſicks by their Studies. *Galen* form'd his Syſtem of Nature upon the Model of *Hippocrates*. The learned Men in the following Ages were divided in their Opinions in favour of *Plato* and *Ariſtotle*, particularly the two *Arabians*, *Avicenna* and *Averroes*. The major part of the School-men embrac'd the *Ariſtotelian* Syſtem. And thus we have gone lightly thro' the Ancient to the Modern Natural Philoſophy, of which *Galilæo* of *Florence* is reckon'd the Founder. He found out the Proportion of the Vibrations of Pendulums, and the Acceleration of the Motion of heavy Bodies in their Deſcent, the Principles of which Doctrine he borrow'd from *Ariſtotle*. He reform'd and enrich'd *Copernicus's* Syſtem of the World; and by the Uſe of the Teleſcope diſcover'd many new Stars; obſerv'd the Spots in the Sun; found out Mountains and Vallies in the Moon; and diſtinguiſh'd the *Phaſes* of the Planet *Venus*; he ſhew'd a great Force in all his Reaſonings upon the Idea of that new Motion which he invented; he was in ſome Trouble with the Inquiſition, about his Phyſical Diſcoveries; the Inquiſitors, generally ſpeaking, being ſo Ignorant, that they are apt to miſtake Science for Hereſy. We come now to a Country-man of our own, and being always glad of opportunities to do Juſtice to the Merit of an *Engliſhman*, ſhall, out of the Mouth of a Foreigner and a *Frenchman*, ſpeak next of my Lord *Verulam*. *Pere Rapin* ſays, "Nor did *Bacon* leſs revive the Love of Philoſophy in *England*; he had a vaſt and comprehenſive Genius for the Study of Nature, but ſucceeded in no part better than in his Hiſtory of the Winds, tho' he appears ſometimes too eaſy and credulous in admitting the Memoirs that were ſent to him on that Subject." This learned Jeſuit, by his Character of a Critick, cannot give a Character without a *But* or a *Tho'*. 'Tis below a Man of that Profeſſion, to allow any kind of Perfection in Writers; and the greateſt part of 'em fanſie they who come neareſt to it, are thoſe who can find out moſt Faults; they look upon themſelves always when they would contemplate ſomething Perfect, and if all the Criticks abroad were like ours in *England*, they are leaſt likely to find it where they ſeek for't. To proceed with our Author and the Lord *Bacon*, "The reſt of his Phyſicks is not of the ſame Strength and Accuracy, yet he always ſhews ſome ſtrokes of his Genius and Character. His Writings contributed very much to the engaging his Country-men in Natural Purſuits, who have in great Numbers imitated his Paſſions for Nature, and have carry'd experimental Knowledge to a high and flouriſhing Condition." *Viviani* of *Florence*, who was *Galilæo's* Diſciple, wrote excellently well of Motion.

Gaſſendus reſtor'd *Epicurus's* Theory, and improv'd it, and manag'd it by *Galilæo's* Doctrine of Motion: In all other reſpects he is an *Epicurean*, ſoften'd and mitigated by Principles of Conſcience: He acknowledges the Creation of Atoms, which *Epicurus* deny'd: He maintains, That they receive from God their Motion, Extenſion, and Figure; all which *Epicurus* would have to be Eſſentially and Originally in themſelves: He aſſerts a Providence which that Philoſopher excluded from his Syſtem. In a Word, he makes *Epicurus* an Honeſt Man, being, ſays our Critick, really ſuch himſelf: He charges *Ariſtotle* with Ignorance, Folly and Extravagance. *Van Helmont* allows nothing to be Rational in *Ariſtotle*'s Syſtem, but his Judgment is not much valu'd by the Learn'd. We ſhall ſay nothing of *Campanella*, *Teleſius*, *Gilbert*, *Fromondus*, *Borellus*, &c. becauſe *Rapin* has given us an Occaſion to employ our Pen better, on ſuch as are more agreeable to our Inclination and Curioſity. " *Harvey*, according to this *Great Critick*, " has Reaſon'd with the Greateſt " Judgment on the Progreſs of the Generation of " Animals, and on the Circulation of the Blood; " *Willis* has written beſt of the Brain and its Parts; " *Grew* of the Anatomy of Plants. *Thomas Hobbs*, " in his Phyſicks has ſhewn a Depth of Wit; but " as he is the boldeſt and moſt thorough-pac'd " *Epicurean* of theſe latter Times without any Mi- " tigation or Allay, ſo he has reaſon'd very ab- " ſurdly as to the Nature of the Underſtanding and " its Principal Operations, which he referrs wholly " to the Fancy and Imagination. *Boyl* has a True " and Rational Genius, and has very much enrich'd " Natural Philoſophy by his Experimenss and Re- " marks, ſuch as are always Solid and well Ex- " pounded." What wou'd an Author have ſaid of the many Great Men which *England* has produc'd ſince of a Superiour Character, even to our Illuſtrious Country-men before-mention'd; as *Wilkins*, *Halley*, *Whiſton*, and Him of whom never enough can be ſaid, Sir *Iſaac Newotn*. We ſhould now ſpeak of *Deſcartes*, but ſhall omit it in this Place, becauſe it will come more naturally when we Treat of the *Carteſian* Philoſophy.

Father *Rapin* has a mean Opinion of the Chymiſts. He tells us they have advanc'd nothing Good in the Doctrine of Nature, and are a ſort of Separate Traders in Philoſophy, who not being able to embrace it in its full Extent and Compaſs, have choſen a Bounded Subject to Exerciſe a Limited Genius. Indeed he can hardly give 'em a better Name than that of *Diſtillers*, whoſe Trade is by no means Honourable enough to deſerve a Place with the Sciences; ſo we ſhall leave them and their Brethren, as alſo the Cabaliſts and Judicial Aſtrologers, than which nothing can be more abſurd; wherefore it will not be expected that much ſhou'd be ſaid of them. what follows in our Author is remarkable to us *Engliſh-men*. This I cannot excuſe my ſelf from ſaying, That the Royal Society for Improvement of Natural Knowledge in *England*, &c. have ſo happily reviv'd the Love of Natural Philoſophy in the Preſent Age, that there's ſcarce any Study more in Requeſt. There have been more Diſcoveries made in Phyſicks within this Sixty Years, than had been done in Two Thouſand Years before: They have found out the way to diſtinguiſh the ſeveral Affections of the Air, by the *Thermometer*. They have made new Deſcriptions of the Body of the Moon by a Chart repreſenting its Monthly Phaſes with the Variety of Appearances that are caus'd by the Shade of its Eminent or Depreſt Parts reſembling our Mountains and Valleys. They Calculate the Revolutions of the Stars with as much Exactneſs as the Movement of a Watch or the Stroke of a Dial, and have found out ſome ſort of Irregularity in the Heavenly Bodies, the moſt Regular Works of Nature. *The World*, as this Elegant Jeſuit expreſſes himſelf, *ſeems to have chang'd its Face; the Heavens to roul upon other Principles and new Syſtems; the Air has been more clear and illuminated by the Doctrines of Meteors; the Sea has been render'd more free and eaſy to Commerce by the Improvements of Navigation; the Earth has been laid open to our View by the Perfect Knowledge of Simples and Compounds, of Salts and Minerals, and all the Circle of Arts has been enlarg'd and ennobled by uſeful Inventions,* &c. *What ſhall I ſay of the New and Excellent Diſcoveries of the Secret Springs of Nature; the Circulation of the Blood; the Contexture of the Brain, and the whole Oeconomy of Humane Bodies, or of thoſe Surprizing Wonders diſplay'd in the ſmalleſt Inſects or Flies!* Theſe Wonders of Flies are a Diſcovery which the *Engliſh* may pretend to as much as any People in the World; but perhaps there have been ſome who have with too much Paſſion purſu'd their Inquiries into Flies, Maggots, Cockle-ſhells, Dirt, *&c.* and neglected Sublimer and more Uſeful Studies. This Vicious Taſte is like that of the Green-Sickneſs; it flies wholſome and generous Food, and ſeeks after Chalk, Mud-Walls, Tobacco Pipes, *&c.* Whatever great Genius a Man may have in Reſearches of this Kind, if they are his Principal Study, there's as much Difference between him and a True Philoſopher as between an Inſect and an Animal. *Rapin* ſpeaking of the many Curious Diſcoveries before-mention'd, proceeds; *Upon theſe the* Engliſh *have lately Publiſh'd a Large Volume full of Curious Obſervations, hitherto in a manner unknown to the World. If they go on with equal Vigour in their Remarks upon Particular Nature, they will be able in a little time to give us a Second Volume of Natural Hiſtory, worthy to be added as a Continuation of that of* Pliny. This ſaid by a *French-man* is enough to animate the *Britiſh* Philoſophers in theſe Purſuits. What, tho' *Wilkins* is dead; tho' *Wallis* is gone after him; tho' *Ward*, *Boyle*, and thoſe Great Genius's are no more Living, but in their Immortal Works; Why may not the *Royal Society* hope to ſee others in their Room, and extend their Diſcoveries as far as Reaſon and Nature can go. The *Britiſh* Soil is not ſo Poor but it will bear more than one Crop; if it lies fallow a while, the Harveſt is afterwards the richer for it.

We ſhall Cloſe this Introduction to our Phyſicks with a Reflection of *Pere Rapin's*, on the Liberty taken by Philoſophers in their Natural Philoſophy, by extending the Power of Nature beyond thoſe Bounds which the Author of Nature had preſcrib'd. *Alcuindus* wrote a Treatiſe to prove that all thoſe Effects reſult from Material Nature, which are commonly attributed to Spirits above Nature; that is, to Angels or Dæmons. Thus *Peter d' Apono* and *Pomponatius*, Two Great Patrons of Nature attempted to demonſtrate, that whatever paſſes the Courſe of Sublunary Things is owing to the Impreſſion of the Heavenly Bodies. *Galen* aſcrib'd all to Complexion and Conſtitution; *Albertus Magnus* to the Specifick Form; *Marcellus Ficinus* to the Planets. *Montaigne* often commences Infidel, that he may appear Eaſy and Natural, and is the more dangerous with reſpect to Religion, the more he affects to ſeem unconcern'd about it. Our Author having touch'd on *Deſcartes*, proceeds thus; " An *Engliſh* Profeſſor [Dr. *More*,] has lately " ſhewn this whole Syſtem of Philoſophy to be " very prejudicial to Religion in attributing all " Effects to Art and Mechaniſm. And indeed, ge-

“nerally ſpeaking, Natural Knowledge, in Conjunction with Phyſick, Aſtronomy and Chymiſtry, is apt ſo to tie Men down to Viſible Nature, as that they cannot aſcend to the Author and Maker of it. It gives too much to Senſe to be able to get above the Power and Sphere of Senſe, *&c.* Let us contemplate Nature with Modeſty and Caution with all Reverence: Let us not be too Bold in pronouncing upon thoſe Operations which we ought not to be Judge of without Trembling.” Thoſe who will carry theſe Reflections along with them in their Studies of Natural Philoſophy, will, inſtead of Corrupting, Confirm their Belief of One Infinite Omnipotent Creator; and ſuch as are fully and heartily convinc'd of this Important Truth, will be in a good Diſpoſition to ſeek him out in his Revelation. Young Scholars and Men of looſe Morals are apt to catch at every Thing extraordinary in Nature to magnifie its Excellence, and ſet it in the Throne of the Almighty: But they catch at Shadows; and when Reaſon and Vertue have operated upon them, they find there's nothing left but a Poor, Short, Finite Capacity, which, far from being able to comprehend Infinity, is ignorant ſtill of an Infinite Number of the Effects of Nature. The following Eſſay is taken from the Beſt Authority, and will, we hope, be ſufficient to let Gentlemen as far into Phyſicks as they are willing to go for their *Recreation* only.

N*Atural Philoſophy* is the Speculative Knowledge of all Natural Bodies; and of their Proper Natures, Conſtitutions, Powers, and Operations. The *Object* of it is a Natural Body.

Natural Philoſophy is either

General, which relates to the Principles, Properties, or Affections of Body in General. Or

Special and *Particular*, which conſiders Matter as form'd or diſtinguiſh'd into ſuch and ſuch Species, or determinate Combinations.

The Principles of a Natural Body are *Matter* and *Form*. *Matter* is the common Subject of all Bodies, out of which, by the different Modificatious *Motion* makes in it, all Forms ariſe. And therefore, in order to a better underſtanding of theſe Principles, we will firſt conſider *Motion*.

Motion is a continual and ſucceſſive Mutation or Change of Place. All Motion may be conſider'd either *abſolutely* or *relatively*. *Abſolute Motion* is the Change of the *Locus Abſolutus* of any Body, and therefore its Celerity will be meaſur'd by the Quantity of the Abſolute Space which the Moveable has run thro'. But *Relative Motion* is the Mutation or Change of the *Relative* or *Vulgar* Place of the Moving Body, and ſo hath its Celerity accounted or meaſur'd by the Quantity of *Relative Space* which the Moveable runs thro'.

The Incomparable Sir *Iſaac Newton* has reduc'd all the Laws of Motion to theſe Three.

1. That every body will continue in its State, either of Reſt or Motion uniformly forward in a Right Line, unleſs it be made to change that State by ſome Force impreſs'd upon it.

2. That the Change of Motion is proportionable to the moving Force impreſs'd; and it is always according to the Direction of that Right Line in which the Force is impreſs'd.

3. That Re-*Action* is always equal and contrary to *Action*; or which is all one, the Mutual *Actions* of Two Bodies one upon another are equal, and directed towards contrary Parts: As when one Body preſſes and draws another, 'tis as much preſs'd or drawn by that Body.

The Quantity of any Motion is diſcoverable by the joint Conſideration of the Quantity of Matter in, and the Velocity of the Moving Body: For the Motion of any whole, is the Sum of the Motions of all its Parts. And conſequently, if a Body be twice as great as another, and be mov'd with an equal degree of Swiftneſs, the Quantity of Motion is *double* in the former; but if the Swiftneſs be alſo *double*, then the Quantity of the Motion is Quadruple of that of the latter.

Matter is an Impenetrable, Diviſible, and Paſſive Subſtance, extending into Length, Breadth, and Thickneſs. This, when conſider'd in the General, remains the ſame in all the various Motions, Configurations, and Changes of Natural Bodies, being capable of putting on all manner of Forms, and of moving according to all manner of Directions and Degrees of Swiftneſs.

The Quantity of Matter in any Body, is its Meaſure, ariſing from the Joint Conſideration of the *Magnitude* and *Denſity* of that Body. As if any Body be twice as *denſe* as another, and take up *twice the Space*, 'twill be four times as great. This Quantity of Matter is beſt diſcoverable by *Weight*, to which it is always proportionable; as the Excellent Sir *Iſaac Newton*, by moſt accurate Obſervations on Pendulums, found true by Experience.

Dr. *Woodward* aſſerts matter to be originally and really very different; being at its firſt Creation divided into ſeveral *Ranks*, *Sets*, or kinds of *Corpuſcles*: That all the *Corpuſcles* which are of the ſame *Kind* or *Set* agree in every thing, and are moſt exactly like unto one another in all reſpects. But thoſe that are of *different Kinds*, differ from one another every way, as well in *Subſtance*, in *Specifick Gravity*, in *Hardneſs*, in *Flexibility*, and in ſeveral other ways; as in *Bigneſs* and *Figure*. And he ſuppoſes from the various *Compoſures* and Combinations of theſe Corpuſcles together, happen all the Varieties of the Bodies form'd out of them; and all their Differences in Colour and outward Appearance, in Taſte, in Smell, in Hardneſs, in Specifick Gravity, and in all other reſpects.

The *Form* of any Natural Body, is the Eſſential, Specifical, or diſtinguiſhing Modification of the Matter of which it is compos'd, ſo as thereby to give it a peculiar manner of Exiſtence: And this is an Aggregate or Convention of as many particular Qualities, as ſerve to denominate the Body of ſuch a Nature, and to give it ſuch a Name, and which diſtinguiſhes it from other Bodies. Thus the Qualities of greateſt Specifick Gravity, Fixity in the Fire, Ductility under the Hammer, Fewneſs and yet Largeneſs of of Pores, Diſſolubility in *Aqua Regis*, and not in *Aqua Fortis*, and Yellowneſs of Colour, make up the Form of that Metal which they call Gold; ſo that 'tis not any kind of Subſtantial Soul or Subſtance diſtinct from Matter, but only ſuch a proper and agreeable Convention of Accidents, as by common Conſent are reputed ſufficient to make a Portion of Univerſal Matter, belong to this or that determinate Species of Natural Bodies. But yet ſome are of Opinion, that the Humane Soul may properly enough be called, a *Subſtantial Form.*

The *Properties* or *Affections* of a Natural Body are either

Inſeparable,
Separable.

Inſeparable are
Extenſion,
Diviſibility,
Place,
Time.

Extenſion is the moſt General and Eſſential Property of a Natural Body; and the Followers of *Des Cartes* are ſo fond of it, that they place the very Eſſence of Matter in it; becauſe they can have no other *Idea* of Extenſion but ſuch as is proper to a Body, ſince where-ever there is Extenſion, a Body muſt of Neceſſity be there. But whether Extenſion cannot be conceiv'd without including the Idea of a Body, Philoſophers are ſtill in Doubt: So that tho' it were allow'd to be a juſt Inference that we cannot conceive Extenſion without the Incluſion of a Body; yet we cannot draw this Conſequence from it, That Extenſion is a Body.

Diviſibility, is that Diſpoſition of Body, whereby it is conceiv'd to have Parts into which it may actually or mentally be divided. All Quantity is infinitely or rather indefinitely diviſible; for ſhou'd it be otherwiſe it would be diviſible into Parts that are not *quantæ*, which cannot be; for no accidental Change can deſtroy the Eſſential Properties of any Being. Yet this Infinite Diviſibility can never actually be effected, becauſe when you have divided a Line or any other Quantity into any other Number of Parts, every one of theſe Parts is further diviſible into as many Parts as the whole was, and ſo on; as is many ways demonſtrable in *Geometry*. Wherefore there can be no ſuch Thing as a determinate number of actual Parts in any continu'd Quantity; which is further alſo demonſtrable from the Conſideration of incommenſurable Quantities.

That the Parts of Solid Bodies are almoſt infinitely ſmall, and that they are capable of being divided wonderfully minutely, the Honourable Mr. *Boyle* ſhews by theſe Inſtances.

1. A Piece of Silver Wire was drawn ſo ſmall, that the Weight of but one Grain wou'd reach to 27 Foot or 342 Inches in Length; and ſince an *Engliſh* Inch can eaſily be divided into 200 equal Parts, one Grain of this Wire may be divided into 64800 Parts. And ſince this Diviſion relates only to the Surface of the Wire, its Solidity may eaſily be conceiv'd to conſiſt of many Millions of ſuch Parts.

2. One of the Oval Caſes of Silk-Worms was drawn out into a Length that much exceeded 300 Yards, and yet weigh'd but Two Grains and an half; ſo that each Cylindrical Grain of that Silk was at leaſt 120 Yards in Length.

3. A Grain of Leaf-Gold was extended into an Area of above 50 Inches, and then ſuppoſe the Area reduc'd to a Square, and the Sides divided after the manner before mention'd, *i. e.* ſo that there be 200 Diviſions in an Inch: If Parallel Lines be ſuppos'd to be drawn thro' thoſe ſubtile Diviſions, the Area will be divided into no leſs than Two Millions of little Squares.

4. If you ſuppoſe the Silver-wire mention'd above to be gilt with Gold (and allow for the gilding eight Grains of Gold to one Ounce of Silver, which is yet more than is commonly us'd) you will find an Ounce of Gold may cover as much Wire as will reach One Hundred Fifty-five Miles and half in length.

5. By diſſolving one Grain of crude Copper in a good Portion of Spirit of *Sal Armoniack*, a deep blue Colour was produc'd; and after this a good Quantity of diſtill'd Water was put to it, yet ſo as that the blue Colour did ſtill remain viſible; and on comparing the weight of the Liquor with the Grain of Copper firſt diſſolv'd, it was found, that a Grain was capable of imparting a ſenſible Colour to above 513620 times its bulk of Liquor.

Place is uſually diſtinguiſh'd into

Internal, which properly ſpeaking, is that Part of Space which any Body takes up or fills.

External, which, according to *Ariſtotle*, is determin'd by the Surfaces or Confines of the adjoyning or ambient Bodies. But it is better divided into *Abſolute*, which is the former *Internal* Place; and into *Relative*, which is the apparent, ſecundary, or ſenſible Poſition of any Body, according to the determination of our Senſes, with reſpect to other contiguous, or adjoyning Bodies.

Time, is a certain Meaſure depending on the Motion of the Luminaries, by which the diſtance and duration of things is meaſur'd; and is either *Aſtronomical*, which is taken from the Motion of the Stars; or *Civil*, which is Aſtronomical Time, accommodated to vulgar uſes. *Aſtronomical*, *Mathematical*, or *Abſolute Time*, flows equally in it ſelf without relation to any thing External. But *Relative*, *Apparent*, or *Vulgar Time*, is the ſenſible and external Meaſure of any duration eſtimated by Motion, and this the vulgar Uſe, inſtead of true Time.

Separate Qualities or *Affections* of a Body are *Heat*, *Cold*, *Fluidity*, *Firmneſs*, *Rarefaction*, *Denſity*, *Light*, *Colours*, *Sound*, *Taſte*, and *Smell*. To theſe may be added *Gravity* and *Magnetiſm*.

Heat conſiſts only, or at leaſt chiefly, in the local Motion of the ſmall Parts of a Body mechanically modify'd by certain Conditions, of which the Principal is the vehement and various Agitations of thoſe ſmall inſenſible Parts. In which Deſcription it plainly appears there are theſe three Conditions neceſſary to produce *Heat*.

1. That the ſmall Parts be vehemently and rapidly agitated, or mov'd in a much greater degree than is neceſſary to produce the Quality call'd *Fluidity*.

2. That the Determinations of the inſenſible Corpuſcles thus vehemently agitated, be alſo very various; ſome moving up, ſome down, ſome to the right-hand, others to the left, *&c.* And hence, tho' Air and Water are, we find, often very vehemently mov'd, as in Tempeſts and Cataracts, yet there is no reaſon to expect that they ſhould grow hot upon this Motion; becauſe the *Vehemency* belongs to the progreſſive Motion of the whole Body; and notwithſtanding that, yet the Parts it conſiſts of, may not in any thing near be ſo much quicken'd in their Motions made according to other various Determinations, as to grow ſenſibly hot; but in Bodies very hot or enkindled, the rapid Motion of

the inſenſible Parts ſeems to have all manner of Directions, and to be darted round in a kind of burning Sphere, all manner of ways.

3. 'Tis requiſite alſo to the Production of Heat, that the thus variouſly and vehemently agitated Particles, be alſo ſo ſmall, as generally ſpeaking, to be ſingly inſenſible. For unleſs they are exceeding fine and ſubtil, they cannot penetrate readily into the Pores of contiguous Bodies, and ſo warm or burn them.

As to the Operation of Heat upon our Senſes, the reſult of which we often call Heat, it is uſually eſtimated by its relation to the Organs of our feeling; for we don't eſteem any Body to be hot, unleſs the Motion of its ſmall Parts be violent or briſk enough to encreaſe or ſurpaſs that of the Particles of the Organ. For if it be more languid in the Object than in the Sentiment, we pronounce the Body to be cold; but if it be more violent in the Object than in the Sentiment, we ſay, the Body is hot; as, any one may experiment by putting his Hand cold into warm Water; for then the Water will appear warm to him, whereas, had his Hand been hot, it would have felt cold.

Cold, is nothing but the arriving of the Minute and inſenſible Parts of a Body, at ſuch a ſtate, as that they are more ſlowly or faintly agitated, than thoſe of the Organs of feeling; for from this Effect we pronounce a Body to be cold.

Mr. *Hobbs* thought the cauſe of Cold to be only a Wind raking the condens'd or frozen Body.

Whether Cold be barely a Privation of Heat, or rather a ſtop put to that violent, tumultuary Motion of the inſenſible Particles of Bodies, as the *Carteſians* aſſert; or whether Cold be introduc'd by the entrance of Adventitious Particles, actually cold themſelves, and therefore call'd *Frigorifick Particles*, according to the Opinion of the learn'd and ingenious *Gaſſendus*, is a Controverſy not ſo eaſy to be determin'd, as at firſt ſight it may appear. For tho' the *conſiderable Increaſe of the Dimenſions* of the ſame Quantity of Water when turn'd into Ice; and the *prodigious force of Freezing*, by which Water may be made to lift up vaſt weights, and to break to pieces ſome of the ſtrongeſt Bodies that are; and alſo ſince it is true, that a briſk, nay, furious Agitation of the ſmall Parts of a Mixture may be produc'd, and yet on the Conflict the Mixture will become not only *not hot*, but ſenſibly and conſiderably *cold*; tho' theſe ſeem to bid very fair for a Proof of *Gaſſendus*'s Opinion; yet on the other hand 'tis certain, that a *bare Privation of Motion*, will produce or rather occaſion Effects, as conſiderable as any of thoſe of *Cold*; as the Excellent Mr. *Boyle* largely ſhews in his Dialogue about the *Poſitive* or *Privative* Nature of *Cold*. And if it ſhould be ask'd how the Frigorifick Particles themſelves became cold? What degree of Gravity or Levity they have? What kind of Structure in them is proper to produce ſuch an Effect? Whether there was not Cold in the World 'till theſe *Frigorifick Particles* were produc'd? And whether they are Primitive Bodies or not? If theſe or ſuch like Queries were made about the Nature and Circumſtances of the Frigorifick Particles, it would, I believe, puzzle the Maintainers of the Opinion of *Gaſſendus* to give ſatisfactory Anſwers to them; and therefore the Deciſion of this Point muſt be ſuſpended further.

Mr. *Boyle* found, that tho' *Water* uſually *Expands* it ſelf, yet 'tis always firſt *contracted* or *condens'd*; and that Spirits of Wine, common expreſs'd Oyl, and chymical Oyl of Anniſeeds, it ſelf, will be notably condens'd when expos'd to an intenſe degree of Cold. And he found that no other Liquor but Water, or one in which there are ſtore of watry Particles, will ever be expanded by Cold. The reaſon of which perhaps may be, that Water contains more Air in its Pores than any other Fluid, and 'tis not improbable, that from the Co-aleſcence of many of the Aerial Particles into one during the Action of freezing, their Spring may by that means be encreas'd; and this ſeems to be evident from thoſe numerous and large Bubbles we obſerve in Ice, which occaſion it to be ſpecifically lighter than Water.

The *Expanſive force of Cold* is ſo great, that if the Barrel of a Gun be fill'd with Water, and then have its Muzzle and Touch-hole well ſtop'd, the Water within the Barrel, when either by natural Cold or a freezing Mixture is turn'd into Ice, will break the Barrel in ſeveral places, as Mr. *Boyle*, and many others have try'd.

That notable Philoſopher contriv'd ſeveral Experiments to eſtimate or meaſure the Quantity of this *Expanſive force*, which were made with a Braſs Cylinder, of two or three Inches in Diameter, into whoſe Cavity was put a Bladder fill'd with Water, and ſtrongly ty'd about the Neck, and over it was put a wooden Plug to ſtop the upper Orifice of the Cylinder, and on the Plug was put a broad flat Board, on which was laid as much weight as one time amounted to above an hundred Pounds; another time to above an hundred and twenty Pounds; and another time to two hundred and fifty four Pounds; and yet in all the Experiments, when the Water in the Bladder was turn'd into Ice, it Expanded ſo as to raiſe up all this Weight very conſpicuouſly, as appear'd by a Circle deſignedly made on the wooden Circle.

He tells us alſo, that by mingling together three ſaline Bodies, each of them purify'd by the Fire, tho' there aroſe a very great Commotion, Hiſſing, and Exploſion, yet a very conſiderable degree of Cold was thereby produc'd; and tho' he was under an Obligation of not diſcovering what theſe Ingredients were, yet he gives a *Succedanium* to that Experiment, by telling us, that by putting good Salt of Tartar into Spirit of Vinegar, there were a Struggle, Commotion, and Hiſſing; and yet inſtead of Heat, as is uſual in ſuch caſes, a very ſenſible degree of Cold was produc'd.

Sylvius alſo acquaints us with a Method of producing Cold by mingling Spirit of Vitriol, with another ſaline Spirit.

If into three or four times its weight of Water, you put about half a Pound of *Sal Armoniack* well powder'd, and ſtir it about to haſten the Diſſolution, ſo great a degree of Cold will, even in the heat of Summer, be produc'd, as is very ſurprizing; for if you nimbly ſhake it, or ſtir it about, it will produce actual Ice on the outſide of the Glaſs, if you purpoſely wet it with Water. This noble Experiment Mr. *Boyle* firſt made, and thereby plainly prov'd the mechanical Producibleneſs of Cold; and the Experiment may be of great uſe to cool Wine, &c. in the hot Months, or in ſuch Places where no good Cellarage is to be had. The *Sal Armoniack*,

niack, by evaporating the Water from it, may be recover'd again, and will ſerve many times for the ſame Experiment.

Neither *our Senſes*, nor common *Weather-Glaſſes*, can enable us to make an accurate Judgment of the degree of *Cold*.

For as to *our Senſes*, the Organs of feeling are in a continual State of Mutability, and that (in general) appears cold to us which hath its parts leſs mov'd than thoſe of our Hands or Bodies; and therefore if one hand be very cold, and the other moderately warm, the ſame Water will appear *warm* to the *cold*, and *cold* to the *warm* Hand.

As to common *Weather-Glaſſes*, ſome part of the Liquor being contiguous to the open Air, the Weight and Preſſure of the Atmoſphere have ſo great an Effect on them, that their riſing and falling depend more on that than on Heat and Cold, and therefore they will often miſinform us.

Fluidity ſeems to conſiſt in this, that parts of any Body being very fine and ſmall, are ſo diſpos'd by Motion and Figure, as that they can eaſily ſlide over one anothers Surfaces, all manner of ways. It ſeems requiſite alſo, as Mr. *Boyle* obſerves, that they ſhould be variouſly and ſeparately agitated to and fro, and that they ſhould touch one another, but in ſome parts only of their Surfaces. And that learned Gentleman, in his Hiſtory of Fluidity, intimates, that the Conditions requiſite to conſtitute a fluid Body are chiefly theſe three.

1. *Littleneſs of its Parts.* Thus we ſee Fire, by dividing Metals into parts very fine and ſmall, will melt them, and make them fluid.

2. It ſeems requiſite to Fluidity, that there be ſtore of vacant places interſpers'd between the Corpuſcles of the fluid Body; for elſe there will not be room for each Particle to continue its Motion and Agitation on the Surface of the Neighbouring ones. For,

3. The chief Condition requiſite to conſtitute a fluid Body is, That its Particles be agitated variouſly, and apart, either by their own proper Motion, or by ſomething of Subſtance which tumbles them up and down by its Paſſage thro' them. That this Qualification chiefly is requiſite to Fluidity, you may gather from that common Experiment, of putting of Powder of Alabaſter, or of common Plaſter of *Paris*, finely ſifted, in a flat bottom'd Veſſel over the Fire; for in a little time the Powder will boil like Water, and imitate all the Motions of a boiling Liquor; it will tumble variouſly over in great Waves like that, it will bear ſtirring with a Stick or Ladle like that, without reſiſting, as it will do cold; nay, if you ſtir it ſtrongly near the ſide of the Veſſel, its Waves will apparently daſh up againſt the ſides; but yet if you take any of it out, and lay it ſpeedily on a piece of white Paper, you will ſee 'tis nothing but a dry Powder.

So that from hence 'tis plain there is a real difference between a *fluid Body* and a *wetting Liquor*: For not only this boiling Powder, and melted Metals, but the Air, Æther, and even Flame it ſelf, are properly fluid Bodies, tho' not moiſt Liquors.

Dr. *Hook* has a pretty Experiment or two to prove this Account of *Fluidity*, viz. that if a Diſh of Sand ſet on a Drum-head briskly beaten with the Sticks, or on the upper Stone of a Mill, running ſwiftly round, or the (empty) lower one, it will in almoſt all reſpects emulate the Properties of a fluid Body. For a heavy Body will immediately ſink in it to the bottom, and a light one emerge to the top; each Grain of Sand has a conſtant vibrating and dancing Motion; and if a hole be made in the ſide of the Diſh, the Sand will ſpin out like Water.

Solidity or *Firmneſs*, is a Quality of a Natural Body contrary to Fluidity, and appears to conſiſt in the Parts of Bodies being interwoven and intangled one with another, ſo that they cannot diffuſe themſelves ſeveral ways, as Fluid Bodies can.

Mr. *Boyle* deſcribes it to conſiſt principally in this, That the Particles compoſing ſuch Bodies as we call firm or ſolid, are pretty groſs; and either are *ſo much at reſt*, or are ſo intangled one with another, that there is a mutual Cohæſion of their Parts, and that they cannot flow from, ſlide over one another, or diffuſe themſelves every way, as the Parts of Fluid Bodies can; and conſequently the Figure of Firm or Solid Bodies ought rather to be attributed to the Connection of the Parts that compoſe them, than to the Impreſſions of outward Bodies.

And in his Hiſtory of Firmneſs, he proves by Experiments and good Conſiderations upon them, the ſeveral Parts of the above-given Deſcription. As

1. He ſhews the *groſſer Parts* are requiſite to Firmneſs or Solidity, becauſe Minuteneſs he had before prov'd, was neceſſary to the Parts of Fluid Bodies.

2. Reſt alſo and *Juxta-Poſition* of Parts, he demonſtrates by many Experiments, are in a degree abſolutely requiſite to produce this Effect.

3. The Preſſure and Weight of the Incumbent Atmoſphere he judges contributes much towards it, becauſe of the ſtrong Adherence of Two Pieces of Poliſh'd Glaſs, or Marble together, in the open Air, which will immediately ſeparate in the Exhauſted Receiver.

4. The Texture of Bodies, and the Figures of their Parts may contribute much to this Effect, as if they be of an hook'd Form, or any way entangled one in another, they muſt be disjoyn'd with difficulty, and conſequently will be in the form of a Solid.

Rarefaction of any Natural Body, is, when it takes up more Dimenſions, or a larger Space than it did before. There are three ways of explaining of *Rarefaction*.

1. That of the *Ariſtotelians*, who ſuppoſe the ſame Body doth not only obtain a greater Space in Rarefaction, but alſo adequately fill it; and acquires larger Dimenſions, without having either any Pores or Vacuities between its Corpuſcles, or admitting any other Body or ſubtil Matter to be joyn'd with them.

2. That of the *Carteſians*, which was alſo the Opinion of many of the old Philoſophers, who aſſert, That in Rarefaction the Pores of the rarify'd Body are dilated, and repleniſh'd with ſome fine, ſubtil and ethereal Subſtance, which inſinuates it ſelf into the Interſtices between its disjoyn'd Particles.

3. That of the *Atomiſts* or *Vacuiſts*, who ſuppoſe the Parts of the rarify'd Body to be disjoyn'd and remov'd farther from each other, and yet no other Body neceſſarily comes in between them. So that this laſt *Hypotheſis* ſuppoſes a *Vacuum*.

Vacuum is a Space devoid of all Body. This is by Phyſiologiſts diſtinguiſh'd into

Vacuum Diſſeminatum, or *Interſperſum*, i. e. ſmall void Spaces interſpers'd about between the Particles of Bodies. Or,

Vacuum Coacervatum, which is a larger void Space made by the meeting together of the ſeveral interſpers'd or diſſeminate Vacuities before-mention'd.

So that without allowing a *Vacuum*, how can there be any ſuch thing as either Rarefaction or Condenſation? For if all Space is adequately full of Body, nothing can poſſibly take up a greater or leſſer room than it had at firſt; and yet we find by evident Experience, that Air is capable of a very great degree of Compreſſion, and that Water can be rarify'd into Air, or Vapour, and then take up vaſtly larger room than it did before.

Denſity or *Condenſation* of any Natural Body, is when it takes up leſs Space, or is confin'd within leſs Dimenſions than it was before.

Light is us'd to ſignify three Things.

1. That Senſation which ariſes in us from the view of any luminous Object, as the Sun, a Star, or a Candle.

2. It ſignifies the Cauſe of that Senſation in us, as it is an Action or Property exiſting in the luminous Body.

3. By this word ſome underſtand the Action of the *Medium* interpos'd between us and the luminous Object; and others, that the *Train of Rays*, which coming forth from thence, pervades the *Medium* before it can come to affect our Eyes.

Light is undoubtedly produc'd by Motion, but yet it is not every Motion that will produce it. The learned Dr. *Hook* judges the Motion that produces Light ought to have theſe Requiſites.

1. That it be *exceeding quick*, like the Motions of Fermentation and Putrefaction, as you ſee in ſhining Pickles and rotten Wood.

2. It muſt be a *vibrative Motion*, and alſo have its Vibrations exceeding ſhort. This he concludes from the ſhining of Diamonds, when chaf'd or rubb'd.

Colour may be conſider'd two ways.

1. As it is a Quality reſiding in the Body, which is ſaid to be ſo and ſo colour'd, or which does modify the Light after ſuch and ſuch a manner.

2. As more properly, the Light it ſelf which ſo modify'd, ſtrikes upon the Organ of Light, and produces that Senſation which we call Colour.

The *Peripateticks* aſſert Colours to be real Qualities, and inherent in the colour'd Body, and ſuppoſe that Light does only diſcover them, but not any Effect of their Production.

The *Carteſians*, who make the Senſation of Light to be the Impulſe made on the Eye by certain ſolid, but very minute Globules eaſily permeating the Pores of the Air and diaphanous Bodies, derive Colours from the various Proportion of the direct Motion of the Globules, to their Circumrotation round their own Centers; by which means they are qualify'd to ſtrike the Optick Nerve after diſtinct and divers manners, and produce the Perception of various Colours.

Dr. *Hook* ſays, the Phantaſm of *Colours* is caus'd by the Senſation of the oblique or uneven *Pulſe* of Light; and that this is capable of no more Varieties than two, which ariſe from the two ſides of the oblique *Pulſe*; ſo that there is in reality but two ſimple *Colours*, Yellow and Blue; from a Mixture of which, and a due Proportion of Black and White, *i. e.* Darkneſs and Light, all Colours may be produc'd.

Sound ſeems to be produc'd by the ſubtiler, and more etherial Parts of the Air, being form'd or modify'd into a great many ſmall Maſſes or Contextures, exactly ſimilar in Figure; which Contextures are made by the Colliſion and peculiar Motion of the ſonorous Body, and flying off from it, are diffus'd all round in the *Medium*, and there affect the Organ of our Ear in one and the ſame manner.

Sir *Iſaac Newton* demonſtrates, That Sounds, becauſe they ariſe from the tremulous Motion of Bodies, are nothing elſe but the Propagation of the Pulſe of the Air. And this he ſays is confirm'd by thoſe great Tremors that ſtrong and grave Sounds excite in Bodies round about, as the ringing of Bells, noiſe of Cannon, &c.

Taſte is probably caus'd by the Salts that are in Bodies; which according to their various Configurations, affect the Tongue as variouſly; and either communicate a grateful or unpleaſant Senſation to the Brain.

Smell is either the Diſpoſition of the Body, or the Senſation occaſion'd by the *Effluvia* of odorous Bodies mingling themſelves with the Air, and entring up the Noſtrils, inſinuate themſelves into the Proceſſes of the Olfactory Nerve; and according as this is differently mov'd, ſo it either produces a ſweet or ſtinking ſmell.

Gravity is that Quality by which all heavy Bodies, towards the Center of the Earth, accelerate their Motion as they come nearer towards it. And this admirable and univerſal Law of Nature, is that which, generally ſpeaking, keeps all Bodies in thoſe Places and Stations, which they are deſign'd for.

About the Cauſe of this great and catholick Affection of Matter, there have been various Sentiments.

1. *Ariſtotle* will have all earthly Bodies, by a natural Inclination, tend towards the Center of the Earth, as to their proper Place: But it has been prov'd over and over, that there is no ſuch thing as *poſitive* or *abſolute Gravity* or *Levity*.

2. *Copernicus* aſſerts Gravity to be an innate Principle in all the parts of Matter, when they are by any means ſeparated from their Wholes, to reduce themſelves thither the neareſt way, or in right Lines.

3. *Gaſſendus*, *Kepler*, and many others, define Gravity to be a motion impreſs'd on all Bodies,

dies, by a certain Magnetick Attraction of the Earth or Globe, to which any Body deſcends.

4. *Deſcartes* ſuppoſes the Particles of the Celeſtial Matter, by being reflected from the Surface of the Earth, and conſequently aſcending up again from thence, to drive down into their places the Terreſtrial Bodies which they find above them.

5. The learn'd Mr. *Halley*, owns Gravity to be an Effect inſolvable by any Philoſophical Hypotheſis, and modeſtly and religiouſly reſolves it into the immediate Will of our All-wiſe Creator; who by appointing this Law thro' all the material World, keeps all Bodies in their proper Places and Stations, which without it would ſoon fall to pieces and be utterly deſtroy'd.

6. Sir *Iſaac Newton* obſerves very well, that of all Bodies conſider'd within the Confines of any Fluid, there is a two-fold *Gravity*; the one *True* and *Abſolute*, the other *Apparent* and *Vulgar*, and *Comparative*.

Abſolute Gravity is the whole force by which any Body tends downwards; but the *Relative* or *Vulgar*, is the Exceſs of Gravity in any Body above the ſpecifick Gravity of the Fluid, whereby it tends downwards more than the ambient Fluid does.

In reference to *Abſolute Gravity*, the parts of all Fluids, and all Bodies, do really gravitate in their proper Places; and therefore by their joynt Weights do make the weight of the whole.

The latter kind of *Gravity* is ſuch, that in reference to it, Bodies do not gravitate in their Places, or rather do not, when compar'd one with another, pre-gravitate; but by hindering one another in their mutual Endeavours to deſcend, do remain in their proper Places, all one as if they were not heavy at all.

The Notion of Weight among the Vulgar, is only the Exceſs of any Bodies weight above the Air. And conſequently they account thoſe things to be *light*, which being leſs heavy than Air, are ſupported by it, or buoy'd up in it. Whereas theſe *comparatively* light Bodies are not ſo *really*, ſince, *in Vacuo*, it has been found by Experiment, that they deſcend as faſt as other heavy Bodies do in the Air.

Magnetiſm, or *Magnetical Attraction*, is effected, ſay they, by the *Effluvia* of each Body, which drive away the Air between the Iron and the Stone; ſo that the Union of the Stone and Iron is occaſion'd by the joynt Protruſion or Pulſion of the Air behind each. But this Opinion is plainly refuted by Mr. *Boyle*'s Experiment of a Loadſtone's being equally vigorous and attractive in the exhauſted Receiver, as in the open Air.

Sturmius obſerves that the attractive Quality of the *Magnet* has been taken notice of beyond all Hiſtory. But that it was our Country-man *Roger Bacon*, who firſt diſcover'd the *Verticity* of it, or its Property of turning towards the Pole, and this about Four Hundred Years ſince. The *Italians* firſt diſcover'd that it would communicate this Vertue to Steel or Iron. The various Declination of the Needle, under different Meridians, was firſt diſcover'd by *Sebaſtian Cabott*; and its Inclination to the nearer Pole by our Country-man *Robert Norman*. The *Variation* of the *Declenſion*, ſo that 'tis not the ſame always in one and the ſame place, he obſerves was taken notice of but a few Years ago by *Hevelius*, *Auzout*, *Petit*, *Volikamer*, and others.

The *Magnet*, or *Loadſtone*, is a Foſſil approaching to the Nature of Iron-Ore, and endow'd with the Property of attracting Iron; and, of both pointing it ſelf, and alſo enabling a Needle touch'd upon it, and then pois'd, to point towards the Poles of the World.

The particular part of Natural Philoſophy conſiders the *World*, which is divided into *Heaven*, *Air*, and *Earth*. The Conſideration of the *Heavens*, with its Motions, and that of the Stars, is the Object of *Aſtronomy*.

The *Air*, or the *Atmoſphere*, in which we breath, is a diaphanous, compreſſible, and dilatable fluid Body, covering the Earth and Sea to a great height above the higheſt Mountains, and differs from the Æther; among other things, in this, that it refracts the Rays of the Moon and other remoter Luminaries. Dr. *Hook* ſeems to think the Air to be nothing elſe but a kind of Tincture or Solution of Terreſtrial and Aqueous Particles diſſolv'd in, and agitated by the Æther; and theſe Particles he ſuppoſes to be of a ſaline Nature.

The weight of the *Air* was firſt diſcover'd by the great *Gallilæo*, who finding that Water by pumping could not be rais'd higher than Thirty-four or Thirty-five Feet, concluded that the Notion of an infinite *fuga vacui* could not do in this place; and therefore happily fell on thinking of the Counter-balance of the Air's Weight, which *Torricelli* afterwards purſu'd and improv'd; inventing as a farther Proof of the Notion of the Gravity of the *Air*, that which we call the *Torricellian Experiment*.

The *Air-Pump* is an Engine to exhauſt *Air* out of proper Veſſels. Mr. *Boyle* owns he had the firſt hint of it from *Schottus*, who had publiſh'd it to the World; but Mr. *Boyle* had not ſeen the way that one *Otto Gerick*, Conſul of *Magdeburgh*, had found to evacuate Glaſs-Veſſels, by ſucking out the *Air* at the Mouth of the Veſſel plung'd under Water. But this Engine being very defective in many reſpects, Mr. *Boyle* directed one Mr. *G*——; and Dr. *Hook*, to contrive a newer and better *Air-Pump*, which Dr. *Hook* effected. But the Deſcription of it being ſo very long, and it being ſo well known, we ſhall omit it here.

The Place of *Meteors* is the Air; which, according to the Opinion of Dr. *Woodward*, are in a great meaſure of a Mineral Nature. For he ſuppoſes that *Thunder* and *Lightning*, and other fiery Compoſitions, are form'd out of ſulphureous, nitrous, and other active Mineral Particles.

The *Earth* may be conſider'd either as to its exterior, or inward Parts. The exterior Parts of the *Earth* is either that which is properly call'd ſo, or the Water. The Surface of the *Earth* is the immediate Object of *Geography*.

The *Water* is either that great Conflux of it which is call'd the *Sea*, or *Springs* and *Fountains* from whence proceed Rivers.

The moſt amazing *Phænomenon* of the *Sea*, is the Ebbing and Flowing of it, uſually ſpecify'd by that one Word *Tide*; there having been ſeveral *Hypotheſes* fram'd to ſolve this Difficulty, but the beſt of the Theory of the Tides is that extracted from Sir *Iſaac*

Newton, by that moſt Excellent Mathematician, Captain *Halley*. The Principle upon which this Author proceeds to explain the Surprizing Appearances of Nature, is no other than that of *Gravity*; that this Principle of *Gravity* agrees to the *Sun* and *Moon*, and that the Earth is within the Activity of their Attractions; ſo that upon this Account the Equality of the Preſſure of Gravity towards the Centre will be diſturb'd; and tho' the Smallneſs of theſe Forces, in reſpect of the Gravitation towards the Earth's Centre, make 'em altogether imperceptible by any Experiment we can diviſe, yet the Ocean being a Fluid Body, yielding to the leaſt Force, by its riſing Shews where it is leaſt preſs'd, and where it is more preſs'd by its ſinking; and this is the Cauſe of the Ebbing and Flowing of the Sea.

Concerning the Origin of *Springs* and *Fountains*, there is much Diſpute, eſpecially of ſuch as are found on the Tops of High Mountains.

Some, as Dr. *Hook* and Dr. *Plott*, and many others, think that they ariſe from Sea-Water percolated thro' the Bowels of the Earth, which by that means being depriv'd of its Salt, is render'd much lighter than before, and ſo is capable of riſing to the Height we commonly find Springs at, as Water riſes in a Filtre, or very ſmall Tubes.

The Learn'd Captain *Halley* ſuppoſes them to be caus'd from the Vapours exhal'd by the Sun out of the Sea.

The Ingenious Dr. *Woodward*, in his Natural Hiſtory of the Earth ſuppoſes That the great Abyſs of Waters, plac'd in the Bowels of the Earth, is the Standing Fluid, or Promptuary, which ſupplies Water to the Surface of the Earth, and furniſhes as well Springs and Rivers, as Vapours and Rain.

In the interior Parts of the Earth are found *Metals* or *Minerals*, which are hard Bodies dug out of the Earth, being part of a metalline, part of a ſtony Subſtance, and ſometimes with ſome Salt and Sulphur intermix'd with the other.

Of the *Carteſian Philoſophy.*

NONE of all the Modern Philoſophers have made ſo much Noiſe in the Learn'd World as *Des Cartes*: He had a Great Genius for Philoſophy, which diſcover'd itſelf at the Schools, but broke out with greater Vehemence, when after having been diverted by Arms he retir'd to *Holland*, where at *Egmond* he was 25 Years forming his Syſtem. To what was ſaid at the Firſt Appearance of this Undertaking, will be added ſome few Obſervations on this Famous Author.

He calls his Book the *Principles* of *Philoſophy*, which he has divided into Four ſeveral Parts.

The Firſt concerns the *Principles* of *Humane Knowledge*, wherein he ſhews, that they who enquire after Truth, muſt once doubt of every thing in the World, even of *Senſible Things*, and *Mathematical Demonſtrations*.

Of *Senſible Things*, becauſe we find the *Senſes* often err; and alſo becauſe in our *Dreams* we often think we ſee thoſe things which neither are, nor ever were; and there are no certain *Signs* to a Man thus doubting, whereby he can diſtinguiſh *Sleeping* and *Waking*.

Of *Mathematical Demonſtrations*, becauſe we can have no Certainty of the Truth of our *Faculties*: But that we our ſelves really are he proves, becauſe we *Think*; for even our *Doubting* or *Thinking* neceſſarily ſuppoſes or implies ſomething that do's *doubt* or *think*.

And hence he infers, That our *Minds* are more cognoſcible or obvious to our *Knowledge* than any *Subſtance or Body*; becauſe by their Help and Aſſiſtance it is, that we come to underſtand *Bodies* with all their *Notions* and *Affections*, and the more we learn of the Nature or Being of our own *Minds*.

Nor can we (as he ſays) having *finite Minds*, judge or comprehend any thing rightly concerning *Infinity*. And hence it is, that we are always at a Loſs about Infinite Extenſion of *Body* or *Space*, and Infinite Diviſibility of *Matter*; and hence he wou'd teach us to diſtinguiſh betwixt *Infinite* and *Indefinite*. He concludes his *Firſt Book* of *Principles*, with ſhewing the Principal Cauſes of all *Errors*, which he reduces to theſe Four:

1. The Firſt are the Prejudices of our *Infancy*, before we come to the Right Uſe of our *Reaſon*.

2. The Second Cauſe of *Error* is, becauſe we can't forget or drive out of our *Minds* thoſe Prejudices.

3. The Third is, That we weary and buſie our ſelves in attending to thoſe things that are not preſent or obvious to our *Senſes*; and ſo we do not judge of them from our own *Perception*, when preſent; but from a former conceiv'd *Opinion* or *Imagination*.

4. The Fourth and Laſt [Cauſe of *Error* is, That we tie our Conceptions to *Words* and *Terms*, which do not rightly and juſtly anſwer the Nature of Things.

His *Second Part* of *Philoſophy* treats of the Principles of *Material Things*.

Here he proves the Exiſtence of *Things Material*, or ſuch as are without us, becauſe they do affect our *Senſes*. Now we can't make our ſelves perceive one Thing more than another, ſo that this Affection of our *Senſes* muſt needs proceed from the *Things* themſelves, and conſequently thoſe *Things* muſt be.

He places the Nature or Eſſence of *Matter* in its *Extenſion*, and not in any other of its Affections; and hence takes occaſion to ſhew the Prejudices which we commonly have of *Rarefaction* and a *Vacancy*.

His Notions of *Place* and *Motion* are alſo new; to which he adds (after he has ſpoken of *God* as the *firſt Cauſe* and *Mover* of all Things) the *Laws* of *Nature*. And in ſhort, in this Book of his *Princi-*

ples he ſhews what it is that in *Ariſtotle's Philoſophy* is call'd, The *Affections of Body in general.*

His *Third Part* treats of the *Viſible World*, and of its ſeveral Parts.

He places the *Sun* in the *Center*, and ſuppoſes all the reſt of the *Planets* to be mov'd about it.

And according to this *Hypotheſis* he ſolves all the ſeveral *Phænomena* of the *Earth*, the *Planets*, *fix'd Stars*, and the like.

Afterwards, for the Expoſition of the *Phænomena* of *Nature*, he aſſumes certain *Principles*; to wit, That one Part of the *Matter* or *Subſtance* of the *Heavens* conſiſts of many little Particles, and theſe he calls his *Globuli*. And then about theſe *Globuli*, or little Parts, he places another *Matter*, whoſe Parts are much leſs, and much more fluid; and theſe he calls his *Materia Subtilis*, which fills up the *Corners* or *Spaces*, as he ſuppoſes, amongſt his *Globuli*. And then he ſuppoſes ſome other Parts of *Matter*, whoſe *Figures* are not ſo apt or fit for Motion; and theſe he calls his *Particulæ Striatæ*. And out of theſe Three, as out of ſo many *Elements*, he ſuppoſes all *Bodies* to be made.

According to this Suppoſition he expounds the Nature of *Light*, and how it is diſpers'd by the *Sun*, and the reſt of the *Luminary Bodies*; as alſo the Nature of the *Comets*, with their Motions.

He aſſigns every *Star* and *Comet* its ſeveral *Vortex* or *Whirlpool*; and according to that Suppoſition, he demonſtrtes their *Spots* and *Changes*.

According to his own *Principles*, he ſhews how all the *Bodies* might at firſt be generated; and gives an Account of their ſeveral *Changes* and *Revolutions*, together with the Reaſon of the Equality of thoſe *Motions* which are found in all *Bodies*.

His *Laſt Book* of *Principles* contains a Diſcourſe of the *Earth* and *Sea*, with the Nature of the ſeveral Bodies therein. And here he gives you his Notion of *Gravity* and *Levity*, and tells you why *Bodies* are not *heavy*, according to his, as well as *Ariſtotle's Hypotheſis*, in their own natural places. How it comes to paſs, that *heavy Bodies* tend towards the *Center* of the *Earth*, whence proceed the *Flux* and *Re-flux* of the *Sea*, and how it comes to differ upon ſeveral Shores, and the Reaſon that there's none in *Pools*, *Lakes*, and *ſtanding Waters*.

He treats alſo in this Book of *Heat*, *Vapours*, *Spirits*, *Exhalations*, and the *Saltneſs* or *Freſhneſs* with the different Taſtes of *Water*.

He treats likewiſe of *Metals* and *Minerals*; of *Fire*, and *Combuſtible Bodies*; of the Motion of *Nitre*, and the ſpreading of *Gunpowder* when ſet on fire; of the *Load-ſtone*, and how it is that it draws *Iron* to it; as alſo of the Attractive Power of *Jet*, *Amber*, and ſuch like *Bodies*.

And in the Latter End of this Book, he diſcourſes of the *Senſes* both External and Internal; wherein his *Notions* are all New and Curious. And indeed the Deſign of *Philoſophy* being principally to quicken and perfect the *Judgment*, this of his being of a more fine and ſublime Nature than that of *Ariſtotle's*, and the other Old *Philoſophers*, muſt certainly very well deſerve Reading, eſpecially ſince (as he tells us) he has omitted nothing in *Nature* (yet excepting thoſe Things which *Philoſophers* in former times us'd to call *Occult Qualities*) of which he has not given an Account, or at leaſt laid down ſuch *Principles* in his Diſcourſes upon other Subjects, that any of thoſe may eaſily be ſolv'd by them.

And whereas ſome may poſſibly think his *Hypotheſis* (eſpecially about the *Creation*, wherein *Moſes* is very particular) may ſeem to be different from all receiv'd Doctrines of the *Church*, he vindicates his Opinions with ſo much Deference for Revelation, that 'tis plain he wou'd have no Man ſcandaliz'd by them.

We know very well that this will be thought a Short and Imperfect Account of the *Carteſian Philoſophy*, but having introduc'd moſt of his Eſtabliſh'd Principles in our *Natural Philoſophy*, we did not think it neceſſary to add more in a Place where we are crowded ſo much for Room. However, we ſhall give the Reader what *Rapin* ſays of this Great Philoſopher, by whoſe Judgment he may ſafely form his own. “*Deſcartes* is one of the moſt Extraordinary Wits that has appear'd in theſe Latter Ages, of a Fertile Invention, and a Profound Meditation. The Thread of his Doctrine is finely drawn out; the Method, according to his Principles, exactly contriv'd; and his Syſtem, tho' partly Ancient and partly Modern, as has been already obſerv'd elſewhere, very well put together. Indeed he inclines too much to Scepticiſm, and is a very ill Pattern for thoſe who are naturally of an incredulous Temper. In a Word, he is an Original and Ingenious, but muſt be examin'd a little before he is believ'd: His Doctrine gain'd Followers by Shoals, to the great Diſcredit of *Ariſtotle's*; and his Diſciples deſir'd to ruine the Authority of the latter only to build up that of *Deſcartes*, whoſe Syſtem of Phyſicks is altogether new; and as we have taken notice in the foregoing Pages what he did not pretend to impoſe on the World as Infallible. He was very perplex'd in his Expreſſions, ſometimes affecting, like his Brother Philoſophers, a certain Myſtery which they ſuppoſe will procure a Reverence from the People. He gives alſo perplex'd Anſwers to the Queſtions he has propos'd which keeps the Reader ſtill in Difficulty. *Rohault*, who pretended to render him more Intelligible by a new Explication of his Phyſicks, has robb'd him of Part of his Beauty, by giving him a more eaſy and familiar Turn. His Admirable Genius ſeems to have been pleas'd with nothing ſo much as with the Pains and Difficulty of being apprehended: His Obſcurity has a Venerable Myſterioufneſs in it; and 'tis *Rapin* who ſays it, *His Character of Incomprehenſible is the moſt Charming Quality that attracts the Admiration of his Diſciples.*

We have mention'd in our Eſſay on Logick, ſomething taken out of a Manuſcript of *Deſcartes* by *Meſſieurs de Port Royal*: He had written a Logick but never finiſh'd it; and tho' this Account of him relates only to his Philoſophy, yet we ſhall add what our Jeſuit tells us of his Performances in the Art of Thinking alſo. Some Fragments of his Treatiſe are ſtill in the Hands of his Diſciples under this Title of *Erudition*. There are ſome Strokes of Logick in his Method, where he tells us that the Mind of Man being Finite, it ought to begin with the Conſideration of Simple Objects, and then gradually to accuſtom itſelf to the Knowledge of Compound Things, and the Art of diſtinguiſhing them from each other. He ſays if we wou'd make a Right Diſcernment between Truth and Falſhood, we muſt diveſt our ſelves of Prejudices by learning firſt to doubt of all Things. Father *Rapin* calls this Principle, *I think therefore I am*, cited by the *Port Royal*, a Frivolous Repetition. After all, continues our Author, he is the beſt Notionaliſt of all the Moderns; what he delivers, how new ſoever, is not ill conceiv'd, but diſcovers that Depth of Meditation which was his peculiar Excellence. But nothing is more Immethodical than his Diſcourſe of Method; 'Tis a Medley of Morality, Phyſicks, and Metaphyſicks, that ſcarce aſſerts or eſtabliſhes any one Doctrine; yet we find in it ſome Marks of Sincerity, which ſhew us the True Character of his Genius, eſpecially where he makes that very Ingenious Confeſſion, *That the only Advantage to be acquir'd by Philoſophy, is the Art of Speaking probably of all Things, and of raiſing the Admiration of ſuch as know leſs than our ſelves.* This ſmall Digreſſion ſo nearly relating to *Des Cartes*, and not a little to Philoſophy, will be the more excuſable.

As to *Des Cartes*'s Phyſicks, the Critick, who has been ſo uſeful to us in our Philoſophical Eſſays, goes on to this Effect. We muſt acknowledge his Syſtem of Natural Philoſophy to be one of the moſt Subtle and the moſt Accompliſh'd that have been Publiſh'd by the Moderns: That he has ſome very Curious and Fine Conceptions, and that upon a nearer View his Theory will appear to be more regular and conſiſtent than that of *Galilæo*. He exceeds *Gaſſendus* in Point of Novelty and Invention: His Syſtem is well digeſted and put into an agreeable Order: His Method is entirely Geometrical, proceeding from Principle to Principle, from Propoſition to Propoſition, *But*. It will, as we have obſerv'd, be always ſo where we have to do with Criticks, and the preſent *But* is a very dreadful one againſt *Des Cartes*. *But* let us conſider in what Reſpects he is liable to Cenſure; His Principles of Nature are *Motion*, *Figure*, and *Extenſion*, very little different from thoſe of *Democritus* and *Epicurus*. There goes a Pleaſant Story that Father *Marſennus*, who was his Reſident at *Paris*, having declar'd in a Meeting of Learn'd Men, that *Des Cartes*, whoſe Character was already pretty well eſtabliſh'd by his Geometry, was upon a Project of Phyſicks, in which he admitted a *Vacuum*, the Deſign was rail'd at by *Robertval* and others, who judg'd from hence that it could contain nothing extraordinary, upon which Father *Marſennus* wrote to *Des Cartes* to let him know a *Vacuum* was not modiſh at *Paris*; and this oblig'd him to find out ſome ſort of Temperament, and ſome way of Compounding with the Modern Naturaliſts, whoſe Approbation he much Courted. And in order to this to admit the *Plenum* of *Leucippus*, and thus his Excluſion of a *Vacuum* was owing to a Principle of Politicks. The Reader will ſee how we are treated, indeed how whole Nature is treated by the Philoſophers, that we are to believe or diſbelieve Things; that Nature muſt be black or white, according as it conſiſts with their Reputations. *Gaſſendus* put him under new Difficulties by giving him to underſtand, that without a *Vacuum* his Principle of Motion wou'd be abſurd and impoſſible, becauſe nothing can move in an abſolute *Plenum*. To remedy this Inconvenience, *Des Cartes* invented his Subtle Matter, which ſerv'd him for a good Expedient in many Exigencies, and was a Salvo for the Doctrine, either of a *Vacuum* or a *Plenum*, as he had occaſion to make uſe of them. But this *Plenum* and this Subtle Matter being added only as a Shift, and in Compliance with the Humour of the Age, *Des Cartes*'s Syſtem was left very weak and unguarded in the whole Doctrine of Motion, which is one of his main Principles. For he tells us, That all the Motion now in the World was Created at the Beginning of Things; and that there's no new Motion produc'd, but the old communicated and tranſmitted from one Body to another: That the Impulſion of Subtile Matter is the Cauſe of all Gravity or Levity in Bodies: That the Acceleration of Heavy Bodies in their Motion towards the Center, proceeds from the ſame Impulſion: That Heat is nothing but the Motion of the Particles of the Air, agitated by the Subtile Matter, which is the *Fac Totum* of the *Carteſian Phyſicks*: That the Vegetation of Plants and Generation of Animals are caus'd only by the Fortuitous Motion of Little Particles; as if Stones by a Chance Leap ſhould range themſelves into an Orderly and Beautiful Palace. We may here again perceive the Vanity and Ingratitude of Humane Science, which is apt to make any thing the firſt Mover, rather than God the Author of Life, Motion, and Univerſal Nature. How natural is it for their Proud and falſe Judgments to give into any thing that brings the Origin of Things to their Senſes? and how ridiculous is it in them to be willing rather to owe their Being to a Dance of Atoms, than the Forming Wiſdom of the All-Wiſe Creator? How *Des Cartes* hangs after *Epicurus*, and how loath are Chriſtian Philoſophers to be oblig'd to Revelation for Things which they imagine within the reach of this Exalted Reaſon, which perhaps never got out of the *Atmoſphære* with Certainty, but when ſhe was guided by Experiment. *Des Cartes* further aſſerts, That Brutes are utterly deſtitute of all Senſation: That the Tokens which they ſometimes diſcover of Joy, Friendſhip, Averſion and Grief, with all the Impreſſions of Pleaſure or Pain, are but the Reſult of Certain Springs that play in the Machine according as the Matter is diſpos'd: That Heat is not in the Fire, nor Hardneſs in the Marble, nor Moiſture in the Water; but that all this is in the Soul, which by Thought and Reflection finds the Fire to be hot, the Marble hard, and the Water moiſt, and by no means in any ſuch Qualities which are meerly Fictitious. He inſiſts upon it, as we have ſaid before, as a Preliminary that we ſhou'd doubt of all Things, ſhut up all our Lights, diveſt our ſelves of all our preconceiv'd Opinions, of Cuſtom, Education, Senſe, Judgment, and all other Impreſſions whatſoever; and all this, that we may arrive at ſome little and ſcanty Notions of Things, by which he makes his Promiſes vaſtly diſproportionable to his Demands, when in order to the explaining the Nature of Things, he ſays they are caus'd by a Certain Figure, a Certain Motion, and a Certain Exiſtence, he has ſaid all that he can; for he never goes into the Depth of a Subject. His *Hypotheſes* of the Loadſtone, with thoſe little Hook'd Bodies, is Arbitrary and Groundleſs: His Account of the Ebbing and Flowing of the Sea, by the Impreſſion of the Moon's Atmoſphere is found to be falſe: Thoſe Parts of the Water that are ſubject to the

Lunar Body, being indeed raiſ'd, and not as he conceives, depreſs'd. His Explication of the Motion of the Soul in the ſeveral Paſſions, by that Conjunction of the Nerves and Fibres terminating in the *Glandula Pinealis*, is pure Chimæra, there being really no Nerves that terminate in that Gland. On the Nature of Sounds, he advances nothing that looks like a Rational Conjecture. In a word, he may not unfitly be reſembled to thoſe *Pythagoreans* mention'd by *Ariſtotle*, who were leſs ſollicitous to render the true Reaſon of Things, than to reduce all to their own Principles and Syſtems; yet as he aim'd rather at the Oſtentation of Wit, than the Diſcovery of the Truth, his Phyſicks may afford ſome ſort of Satisfaction to thoſe who are moderate enough to take up with Probabilities. However, we can by no means defend the Haughtineſs of ſome of his Diſciples, who treat all other Philoſophers as meer Idiots; becauſe, according to our Author, *They themſelves have had the Fortune to make ſome Noiſe by repreſenting Philoſophy under a new Dreſs*, as Novelties are always agreeable and ſurprizing.

The Reader will not accuſe us of Partiality, when he remembers that we have taken only what one *French-man* ſays againſt another, and all of that Nation are known to be particularly Partial to themſelves, and in their own Favour, whenever Religion or Arbitrary Power are not concern'd. He therefore may truſt us in this Caſe; and if he can truſt *Pere Rapin*, he will form a Judgment which will not pleaſe the Diſciples of *Des Cartes*, who Idolize their Maſter. This Jeſuit has another Charge againſt him, telling us the *Carteſian* Phyſicks do not advance Thought and Spirit above the Pitch of external Senſe, and go no higher than the Body to explain the moſt refin'd and exalted Operations of the Soul. Againſt which Principles Dr. *More*, whom he calls an *Engliſh* Profeſſor, has written with good Reaſon. Dr. *More*, ſays *Rapin*, in his late Treatiſe of Metaphyſicks, has invalidated all the New Reaſonings made uſe of by *Des Cartes* to prove the Exiſtence of a God, and conſequently has ruin'd a great part of his Metaphyſical Speculations. But what is ſtill more ſevere, he will ſcarce allow *Des Cartes* to have any ſenſe of Religion, but maintains that his Phyſicks are as looſe and libertine as thoſe of Mr. *Hobbs*. The *Carteſians*, who are very Nice, as to the Credit and Honour of their Philoſophy, have occaſion to ſhew their Zeal againſt this Author, by juſtifying their Doctrine, and vindicating the Reputation of their Maſter. For 'tis a moſt unhappy Spirit of Philoſophy, far from the Genius of a Chriſtian, to refine upon the Knowledge of the Creature, and to be weak and doubtful as to Faith in the Creator; which Reflection, naturally brings us to treat of that which cloſes *Rapin*'s Philoſophical Reflections.

Reflections on the Uſe of Philoſophy in Religion.

REASON being the firſt Inſtrument Religion uſes in eſtabliſhing its Laws, it makes Philoſophy uſeful in Religion. For Reaſon cannot well be ſet to work but by Philoſophy, which ſupplies it with Principles, and reduces it to Method and Order. *Lactantius* ſays, Philoſophy is of great Advantage to a Man, if his Mind be firſt ſeaſon'd with Religion. When Humane Reaſon has once ſubmitted to Divine Faith, Faith, notwithſtanding the Privilege of its Divinity, is pleas'd to uſe the Service of Humane Reaſon, that by this means Reaſon it ſelf may be brought more fully under Subjection to the Obedience of Faith: But Faith cannot be entirely pure and uncorrupted, unleſs Philoſophy, which is the Inſtrument of Faith, be alike free from Impurity and Corruption. For from reading of corrupt Syſtems, the Faith of many have been perverted. The *Valentinian* Hereticks from the School of *Diogenes* and *Epicurus*, the *Gnoſticks* from *Plato's*, the *Manichees* from *Pythagoras's*, the *Marcionites* from *Zeno's*, *Manes* from a *Saracenical* Philoſopher, the *Pelagians* from the *Stoicks* alſo. *Alphonſus*, King of *Caſtile*, came to ſuch an height of Impiety, by converſing with *Arabian* Philoſophers, as to Cenſure the Works of God, and Criticize on thoſe of Nature. *Agrippa* debauch'd his Underſtanding by reading *Porphyry*, *Proclus*, and *Pleſſius*. *Servetus* and *Socinus* grounded their impious Innovations in Religion on Philoſophical Notions. And what our Jeſuit cannot omit, and for which perhaps he has not been at all tender in his Critick on the *Carteſian* Philoſophy, *Des Cartes* got ground in the North, becauſe he favour'd *Calviniſm*, and attack'd the Contradictions in Tranſubſtantiation by ſome Parts of his Syſtem. If ſo, he is ſtill nearer Perfection than he makes him to be. Wherefore, if we would regulate the Uſe of our Reaſon by Philoſophy, we muſt firſt learn to eſtabliſh the Uſe of Faith; we muſt be Chriſtians before we can pretend to be Philoſophers; we muſt make Religion our chiefeſt Philoſophy, and higheſt Wiſdom; whatſoever is not conformable to the Goſpel, leads to Error and Diſorder. The Doctrine of *Plato* or *Ariſtotle*, of *Gaſſendus* or *Des Cartes*, is to be valu'd no farther than it recognizes the Truths of Religion, which ought to be the firſt and chief Philoſophy. When Truth has once convinc'd a Man of the Falſeneſs of thoſe Lights that glitter'd in Pagan Philoſophy, it then teaches him to forbear reaſoning upon ſuch things as God has not ſubjected to his Deciſion; it informs him how much better it is, not to know that which God has remov'd from our Comprehenſion, and with humble Ignorance to adore thoſe Myſteries which he has not been pleas'd fully to open to us, than to pretend to fathom this great Abyſs of Light by the raſhneſs of our Conjectures, and the imperfect Views of our Reaſon.

After Reaſon has been taught to keep its proper Place, and ſubmit to Revelation, Philoſophy, which is its Rule and Guide, may aſſiſt it in uttering its Conceptions. This is the firſt Uſe of Philoſophy in Religion. The *Ariſtotelian* Method was introduc'd by theſe Fathers of the Church, *Anatolius*, Biſhop of *Laodicea*, St. *Jerom*, St. *Auſtin*, *Theodoret*, *Didymus* of *Alexandria*, as alſo by *Boetius*, and others. The School-men follow'd it. The Univerſity of *Paris*, in the Year M DC XI. ſolemnly reviv'd and reinforc'd that Ancient Rule, which oblig'd the Profeſſors ſtrictly to teach the *Ariſtotelian* Philoſophy. Beſides thoſe Terms, and that Method of Reaſoning which Religion may derive from Philoſophy, as the Rule of its Thoughts and the Organ of its Words, it may from that Store be furniſh'd with Arguments and Notions to arm its Defendants, and diſarm its Oppoſers. It may alſo add Weight and Authority to thoſe Teſtimonies upon which Religion eſtabliſhes its Maxims, may aſſiſt in pulling off the various Maſks and falſe Appearances of Error. But the Terms, the Method and Reaſonings with which Religion is ſupply'd from Philoſophy, would ſtill be inſufficient for its uſe, if it did not farther derive from the ſame Aſſiſtance an exactneſs of Perception and Judgment, ſuch as prepare the Mind to admit the Light of Faith, by the Light of Natural Senſe, which is the firſt Foundation of all the Workings of the Soul. An Ancient Father lays it down as a Maxim, That the only true Philoſophy muſt conſiſt in Reflection upon Eternity. 'Twas the great Study of the firſt Chriſtian Philoſophers to inquire into that ſupream Truth which is the Source and Origin of all other Truths. They dedicated their Philoſophy to the Service and Support of their Faith, by refuting the Calumnies of the Pagan Teachers. 'Twas thus *Tertullian* expreſs'd his Zeal in his admirable Apology; in which, among other Reaſons, inſpir'd by ſo juſt a Cauſe, one that he principally inſiſts upon, was the Life of Chriſtians; that Life ſo pure, ſo holy, ſo rais'd above Senſe, that diſintereſted Fidelity, that noble Charity which animated all their Actions. In a word, he alledg'd the Innocence of their Practice, as the moſt lively Teſtimony to the Holineſs of that Religion which they preach'd. *Origen* proves the Truth of Chriſtianity by the Divinity of our Lord, obſerving that no Exception can be made againſt Jeſus Chriſt, which will not lie againſt *Moſes*; for Chriſt cannot be, as he certainly is, the End and Accompliſhment of the Law, without being at the ſame time the ſtrongeſt Proof and Confirmation of the Authority of the Legiſlator; and unleſs we ſuppoſe the Truth of his Miſſion, we muſt give up the Law and the Prophets. St. *Hippolytus* urges another ſort of Reaſon, You are unable to conceive the Formation of your own Nature, and would you preſume to comprehend the eternal Generation of the Son of God? The falſeneſs of Idols, and ridiculous Vanity of Pagan Worſhip, is the Argument upon which St. *Cyprian*, *Arnobius*, *Lactantius*, &c. eſtabliſh'd the Truth of our Religion. The Roman Catholicks are fond of the *Ariſtotelian* Philoſophy, becauſe there's more Subtlety than Subſtance in it, and it helps them to evade ſome Truths to puzzle others, and colour their own Falſhoods. The Proteſtants, whoſe Religion is founded on the Holy Scriptures, want none of thoſe Shifts; and the Proteſtant Philoſophers, at leaſt out of the Schools, have generally fall'n into a newer and more convincing Philoſophy, as well as Logick; Reaſon prevails, Sophiſtry is expos'd, and Truth triumphs. Let the Papiſts keep to their Peripatetick and School-men; we ſhall have as ill Opinion of their Philoſophy, as of their Religion, and be no ſooner convinc'd by their Reaſoning, than by their legendary Miracles, the ſhame of reaſonable Creatures.

ARITHMETICK.

ARITHMETICK.

ARITHMETICK is a Science by which we come to know what Number of Quantities there are (either Real or Imaginary) of any kind, contain'd in another Quantity of the ſame Kind. Now this Conſideration is very different from that of *Geometry*, which is only to find out true and proper Anſwers to all ſuch Queſtions as demand how *long*, how *broad*, how *big*, &c. But when we are to conſider either of more *Quantities* than one, or how often one *Quantity* is contain'd in another, then we have Recourſe to *Arithmetick*, which is to find out true and proper Anſwers to all ſuch Queſtions, as Demand how *many*, what *Number* or *Multitude* of *Quantities* there are. In a Word, the Subject of *Geometry* is that of *Quantity*, with reſpect to its Magnitude only, and the Subject of *Arithmetick* is *Quantities* with reſpect to their *Number* only.

From this General Idea of it we come to a Particular. *Arithmetick* therefore, or the Art of *Numbring*, is divided into Three diſtinct Parts, Two of which are properly call *Natural*, and the Third *Artificial*.

The *Firſt* being the moſt *Plain* and *Eaſy*, is commonly call'd *Vulgar Arithmetick* in Whole Numbers, becauſe every *Unite* concern'd in it repreſents ſome whole *Quantity* of ſome Species or Thing propos'd.

The *Second* is that which ſuppoſes an *Unite* (and conſequently the *Quantity* repreſented by that *Unite*) to be *broken* or *divided* into equal Parts (either even or uneven) and conſiders of them either as Pure *Parts*, in each leſs than an *Unite*; or elſe of Parts intermix'd, and is uſually call'd the Doctrine of *Vulgar Fractions*.

The *Third*, or Artificial Part, is call'd *Decimal Arithmetick*, being an *Artificial* invention of managing *Fractions* or *broken Numbers* by a much more commodious and eaſy way than that of *Vulgar Fractions*; for the ſeveral Operations perform'd in *Decimals* differ but little from thoſe in *Whole Numbers*; and therefore *Decimal Arithmetick* is now become of General Uſe, eſpecially in *Geometrical* Computations.

Arithmetick in all its Parts is perform'd by the various ordering and diſpoſing of Ten *Arabick* Characters or Numeral Figures.

One,	*Two*,	*Three*,	*Four*,	*Five*,	*Six*,	*Seven*,	*Eight*,
1	2	3	4	5	6	7	8
Nine,	*Cypher*.						
9	0						

The Uſe of theſe Characters, according to Dr. *Wallis* [*Algebr. p.* 12.] was firſt introduc'd in *England* about 60 Years after the Conqueſt, *A. D.* 1130.

The Firſt of theſe Characters is call'd *Unity*, and repreſents one of any kind of Species and *Quantity*; as *One World*, *One Man*, *One Houſe*, &c. 'Tis the Beginning of all *Numbers*; for, according to *Euclid* 7. *Def.* 2. Number is a Multitude of *Units*; for *One more One* makes *Two*, and *One more One more One* makes *Three*, &c. which is the Firſt and Chief *Axiom* in *Arithmetick*.

For the more convenient ordering of theſe *Numeral Figures*, according to the ſeveral Varieties that happen in Computations, the following Algebraick Signs will be of Excellent Uſe, as being a much ſhorter and more ſignificant way of ſhewing what is to be done in moſt Operations, than can otherwiſe be expreſs'd in Words at Length.

The Sign of	*Addition*	+	as 8+7 is 8 add 7.
	Subſtraction	—	as 9—6 is 9 leſs 6.
	Multiplication	×	as 9×6 is 9 times 6, or 9 multiply'd by 6.
	Diviſion	÷	as 8÷2 is divide 8 by 2.
	Equation	=	as 9=9 that is 9 is equal to 9.
	Proportion	: :	as 2 : 8 : : 6 : 24. As 2 is to 8, ſo is 6 to 24.

All the *Rules* of *Arithmetick* are comprehended in the due Conſideration of theſe Six, *Numeration*, *Addition*, *Subſtraction*, *Multiplication*, *Diviſion*, and *Extraction of Roots*.

NUMERATION

COnſiſts of Two Parts;

The Due Order of placing down Figures.

The true Value of each Figure in its Place, as by the following Table is ſhewn.

Period of Thouſands of Millions	6	*Hundreds of Thouſands of Millions,*
	7	*Tens of Thouſands of Millions,*
	8	*Thouſands of Millions,*
Period of Millions.	9	*Hundreds of Millions,*
	8	*Tens of Millions,*
	7	*Millions,*
Period of Thouſands.	6	*Hundreds of Thouſands,*
	5	*Tens of Thouſands,*
	4	*Thouſands,*
Period of Units.	3	*Hundreds,*
	2	*Tens,*
	1	*Units, the firſt Place in Counting.*

The Order of Places is reckon'd from the Right Hand to the Left: The Firſt is for *Units*, the Second for *Tens*, the Third for *Hundreds*, the Fourth for *Thouſands*, &c. that is, each Place towards the *Left* Hand is *Ten* Times the Value of the next towards the *Right*.

Example.

Suppoſe 759 were to be read; the firſt *Figure* is 9, becauſe it ſtands in the Place of *Units*, and therefore ſignifies but its own Simple Value, 9 *Units* or 9. The Second *Figure* 5 ſtands in the Place of *Tens*, and therefore ſignifies 5 *Tens*, or *Fifty*. The Third *Figure* 7 ſtands in the Place of *Hundreds*, and therefore ſignifies *Seven hundred*; and the Sum is to be read thus, *Seven hundred fifty nine*.

Tho' the *Figure* 7, according to the Order of *Numbring*, ſtands in the *Third* Place, yet when the *Sum* is read 'tis firſt pronounc'd; for in reading you muſt always begin with the outmoſt Figure towards the Left Hand.

As many Figures as are plac'd together without any Point, or other Note of Diſtinction between them, are all but one *Sum*: As for *Example*:

763596 is but one entire *Sum*, tho' it conſiſts of 6 Places of Figures, and is thus read, *Seven hundred ſixty three thouſand five hunnred ninety ſix*.

The like is to be obſerv'd in reading the True Value of any Sum conſiſting of Seven, Eight, Nine or more Places of *Figures*, each *Figure* being to be valu'd according to the Diſtance from the Place of *Unity*, as in the *Table*; which Value may as well riſe by *Cyphers* as by other Figures. For Inſtance: 6 ſtanding by itſelf ſignifies 6 *Units*, but add a Cypher 0 to it, and it makes *Sixty*, 60; and another Cypher would make it *Six hundred*, 600, &c. for tho' a *Cypher* of itſelf ſignifies nothing, yet being plac'd on the Right Hand of any Figure, it augments the Value of that Figure by advancing into a higher Place than otherwiſe it wou'd have been, had not the Cypher been there.

ADDITION.

A*ddition* is that Rule by which ſeveral Numbers are collected and put together, that ſo their *Sum Total* may be known.

Obſerve in this Rule to place the Numbers ſo, that each Figure may ſtand directly underneath thoſe Figures of the ſame Value; as *Units* under *Units*, *Tens* under *Tens*, &c. then draw a Line to ſeparate the *given* Numbers from the *Total Sum*.

Example.

$$\begin{array}{r} 3578 \\ 496 \\ 742 \\ 184 \\ 95 \\ \hline \end{array}$$

Then carefully obſerve to add together each Row of Figures that ſtand over one another of the ſame Value, which is done thus.

Begin your *Addition* at the Place of *Units*, and add together all the *Figures* that ſtand in that *Place*, and if their *Sum* be under *Ten*, ſet it down below the Line underneath its own Place; but if their *Sum* be more than *Ten*, ſet down only the *Odd* Figure above the *Ten* or *Tens*; and ſo many *Tens* as the *Sum* of thoſe *Units* amount to, carry the Place of *Tens*: Adding them, and all the *Figures* that ſtand in the ſame Place of *Tens* together in the ſame manner as thoſe of the *Units* were added, then put down the *Overplus* of the *Tens*, if any underneath the *Tens*, and carry the *Tens* to the *Hundreds*, as you did the *Units* to the *Tens*; then proceed in the ſame Order to the Place of *Hundreds*, and ſo on to each Place 'till all is done. The *Sum* ariſing by theſe *Additions* under the *Line*, will be the *Sum Total*. As for

Example.

Suppoſe it was requir'd to find the *Sum* of the *Numbers* above ſet down, *viz.* 3578+ the *Sign* for Adding 496+ 742+ 184+95. Place them directly under each other, as before mention'd and plac'd; then begin at the Place of *Units*: Say 5 and 4 is 9, and 2 is 11, and 6 is 17, and 8 is 25; ſet down the 5 *Units* underneath their own Place of *Units*, and carry the 20, or Two *Tens*, to the Place of *Tens*, at which Place they are only 2: Then ſay, 2 and 9 is 11, and 8 is 19, and 4 is 23, and 9 is 32, and 7 is 39; ſet down the 9 underneath its own Place of *Tens*, and carry the 30 or Three *Tens* (which indeed is 300) to the Place of *Hundreds*, at which Place they are but 3: Then ſay, 3 and 1 is 4, and 7 is 11, and 4 is 15, and 5 is 20; here, becauſe there is no Figure *Overplus*, ſet down a *Cypher* underneath the Place of *Hundreds*, and carry the 2 *Tens* (or rather the 2000) to the Place of *Thouſands*, ſaying as before, 2 and 3 is 5, which being the laſt, ſet it down underneath its own Place. and you'll find the Sum Total to be 5095. Thus,

$$\begin{array}{r} 95 \\ 184 \\ 742 \\ 496 \\ 3578 \\ \hline 5095 \\ \hline \end{array}$$

For put any of theſe Sums exactly under each other, according to their Period, and the Total will be the ſame; but the Example of the *Addition* is according to the Order of their Firſt Places.

SUBSTRACTION

IS that Rule by which one *Number* is taken out of another, that ſo the *Remainder*, *Difference*, or *Exceſs* may be known: As 6 taken out of 9, there *Remains* 3. This 3 is alſo the *Difference* between 6 and 9; or it is the *Exceſs* of 9 above 6. The *Number* to be *Subſtracted* muſt be always leſs than the *Sum* out of which the Subſtraction is to be made; we need not tell the Reaſon, it being eaſily apprehended that a *Greater* cannot be Subſtracted out of a *Leſs*. *This Rule is the direct con-*

trary to Addition; and the ſame Caution muſt be obſerv'd in this as in that, to place the *Units* of the Sum to be Subſtracted, exactly under the *Units* of the Sum out of which the Subſtraction is requir'd to be made; and ſo the *Tens* under the *Tens*, and *Hundreds* under the *Hundreds*, &c. Then having plac'd the Leſs Number under the Greater, perform the Operation thus.

Begin with the *Units* as in *Addition*, and *Subſtract* the Lower *Figure* in that Place from the *Figure* that ſtands over it; ſet down the *Remainder* or *Difference* under a *Line* drawn beneath the Two *Sums* exactly in its own Place: If the Two *Figures* chance to be equal ſet down a *Cypher*; but if the Upper *Figure* be leſs than the Lower *Figure*, then you muſt add Ten to the Upper *Figure*, or call it in your Mind 10 more than it is; and from that Sum Subſtract the Lower *Figure*, ſetting down the *Remainder* as before directed: The 10 thus added, being ſuppos'd to be borrow'd from the next Superior Place, *viz.* of *Tens* in the Upper *Figures*, you muſt either call the Upper *Figure* in that Place one *leſs* than it is; or elſe you muſt call the Lower *Figure* in that Place one more than really it is; and then proceed to *Subſtraction* in that Place as in the former, and ſo from one Row of Figures to another, till all be done.

Example.

Let it be requir'd to know the *Difference* between 830476 and 741068; then let the Latter be Subſtracted from the Former; theſe Numbers being plac'd as before directed, exactly under each other will ſtand thus.

830476
741068

Remainder 89408

Beginning at the Place of *Units* ſay, 8 from 6 I cannot, but 8 from 16 and there remains 8, to be ſet down under its own Place: Next proceed to the Place of *Tens*, where you muſt now pay the *Ten* that was borrow'd to make the 6, 16, by accounting the Lower Figure in that Place one more than it is; ſaying, one that I borrow'd and 6 is 7, from 7 and there remains Nought, or a *Cypher*, to be ſet down under its own *Place*. Then proceed to the Place of *Hundreds*, and ſay, Nought from 4 and there remains 4, to be ſet down under its own Place; Proceed then to the Period or Place of *Thouſands*, and ſay, One from Nought I cannot, but 1 from 10, which you muſt borrow, and there remains 9, to be ſet down under its own Place; the Ten you borrow'd muſt be paid when you come to the next Place, by ſaying, One that I borrow'd and 4 is 5, from 3 I cannot, but borrowing 10 again, ſay 5 from 13 and there remains 8, to be ſet down under its own Place: Then proceed to the next Place, or the Laſt Figure, ſaying, One that I borrow'd and 7 is 8, taken from 8 and there remains nought; which Cypher need not be ſet down, and the *Difference* requir'd will be 89408. By this Example alſo, 'tis plain that *Cyphers* in the Numbers to be *Subſtracted* do not diminiſh the Number from whence *Subſtraction* is made.

The Common and Infallible Method of *Proofing Sums* in *Subſtraction* is by *Addition*, viz. by adding the *Remainder* to the Number that was *Subſtracted*, and it will make the Number of the Sum out of which it was *Subſtracted*. As for Example; Take the *Remainder* of the above Example,

	89408	*Add*
Add to it the Number that was *Subſtracted*,	741068	
It makes the Sum of which it was *Subſtracted*.	830476	*Proof.*

MULTIPLICATION

IS a Rule by which any given Number may be ſpeedily *encreas'd*, according to any propos'd Number of *Times*.

One *Number* is ſaid to *multiply* another, when the Number *multiply'd* is ſo often added to itſelf, as there are *Unites* in the Number *Multiplying*.

Again; *Multiplication* is only a *Conciſe* way of *adding* any given *Number* to itſelf, ſo often as any *Number* of Times may be propos'd.

Before any Operation can be readily perform'd in *Multiplication*, the ſeveral Products of the Single Figures one in another, which is call'd *Multiplication Table*, muſt be perfectly learnt by Heart, *viz.* That Twice 2 is 4, 3 Times 3 is 9, 3 Times 6 is 18, &c. according as is expreſs'd in the following *Table*, wherein multiplying with 2 is omitted, it being ſo very eaſy that any one may do it.

Note; × *is the Sign of* Multiplication, *and ſignifies Times*, as 3×3 *is* 3 *Times* 3, *and* = *is the Sign of Equality, as* 3×3=9, *makes it equal to* 9, *as is mention'd in the* Signs.

MULTIPLICATION TABLE.

3×3= 9	4×4=16	5×5=25	6×6=36	7×7=49	8×8=64
3×4=12	4×5=20	5×6=30	6×7=42	7×8=56	8×9=72
3×5=15	4×6=24	5×7=35	6×8=48	7×9=63	9×9=81
3×6=18	4×7=28	5×8=40	6×9=54		
3×7=21	4×8=32	5×9=45			
3×8=24	4×9=36				
3×9=27					

Note further, 4×3=3×4, 4 *Times* 3 *is the ſame as* 3 *Times* 4, *and* 7 *Times* 5 *as* 5 *Times* 7, &c. *and the like muſt be underſtood of all the reſt in the Table.*

When you have got the *Table* by heart, and a Sum is propoſ'd to be multiply'd by another, the firſt is call'd *Multiplicand*, the other *Multiplier*; and you go to work thus, Begin with that Figure which ſtands in the *Units* place of the *Multiplier*, and with it multiply the *Figure* which ſtands in the *Units* place of the *Multiplicand*; if their *Product* be leſs than 10, ſet it down underneath its own place of *Units*, and proceed to the next Figure of the *Multiplicand*; but if their Product be above 10, or *Tens*, then ſet down the *Overplus* only (or *odd* Figure as in Addition) and bear the ſaid 10, or *Tens* in Mind 'till you have multiply'd the next Figure of the *Multiplicand* with the ſame Figure of the *Multiplier*; then to their *Product* add the 10, or *Tens* born in Mind, ſetting down the *Overplus* of their Sum above *Tens*, as before, and ſo proceed on in the very ſame manner, 'till all the Figures of the *Multiplicand* are multiply'd with that Figure of the *Multiplier*.

Example.

Let 3213 be the *Multiplicand*,
And 3 the *Multiplier*.

9639

Begin with the *Units*, ſaying 3 times 3 is 9, which becauſe 'tis leſs than 10, ſet down underneath its own place; and proceed to the next place, ſaying 3 times 1 is 3, which ſet down underneath its own place; then go on to that of *Hundreds*, and ſay 3 times 2 is 6, which ſet down as before; and at the place of *Thouſands*, ſay 3 times 3 is 9, which being ſet down under its own place, the Operation will be done, and the Product amount to 9639.

DIVISION.

Diviſion is a Rule by which one *Number* may be ſpeedily *ſubſtracted* from another, ſo many times as it is contain'd therein; that is, it ſpeedily diſcovers how often one Number is contain'd, or may be found in another.

To perform this, there is 2 Numbers to be given; 1 of them is that Number which is propoſ'd to be divided, and is call'd the *Dividend*; 2 the other is that Number by which the ſaid *Dividend* is to be divided, and is call'd the *Diviſor*. By comparing theſe two together, there will ariſe a third Number, call'd the *Quotient*, which ſhews how often the *Diviſor* is contain'd in the *Dividend*.

If the *Diviſor* be multiply'd with the *Quotient*, their Product will be the *Dividend*; whence it follows, that *Diviſion* and *Multiplication* are direct contrary one to another, (as *Subtraction* is to *Multiplication*) and mutually prove the Truth of each others *Operations*.

Let it be requir'd to find how often 6 is contain'd in 24, that is divide 24 by 6.

To perform any ſuch Operation, place the given Numbers always in this Order; firſt ſet down the *Diviſor*, and to the left-hand of it draw a crooked Line; then ſet down the *Dividend*, and to the right of it draw another crooked Line, in which the *Quotient* Figures, as they become found, muſt be plac'd thus,

Dividend
Diviſor 6) 24 (4 *Quotient*.

You ask your ſelf how many times 6 in 24, and finding 4 times 6 is 24, therefore 4 is the *Quotient*.

All Operations in *Diviſion* begin contrary to thoſe in *Multiplication*, viz. At the firſt Figure to the left-hand, and decreaſe the *Dividend* by a repeated *ſubſtraction* of each Product ariſing from the *Diviſor*, when multiply'd into the *Quotient* Figure. The only difficulty in *Diviſion* of whole *Numbers* (or indeed of any Numbers) lies in making choice of ſuch a *Quotient* Figure as is neither too big nor too little.

As often as the firſt Figure of the *Diviſor* is taken from the firſt Figure of the *Dividend*, ſo often muſt the ſecond Figure of the *Diviſor* be taken from the ſecond Figure of the *Dividend*, when 'tis joyn'd with what remains of the firſt, and ſo often muſt the third Figure of the *Diviſor* be takēn from the third Figure of the *Dividend*.

But if the firſt Figure of the *Diviſor* cannot be taken from the firſt Figure of the *Dividend* ſo often as the firſt Figure of the *Diviſor* is taken from the two firſt Figures of the *Dividend*, ſo often muſt the ſecond Figure of the *Diviſor* be taken from the third Figure of the *Dividend*, when 'tis joyn'd with what remain'd of the ſecond; and ſo often muſt the third Figure of the *Diviſor* be taken from the fourth Figure of the *Dividend*, &c. that is, the *Quotient* Figure muſt be ſuch, as being multiply'd into the *Diviſor*, will produce a *Product* equal to ſuch a part of the *Dividend* as is then taken for that *Operation*; but if ſuch a *Product* cannot be exactly found, then the next leſs muſt be taken, and order'd as in the following *Example*.

Let it be requir'd to divide 68552 by 8.

8) 68552 (*Quotient* when found.

Compare 8 the *Diviſor*, with 6 the firſt Figure of the *Dividend*, and finding you cannot take it from that, conſider how often 8 can be taken from 68, the two firſt Figures of the *Dividend*, and you will find it may be taken 8 times; for 8 times 8 is 64, therefore place 8 in the *Quotient*, and with it multiply 8 the *Diviſor*, ſetting down their *Product* underneath the ſaid two firſt Figures of the *Dividend*, ſubſtracting it from them, and then the Work will ſtand thus,

8) 68552 (8
64

4

Then make a Point under the next Figure of the *Dividend*, the 5, and bring it down underneath its own place to the Remainder 4, which will by that means become 45; then ask your ſelf how many times 8 can be taken from 45, and finding it to be 5 times, for 5 time 8 is 40, place 5 in the *Quotient*, and with it multiply 8, the *Diviſor*, ſetting down and ſubſtracting their *Product* as before, after which the Work will ſtand thus,

```
8) 68552 (85
   64
   --
    45
    40
    --
     5
```

Make a Point under the next Figure of the *Dividend*, the 5, and bring it down as before, proceeding in all reſpects after the ſame manner, and the Work will ſtand thus,

```
8) 68552 (856
   64
   --
    45
    40
    --
     55
     48
     --
      7
```

Point and bring down the Figure of the *Dividend* to the *Remainder* 7, which will then become 72; and proceeding, as in the other Operations, you will find that 8, the *Diviſor*, can be taken juſt 9 times from 72, and the Work is finiſh'd, and will ſtand thus,

```
8) 68552 (8569
   64
   --
    45
    40
    --
     55
     48
     --
      72
      72
      --
```

The true *Quotient* is 8569.

We ſhall now proceed to ſome other Parts of Arithmetick, dependant on the former Rules, and commonly taught in the following Order.

REDUCTION.

BY this Rule, Numbers of different Denominations are brought into one, that is, it alters or changes any ſuperior Denomination into any inferior or leſs Denomination requir'd, ſtill keeping them equivalent in Value, and by that means they are prepar'd for *Multiplication* and *Diviſion*. *Reduction* is very uſeful in the Rule of Three, to ſuch as do not underſtand *Vulgar* or *Decimal* Fractions. 'Tis perform'd thus,

Conſider how many *Units* of the Denomination requir'd, makes one of that Denomination propos'd to be reduc'd; and with thoſe *Units*, multiply the *Denomination* propos'd, and their *Product* will be the Number requir'd.

Example.

To reduce 357 *l.* into Shillings, and theſe Shillings into Pence, which ſhall ſtill be equal.

```
                  357 Pounds
Multiply with      20 the Shillings in one Pound.
                 ----
                 7140
Multiply with      12 the Pence in one Shilling.
                -----
                14280
                714
                -----
                85680 the Pence in 357 l. as requir'd.
                -----
```

But when the Numbers propos'd to be reduc'd are of ſeveral Denominations, and 'tis requir'd to bring them all to the loweſt; you muſt reduce the greateſt Denomination to the next leſs, adding the Numbers that are of that leſs Denomination together; then reduce their Sum to the next lower Denomination, adding together all the Numbers that are of that Denomination, and ſo proceed gradually 'till all is done; which is ſo plain, that there hardly needs any other Example than the firſt.

Suppoſe 17 Shillings and 10 Pence ¾ Farthings were added to the

```
  7140 Shillings before ſet down.
    17 Add either by Memory or ſetting down.
  ----
  7157
    12 Pence in a Pound.
 -----
 14314
  7157
 -----
 85884
    10 Add
 -----
 85894 Pence.
     4 Farthings
 ------
343576
     3 Add
------
343579 Farthings in 357 l. 17 s. 10 d. ¾ q.
------
```

'Tis the ſame with Weights and Meaſures, as with Coins; ſo the next thing is to ſhew how to bring Numbers from a leſs to a greater Denomination, which is commonly and improperly call'd,

Reduction Aſcending.

THis Work is the Reverſe of the laſt, and is perform'd by Diviſion, thus,

Conſider how many of the Denomination propos'd, make one of the Denomination requir'd, and divide by that Number the Denomination propos'd, the Quotient is the Number requir'd.

Example.

Suppoſe it be requir'd to find how many Shillings and Pounds are contain'd in 85680 Pence.

The Pence in 1 Shilling are 12) 85680 (7140 Shillings.

Again, the Shillings in 1 Pound are 20) 7140 (357 Pounds in 85680 Pence.

If there are Farthings in the Sum propos'd, you divide that Number firſt by 4, the Number of Farthings in a Penny, and then by 12, *&c.* as before. If there are any odd Figures in the Sum divided, the Remainder is always of the ſame Denomination with the Dividend.

Of Vulgar Fractions.

A Fraction or Broken Number is that which repreſents a Part or Parts of any thing propos'd, and is expreſs'd by Two Numbers plac'd one above the other, with a Line drawn between them, thus,

$$\frac{3 \text{ Numerator,}}{4 \text{ Denominator.}}$$

The Denominator, or Number plac'd underneath the Line, denotes how many equal Parts the thing is ſuppos'd to be divided into, (being only the *Diviſor* in *Diviſion)* and the Numerator or Number plac'd above the Line, ſhews how many Parts are contain'd in the *Fraction*, it being the Remainder after Diviſion.

There are three ſorts of Fractions, $\begin{cases} \textit{Proper,} \\ \textit{Improper,} \\ \textit{Compound.} \end{cases}$

A *Proper Fraction* is that which is leſs than an *Unit*; that is, it repreſents the immediate Part or Parts of any thing leſs than the *Whole*, and therefore its *Numerator* is always leſs than the *Denominator.*

Ld Napier

As, $\frac{1}{4}$ is one Fourth, $\frac{1}{2}$ is one Half,
$\frac{1}{3}$ is one Third, $\frac{2}{3}$ is two Thirds, *&c.*

An *Improper Fraction* is that which is greater than an *Unit*; that is, it repreſents ſome Number of Parts greater than the whole *Thing*, and its *Numerator* is always greater than the *Denominator.*

As, $\frac{5}{3}$, $\frac{9}{7}$, $\frac{41}{15}$, *&c.*

A *Compound Fraction* is a Part of a Part, conſiſting of ſeveral *Numerators* and *Denominators*, joyn'd together with the word *Of*,

As, $\frac{1}{3}$ of $\frac{3}{4}$ of $\frac{2}{5}$, the One Third of Three Fourths of Two Fifths.

That is, when an *Unit* is firſt divided into any Number of equal Parts, and each of thoſe Parts is ſubdivided into other Parts, and ſo on; then theſe laſt Parts are call'd *Compound Fractions*, or *Fractions of Fractions.*

For Example, Suppoſe a Pound Sterling of 20 Shillings to be the *Unit*, then is 8 Shillings the $\frac{2}{5}$ of it, and 6 Shillings the $\frac{3}{4}$ of thoſe Two Fifths, and 2 the $\frac{1}{3}$ of thoſe Three Fourths.

All *Compound Fractions* are reduc'd to ſingle ones, thus, Multiply all the Numerators into one another for a Numerator, and all the Denominators into one another, for the Denominator.

Thus the $\frac{1}{3}$ of $\frac{3}{4}$ of $\frac{2}{5}$ will become $\frac{6}{60}$ or $\frac{1}{10}$.

For 1 multiply'd with 3, and 3 with 2 makes 6, the Numerator; and 3 multiply'd by 4 makes 12, and that by 5 makes 60, the Denominator.

Thus, $\frac{6}{60}$ or $\frac{1}{10}$ of a Pound Sterling is 2 Shillings, as above.

Different Fractions may be alter'd into one Denomination, retaining the ſame Value. If both the Numerator and Denominator of any Fraction be Equally multiply'd into any Number, their Product will retain the ſame Value of that Fraction.

As in theſe, $\frac{2 \text{ multiply'd with } 2 \text{ makes } 4,}{3 \text{ multiply'd with } 2 \text{ makes } 6,}$ Or, $\frac{2 \text{ multiply'd with } 3 \text{ makes } 6,}{3 \text{ multiply'd with } 3 \text{ makes } 9,}$ Or, $\frac{2 \times 5 \text{—makes } 10}{3 \times 5 \text{—makes } 15}$

Of Decimal Fractions.

'TIS Uncertain when, and by whom this excellent Invention of *Decimal Arithmetick* was firſt found out, but 'tis without doubt to later Years that we owe its Improvements and Perfection. In Decimal Fractions, the *Integer*, or whole Thing is ſuppos'd to be divided into 10 equal Parts, and every one of thoſe 10 Parts to be ſubdivided into other 10 equal Parts, *&c. ad Infinitum.* The *Integer* being thus divided into 10, 100, 1000, 10000, *&c.* equal Parts, becomes the Denominator to the Decimal Fractions,

Thus, $\frac{2}{10}$, $\frac{3}{100}$, $\frac{7}{1000}$, $\frac{53}{10000}$, $\frac{754}{100000}$, *&c.*

Now theſe Denominators are ſeldom or never ſet down, but only the Numerators; and theſe are ſeparated from whole Numbers by a *Point* or *Comma*,

Thus, 5,4 is $5\frac{4}{100}$, 07, is $\frac{7}{10}$, 35,05 is $35\frac{5}{100}$, *&c.*

Here it will not be improper to inſert a Table taken out of Mr. *Oughtred's Clavis Mathematica*, which ſhews the very Foundation of Decimal Fractions.

Whole Numbers.						*Decimal Parts.*					
5	4	3	2	1	0,	1	2	3	4	5	6
&c.	*Tens of Thouſands.*	*Thouſands.*	*Hundreds.*	*Tens.*	*Units Place.*	*Parts of Ten, or* $\frac{1}{10}$	*Parts of a Hundred.*	*Parts of a Thouſand.*	*Parts of* 10 *Thouſands.*	*Parts of* 100 *Thouſands.*	*Parts of Millions.* *&c.*

This Table ſhews that as in *Integers* every Degree from the *Unit's* Place increaſes towards the left-hand by a ten-fold Proportion, ſo in Decimal Parts every Degree is decreas'd towards the right-hand by the ſame Proportion; wherefore theſe Decimal Parts or Fractions are really more Homogenial, or agreeing with Whole Numbers, than Vulgar Fractions. For indeed, all Plain Numbers are in effect but Decimal Parts one to another; for ſuppoſe any Series of equal Numbers, as 444, the firſt four towards the left is Ten times the Value of the 4 in the middle, and that 4 in the middle is Ten times the Value of the laſt 4 to the right of it, and but the tenth Part of that 4 towards the left. All of them may be taken as Integers, or Parts of an Integer; if Integers, then they muſt be ſet down without any Comma between them, thus, 444; but if Part be a Fraction, then put a Comma between them, thus, 44,4 which ſignifies 44 Whole Numbers and 4 Tenths of an Unit. Again, if two Places of Parts be requir'd, divide them with a Comma, thus, 4,44 *viz.* 4 Units and 44 Hundred Parts of an Unit, *&c.*

From whence, if rightly compar'd with the Table, it will be eaſy to conceive that Decimal Parts take their Denomination from the Place of their laſt Figure.

$$\text{That is,}\left\{\begin{array}{l},5\,\frac{2}{10}\\ ,56\,\frac{56}{100}\\ ,56\,\frac{56}{1000}\end{array}\right\}\text{Parts of an Unit.}$$

Cyphers annex'd to Decimal Parts alter not their Value, as 50 and 500 and 5000, *&c.* are each but 5 Tenths of an Unit.

For, $\frac{50}{100}$, $\frac{5}{10}$, and $\frac{500}{1000}$, $\frac{5}{10}$, or $\frac{5000}{10000}$, $\frac{5}{10}$.

But Cyphers prefix'd to Decimal Parts, decreaſe their Value by removing them further from the Comma.

0,5=5 Tenth Parts.
,05=5 Parts of a Hundred.
,005=5 Parts of a Thouſand.
,0005=5 Parts of Ten Thouſands.

Thus the true Value of all Decimal Parts are known by their diſtance from the Units Place.

They muſt be added or ſubſtracted, as if they were all Whole Numbers, and from their Sum or Difference, as many Decimal Parts muſt be cut off as are the moſt in any of the given Numbers. As to the Multiplication of *Decimals*, 'tis much the ſame with Whole Numbers, only ſo many Places of Decimal Parts in the Product muſt be cut off with a Comma, as there are in both the *Multiplicand* and *Multiplier.*

Diviſion is reckon'd the moſt difficult Part of Decimal Arithmetick, and requires particular Care.

The Deſign of this Treatiſe being only to give the Reader ſuch an Idea of all the Parts of Arithmetick as may be uſeful to him in common Affairs, we enter no farther into any of them than is neceſſary for ſuch an Idea; and tho' the Addition, Subſtraction, &c. of *Fractions* and *Decimal Fractions* are of great uſe in *Extraordinary* Operations; yet, conſidering they ſeldom enter into *Ordinary* ones, we muſt for thoſe Parts of Arithmetick refer the Reader to Treatiſes more at large, as *Oughtred, Ward,* &c. and proceed to that Rule in Arithmetick which, for its Uſe, is call'd,

The Golden Rule; Or, The Rule of Three,

BY ſome term'd alſo *Proportion Disjunct.* It is either *Direct* or *Reciprocal,* call'd Inverſe; and theſe are both Simple and Compound.

Direct Proportion is when of 4 Numbers the *Firſt* bears the ſame *Proportion* to the *Second,* as the *Third* does to the *Fourth,*

As in theſe, 2 : 8 :: 6 : 24.

Conſequently the greater the *Second* Term is in reſpect to the *Firſt,* the greater will the *Fourth* Term be with reſpect to the *Third.* Again, the leſs the *Second* Term is in reſpect to the *Firſt,* the leſs will the *Fourth* be in reſpect to the *Third.*

As in theſe, 18 : 6 :: 12 : 4.

That is, 18 : 18÷3 :: 12 : 12÷3.

But 18 × 12 [illegible] =18÷3 × 12, *Viz.* 18 × 4=6 × 12.

Conſequently 2 : 8 : 6 : 24, and 18 : 6 : 12 : 4 are true *Proportionals.* From theſe Conſiderations comes the Invention of finding a *Fourth* Number in Proportion to any *Three* given Numbers, whence 'tis call'd the *Rule* of *Three.*

For if the *Second* Number multiply'd into the *Third,* be equal with the *Firſt* multiply'd into the *Fourth,* 'tis eaſie to conceive that if the *Product* of the *Second* and *Third* be divided by the *Firſt,* the *Quotient* muſt needs be the *Fourth* Number; for if that Number, which divides another, be multiply'd into the *Quotient* produc'd by that *Diviſion,* their *Product* will be equal to the Number divided.

All Queſtions in Direct Proportion, may be anſwer'd three ſeveral ways.

1. Multiply the *Second* and *Third* Terms together, and divide their Product by the *Firſt,* the Quotient will be the Anſwer requir'd.

As if 4 Sheets make 64 Pages, what will 9 make?

4 : 64 : 9 : 144
9

4) 576 (144 Pages, becauſe the *Second* Term was Pages.

2. Divide the *Second* Term by the *Firſt*, then multiply the Quotient into the *Third* Term, and their Product will be the Anſwer requir'd.

As thus, 4 Sheets, 64 Pages : 9 : 144.

4) 64 (16 × 9 makes 144.

3. Divide the Third Term by the Firſt, then multiply that Quotient into the Second Term, and their Product will be the Anſwer.

4—64—9 . 144.
(1 Rem. (1 Rem.
4) 9 (2 — 64 — 2 128
16 *Remainder* 16.

144

Of theſe Ways the Firſt is moſt practis'd, the Two Laſt are not ſo readily perform'd; when the Second and Third Terms cannot be divided by the Firſt, as is in the above Inſtance, but is of Uſe in the *Rule of Fellowſhip*. Take another Example where the whole Operation runs eaſy.

1. *Way*. 3 Yards 9 Shillings, what 6?
6

3) 54 (18 Shillings.

2. *Way*. 3 Yards 9 Shillings 6 × 18.
3) 9 (3 × 6 makes 18.

3 *Way*. 3—9—6—18
3) 6 (2 and 9 × 2 = 18

To explain the Uſe of this Rule the better, take the following Examples.

If 8 ℔ of Hops Coſt 14 Shillings, what will half a hundred, *viz.* 56 ℔ Coſt at the ſame rate?

8 . 14 . 56 . 4 *l.* 18 *s.* *Anſwer.*
14

224
56

8) 784 (98 *s.* is 4 *l.* 18 *s.*

If 14 *s.* will Buy 8 ℔ of Hops, how much will 4 *l.* 18 *s.* Buy?

Stated thus, 14 *s.* 8 ℔ 4 *l.* 18 *s.* 98 *s.*
Then 98 × 8 = 784. And 14) 784 (56 *l.* *Anſwer.*

Reduction is of great Uſe in this Rule; as ſuppoſe the Queſtion to be,
What will $\frac{3}{4}$ of a Yard of Velvet Coſt when the Price of 21 Yards and a half is 22 *l.* 10 *s.* 6 *s.*

Bring the Firſt and Third Terms into one Denomination, *viz.* into Quarters, and reduce the Second Term into its Leaſt Denomination.

Thus 21 Y. $\frac{1}{2}$ make 86 Q. and 22 *l.* 10 *s.* 6 *d.* = 5406 *d.*
Then 86 : 5406 : : 3 : 15 : $8\frac{50}{88}$. For 5406 × 3 ÷ 16218
And 86) 16218 (= $188\frac{50}{86}$
Then $188\frac{50}{88}$ Pence 15 *s.* 8 *d.* $2\frac{14}{43}$ Farthings. *Anſwer.*

Having ſpoken of *Vulgar Fractions*, we'll State the ſame Queſtion in them.

Thus $22\frac{1}{2} = \frac{43}{2}$: $22\frac{21}{40} = \frac{901}{40}$: : $\frac{3}{4}$
Then $\frac{901}{40} \times \frac{3}{4} = \frac{2703}{160}$ And $\frac{43}{2}$) $\frac{2703}{160}$ (= $\frac{5406}{6880}$

Theſe $\frac{5406}{6880}$ Parts of a Pound are brought into Shillings by *multiplying* the *Numerator* with 20, and *Dividing* the *Product* by its *Denominator*, &c.

Thus, 5406 × 20 = 108120 And 6880) 108120 (15 *s.*
And there remains 4920. Again 4920 × 12 = 59040
Then 6880) 59040 (8 *d.* and $\frac{50}{88}$, *&c.* as before

We do not work it in *Decimal* Fractions, becauſe there are very few Gentlemen who for Recreation ſake enter ſo far into the Labyrinth of Numbers; and thoſe whoſe Affairs make it neceſſary for them, will meet with helps enough in *Ward* and *Oughtred* before-mention'd.

Of the Rule of Three Inverſe.

A *Reciprocal Proportion*, which is when of *Four* Numbers the *Third*, viz. (that which moves the Queſtion) bears the ſame Proportion to the Firſt as the Second does to the *Fourth*; therefore the Leſs the *Third* Term is with reſpect to the Firſt, the Greater will the Fourth Term be in reſpect to the Second.

Example.

Queſt. 1. If 16 Men can do a Piece of Work in 16 Days, how many Days muſt 8 Men require to do the ſame Work at the ſame rate of Working?

Queſt. 2. If 8 Men can do a Piece of Work in 12 Days, how many Days muſt 16 Men require to do the ſame Work?

The manner of placing down the Propos'd Terms is the ſame in both *Rules*. The Firſt Term in the Suppoſition muſt be of the ſame Denomination with the Third Term which moves the Queſtion, and the Term ſought muſt be of the ſame Denomination with the Second Term in the Suppoſition; as in the Two Laſt Examples.

	Men		*Days*		*Men*		*Days.*
Queſt. 1.	16	:	6	: :	8	:	
Queſt. 2.	8	:	12	: :	16	:	

Work the Queſtions thus: Multiply the Firſt and Second Terms together, and divide their Product by the Third Term, the Quotient will be the Anſwer requir'd.

Thus in the Second Example. 12 × 8 = 96

16) 96 (= 6 Days.

That is, 16 Man can do the ſame Work in Six Days as Eight Men can do in Twelve Days.

The Proof of this Inverſe Rule is eaſily deduc'd from its Operations, *viz.* the Product of the Firſt and Second Terms muſt be equal to the Product of the Third and Fourth.

Of the Double Rule of Three,

OR *Compound Proportion,* which is, when there are 5 Numbers given, to find out a 6th *Proportional*; and this is generally perform'd by a Double Poſition; that is, by Stating and Working the Queſtion at Two Operations, either in *Direct* or *Reciprocal Proportion,* according as the Queſtion requires.

Example.

If 100 *l.* gain 6 *l.* in 12 Months, how much will 300 *l* gain in 9 Months at the ſame rate.

Firſt, 100 . 6 300 . 18 *l.*
6
100) 1800 (18 *l.* the Intereſt of 300 *l.* for 12 Months.

Months *Months*
Then, 12 . 18 *l.* 9 13 *l.* 10 *s.*
9
12) 162 (13 *l.* 10 *s.* Anſwer requir'd.

Of the Rule of Fellowſhip,

WHich is that by which the Accounts of ſeveral Trading in a Company are ſo adjuſted that every Partner may have the Juſt Part of the Gain, or ſuſtain his Juſt Part of the Loſs, according to his Proportion or Share of Money in the Joint Stock: In the Rule are Two Parts:

1. *The Single Rule of Fellowſhip,*

By which is adjuſted the Accounts of thoſe Partners that put their ſeveral and perhaps different Sums of Money into a Common Stock at one and the ſame time. Now all Queſtions of this Nature are anſwer'd by ſo many Operations in the *Rule of Three Direct,* as there are Partners in the Stock: For as the Sum Total of Money in the Stock is in Proportion to the whole Gain or Loſs; ſo is every Man's particular Part of that Stock to his particular Share of that Gain or Loſs.

Example.

There are Three Partners, A B and C in a Joint Stock of 96 *l.* as follows.

A puts in 24 *l.* B puts in 32 *l.* and C puts in 40 *l.* what was each Man's Gain?

The Firſt Operation for A's Part of the Gain will ſtand thus;

96 *l.* 12 *l.*:: 24 *l.* 3 *l.* A's Gain.
The Second for B 96 *l.* 12 *l.*:: 32 *l.* 4 *l.* B's Gain.
The Third for C 96 *l.* 12 *l.*:: 40 *l.* 5 *l.* C's Gain.

Proof. 3 add 4 add 5 makes 12, the whole Gain, for if the Work is true, each Man's *Particular* Gain added together will make the *Whole.*

The Double Rule of Fellowſhip

is ſo call'd, becauſe each Man's Money is to be conſider'd with Relation to the Time of its Continuance in the Joint Stock.

Example.

A and B join in Partnerſhip on theſe Terms.

A agrees to lay down 100 *l.* and employ it in Trade 3 Months; then B is to lay down 100 *l.* and with the whole Stock of 200 *l.* they are to Trade 3 Months more; now at the End of the Time they find they have got 21 *l.*

Queſt. What is each Man's Part of the Gain according to his Stock of the Time of employing it?

For ſolving this Queſtion, ſuppoſe A's 100 *l.* employ'd 3 Months gain'd R= a Sum as yet unknown, then it muſt gain 2 Z in 6 Months, and to find what B muſt gain, it will be

l. Months.
100——6 2 Z's=A's Gain.
100——3 B's Gain

$$\frac{100\times3=2\,Z}{100=6}=\text{B's Gain.}$$

But A's Gain added to B's Gain muſt make 21, the whole Gain by the Queſtion.

$$\text{Therefore } a\times Z\times\frac{100\times3\times2Z}{100\times6}=21$$

That is $100\times6\times2Z\times100\times3+2Z=21\times100\times6$

Which contracted is $900\times2Z=$make 21×600

Conſequently $2Z=\frac{21\times600}{900}$ which gives this following Analogy.

Viz. 900 : 21 : 600 : 2Z=14 *l.* for A's Gain.
900 : 21 : 100×3=300 7 *l.* for B's Gain.

This may produce a General Rule for reſolving all Queſtions of this Nature: *Multiply every Particular Man's Stock with the Time it is employ'd; then it will be, as the Sum of all thoſe Products is to the whole Gain (or Loſs) ſo is every one of thoſe Products to its Proportional Part of that whole Gain or Loſs.*

Of

Of Bartering.

WHen Merchants Exchange One Commodity for another, 'tis call'd Bartering; and the only Difficulty in this way of Dealing lies in the due proportioning the Commodities to be Exchang'd.

Example.

Two Merchants, A and B Barter, A would Exchange 5 Hundred 3 Quarters and 14 Pounds of Pepper, which is worth 3 *l.* 10 *s.* with B for Cotton worth 10 *d.* per Pound Weight. *Queſt.* How much Cotton muſt B give to A for his Pepper?

In order to the reſolving of this Queſtion and all others of this Nature, you muſt find by the *Rule of Three* (or otherwiſe) the true Value of that Commodity whoſe Quantity is given (which in this Queſtion is Pepper) and then find how much of the other Commodity will amount to that Sum at the Rate propos'd.

Reduce the 5 Hundred 3 Quarters and 14 Pounds into Pounds, and the 3 *l.* 10 *s.* into Shillings.

112 70 658
658

560
350
420 $\left(\frac{28}{112}\right.$ Rem. is $\frac{1}{4}$ 3*d.*

112) 46060 (411 . 20 . 11 . 3 *the Anſwer.*

Now 'tis eaſie to conceive that A ought to have as much Cotton at 10 *d* a Pound as comes to 20 *l.* 11 *s.* 3 *d.*

Reduce the Pounds into Pence, and ſay thus;

If 10 *d.* buys 1 what will 4935, there being no need of dividing the 4935 by 1, for cutting off the Laſt Figure does, there will remain 493, 5, or 4 Hundred 1 Quarter 17 Pound and half; and ſo much Cotton B muſt give to A in Exchange for his 5 Hundred 3 Quarters and 14 Pound of Pepper.

The *Learner* being Maſter of the foregoing Rules, eſpecially the *Rule of Three,* this will be eaſily comprehended by him; ſo we proceed.

Of Exchanging Coins.

IN Order to perform this, it will be neceſſary to have a true Account at all Times of the Juſt Values of thoſe Foreign Coins which are to be Exchang'd, becauſe the *Par* of Exchange differs almoſt every Day from *London* to other Countries.

The *Engliſh* generally reckon their Exchange with other Countries by Pence, *viz.* other Countries value their Crowns, Dollars, *&c.* by *Engliſh* Pence, except in ſome Parts of the *Low Countries,* with whom the Exchange is in Pounds *Sterling.*

The Par riſing and falling ſo often renders it of very little Uſe to Gentlemen to know a Year hence how it is now; ſo we omit giving a Table of Exchanges, and proceed to ſome Examples.

I draw a Bill of Exchange on a Merchant at *Amſterdam* for 400 *l. Sterling,* at 1 *l.* 13 *s.* 6 *d. Flemiſh* per Pound *Sterling,* How much Money muſt be paid at *Amſterdam?*

1 *l. Sterl.* is 240 *d.* and 1 . 13 : 6 *Flem.* 402.

Then if 240 *d.* is 402 what 400
4

12) 160800 (13400 *Anſwer;* that is, 670 *l. Flem.*

A Merchant draws upon me for 236 *l. Flemiſh* from *Antwerp,* Exchange at 1 *l.* 4 *s.* 7 *d. Flemiſh* per Pound *Sterling,* What muſt I pay him at *London?*

1 *l.* 4 *s.* 7 *d. Flem.* is 295 1 *l. Sterl.* 240

Then if 295 : 240 : : 236 : 192 *Anſwer.*

I pay 162 *l.* 18 *s. Sterling,* to receive the Contents at 4 *s.* 6 *d.* per Dollar.

Thus, 162 *l.* 18 *s.* makes 3258 and 4 *s.* 6 *d.* makes 4, 5.
Then 4, 5 : | :: 3258 : 724 *Anſwer.*

Or, Reduce the Queſtion into the Loweſt Denomination, Pence.

Then 54 *d.* 1 Dollar, what 38996 . 162 . 18.

54) 38996 (724 *Anſwer.*

ALLIGATION.

WHen 'tis requir'd to mix ſeveral Sorts of Ingredients together, or to Compoſe Medicines, *&c.* The Method of proportioning ſuch Mixtures is call'd the *Rule of Alligation,* and is divided into Two Parts or Branches call'd *Medial* and *Alternate.*

Medial Alligation is that by which the mean rate of any Mixture is found, when the particular Quantity of their Mixture and the Rates are given; It is thus perform'd.

Firſt find out the Sum of all the Quantities propos'd to be mix'd, and alſo the Sum of all their particular Rules, then the Proportion will be,

> As the Sum of all the Quantities is to the Sum of all their Rates, ſo is any Part of Mixture to the mean Rate or Price of that Part.

Suppoſe 15 Buſhels of Wheat at 5 *s.* the Buſhel, and 12 Buſhels of Rye at 3 *s.* 6 *d.* the Buſhel, were mix'd together, what is the mean Rate it may be Sold at without Loſs or Gain?

Thus, 15 Buſh. Wheat at 5 *s.* comes to 900 *d.*
12 Buſh. Rye at 3 comes to 504 *d.*

27 Buſhels. Total Value 1404

Then, If 27 . 1404, what 1 Buſh.

27) 1404 (52 or 4 *s.* 4 *d.* *Anſwer.*

If the Mixtures are of many Denominations, and ſeveral Prices, there's no difference in the Operation, but in the length of the Sums in Addition.

Theſe Operations are prov'd by comparing the Value of all the Mixture being ſold at the Mean Rate, with the Total Value of all the Particular Quantities, ſuppoſing they had been ſold at their Reſpective Rates unmix'd. If theſe Sums are equal, the Work is true.

Alternate Alligation is that by which the Particular Quantities of every Ingredient, concern'd in any Mixture, are found; when the Particular Rates of every one of theſe Ingredients, and the Mean Rate are given. This is the Reverſe of Medial Alligation.

Queſt. How much Wheat, at 5 *s.* a Buſhel, and Rye at 3 *s.* 6 *d.* a Buſhel, will compoſe a Mixture that may be ſold for 4 *s.* 4 *d?*

N.B. In all theſe Queſtions 'tis convenient to place the Mean Rate ſo, that it may eaſily be compar'd with the Particular Rates, in order to find every one of their Differences from the Mean Rate by the firſt glance of the Eye.

$$\text{Thus the Mean Rate, } 4\,s.\ 4\,d. \text{ or } 52\,d.\left\{\begin{array}{ll}\text{Wheat,} & 60\,d.\\ \text{Rye,} & 42\,d.\end{array}\right.$$

Then take the ſeveral Differences between the Mean Rate and the Particular Rates, ſetting down thoſe Differences alternately, and they will be the Quantities requir'd.

$$\text{Thus, } 52\left\{\begin{array}{l}60\\42\end{array}\right\}\left\{\begin{array}{l}10=52-42\\ 8=60-52\end{array}\right.$$

$$\text{That is, }\left\{\begin{array}{l}52-42=10 \text{ for the Quantity of Wheat.}\\ 60-52=\ 8 \text{ for the Quantity of Rye}\end{array}\right.$$
that will Compoſe the Mixture requir'd.

The Proof is by the Medial Alligation.

$$\begin{array}{ll}\text{Add}\left\{\begin{array}{l}10 \text{ Buſhels of Wheat at } 60\,d. \textit{ per } \text{Buſh.}\\ \ 8 \text{ Buſhels of Rye at } 42\,d. \textit{ per } \text{Buſh.}\end{array}\right. & \begin{array}{r}600\,d.\\ 336\end{array}\\ \hline 18 & 936\\ \hline\end{array}$$

Then 18) 936 (52 *d.* for 1 Buſhel, 4 *s.* 4 *d.*

Partial Allegation, is when the Particular Rates of all the Ingredients propos'd to be mix'd, the Mean Rate of the whole Mixture, and any one of the Quantities to be mix'd, are given to find how much of every one of the other Ingredients is requiſite to Compoſe the Mixture.

Queſt. How much Wheat at 5 *s.* a Buſhel muſt be mix'd with 12 Buſhels of Rye at 3 *s.* 6 *d.* a Buſhel, that the whole Mixture may be ſold for 4 *s.* 4 *d?*

Set down all the Particular Rates with the Mean Rates, and find their differences juſt as before, without any regard had to the Quantity given.

$$\text{Thus Mean Rate, } 52\,d.\left\{\begin{array}{ll}\text{Wheat,} & 60\,d.\\ \text{Rye,} & 42\,d.\end{array}\right\}\begin{array}{r}10\\ 8\end{array}$$

Then, as to the Quantity found by the differences of the ſame Name with the Quantity given, is to the Quantity given, ſo is any of the other Quantities found by the differences to the Quantity of its Name.

Thus 8 : 12 : 10 : 15 the Number of Buſhels of Wheat requir'd.

Alligation Total, is when the Particular Rates of all the Ingredients propos'd to be mix'd, and the Sum of all their Quantities, with the Mean Rate of that Sum, are given to find the Particular Quantities of the Mixture. It is thus perform'd.

Set down all their Particular Rates with the Mean Rate, and find their differences as before. Add together all the differences into one Sum.

Then, as the Sum of all the differences is to the Sum of all the Quantities given, ſo is every Particular Difference to its Particular Quantity.

Suppoſe Wheat at 5 *s.* a Buſhel were to be mix'd with Rye at 3 *s.* 6 *d.* a Buſhel, ſo that the whole Quantity may be made 27 Buſhels, to be ſold for 4 *s.* 4 *d.* a Buſhel, what Quantity of each muſt be taken to make up the Mixture?

$$\text{Mean Rate, } 52\left\{\begin{array}{ll}\text{Wheat,} & 60\\ \text{Rye,} & 42\end{array}\right\}\begin{array}{r}10\\ 8\\ \hline 18\\ \hline\end{array}$$

$$\text{Then } 18 : 27\left\{\begin{array}{l}10 : 15\\ \ 8 : 12\end{array}\right\}\text{the Quantities requir'd.}$$

Thoſe that are curious to know ſomething further in this Matter, are referr'd to Sir *Jonas More's* Arithmetick.

The next thing to be treated of is the laſt Principal Rule in Arithmetick.

The Extraction of Roots.

CAll'd alſo Evolution, which is the Unfolding and Reſolving any propos'd Number into the ſame Parts of which it was compos'd, or ſuppos'd to be made up of; in order to which 'twill be proper to conſider how theſe Numbers or Powers are compos'd, &c.

A Square Number is that which is entirely equal, as the Square Number 4 is compos'd of the two equal Numbers, 2 and 2, *viz.* $2\times2=4$.

The Square Number 9 of the two Equal Numbers, 3 and 3, *viz.* $3\times3=9$.

A Cube is that Number which is equally equal, or which is contain'd under three equal Numbers. Thus the Cube Number 8 is compos'd of the three Equal Numbers, 2 and 2 and 2, *viz.* $2\times2\times2=8$, &c.

The two Numbers, the *Square* and the *Cube*, borrow their Names from Geometrical Extenſions, or Figures.

That is, a Root is repreſented by a Line or Side, having but one Denomination, *viz.* Length. The Square is a Plain or Figure of two Dimenſions, having equal Length and Breadth. The Cube is a Solid Body of three Dimenſions, having equal

Length, Breadth, and Thickneſs. Beyond theſe three, Nature does not go as to Local Extenſions; that is, the Nature of Place or Space admits no room for other ways of Extenſion than Length, Breadth, and Thickneſs. Neither is it poſſible to form any Figure or Body beyond that of a Solid. Wherefore all the Superior Powers above the Cube, or Third Power, as the Biquadrate, or Fourth Power, the Sur-Solid, or Fifth Power, *&c.* are beſt explain'd by a Series of Numbers in Geometrical Proportion.

Example.

Suppoſe any Series of Geometrical Proportionals, whoſe Ratio are the ſame, and to them let there be aſſign'd a Series of Numbers in *Arithmetical Progreſſion,* beginning with an Unit, or 1, whoſe common difference is alſo 1.

Thus, 1. 2. 3. 4. 5. 6. 7. Indices.
2. 4. 8. 16. 32. 64. 128. *&c.* in ∺

Then are thoſe Numbers in ∺ produc'd by a continu'd *Multiplication* of the firſt Term or Root into it ſelf; and thoſe in Arithmetical Progreſſion, or Indices, ſhew what Degree or Power each Term in Geometrical Proportion is of.

For inſtance; In the Series of ∺ 2, is both the firſt Term or Root, and common Ratio of the Series.

Then 2 × = 4 the ſecond Term or Square.

And 2 × 2 × 2 = 8 or 4 × 2 = 8 the Cube, or third Term.

Again, 2 × 2 × 2 × 2 = 16, or 8 × 2 = 16 the fourth Term, or Biquadrate, and ſo on to the reſt.

When any Number is drawn into it ſelf, and afterwards into that Product, and 'tis ſaid to be ſo often involv'd into it ſelf, and is call'd Involution, the Indices are the Exponents of the reſpective Powers ſo involv'd.

According to theſe Involutions, is form'd the following Table of Powers, wherein the Root is only one ſingle Figure.

Root, or ſingle Side.	*Square, or ſecond Power.*	*Cube, or the third Power.*	*Biquadrate, or Square, ſquar'd, being the fourth Power.*	*Sur-Solid, or fifth Power.*	*Square cub'd, or Cube ſquar'd; the ſixth Power.*	*The ſecond Sur-Solid, or ſeventh Power.*	*The Biquadrate ſquar'd, or eighth Power.*	*The Cube cub'd, or ninth Power.*
	Index. 2	*Index.* 3	*Index.* 4	*Index.* 5	*Index.* 6	*Index.* 7	*Index.* 8	*Index.* 9
1	1	1	1	1	1	1	1	1
2	4	8	16	32	16	128	256	512
3	9	27	81	243	729	2187	6561	19683
4	16	64	256	1024	4096	16584	65536	262144
5	25	125	625	3125	15625	78125	390625	1953125
6	36	216	1296	7776	46656	279936	1679616	10077696
7	49	343	2401	16807	117649	823543	5764801	40353607
8	64	512	4096	32768	262144	2097152	16777216	134217728
9	81	729	6561	59049	531441	4782969	43046721	387420489

This Table plainly ſhews any Power under the Tenth, of all the Nine Figures, and from thence may be taken the neareſt *Root* of any *Square, Cube, Biquadrate,* &c. of any Number, whoſe Root or Side is a ſingle Figure.

But if the Root conſiſts of two or three, or any more Places of Figures, then it muſt be found by Parcels, or Figure after Figure.

When any Number is propos'd to have its Root extracted, the firſt Work is to prepare it by Points ſet over or under their proper Figures, according as the given Power whoſe Root is ſought requires; and that's done by conſidering the Index of the given Power, which for the Square is 2, for the Cube 3, *&c.* Then allow ſo many Places of Figures in the given Power, for each ſingle Figure of the Root, as its Index denotes, always beginning thoſe Points over the Place of Units, and aſcend towards the left-hand, if the given Number be Integers, and deſcend towards the right if otherwiſe.

Suppoſe a given Number, as 75640387246, which will be call'd the Reſolvend. If it be requir'd to Extract any of the following Roots, it muſt be pointed (according to the Conſideration before mention'd) in this manner.

Square Root, $\dot{7}5\dot{6}4\dot{0}3\dot{8}7\dot{2}4\dot{6}.$
Cube Root, $7\dot{5}64\dot{0}38\dot{7}24\dot{6}.$
Biquadrate Root, $75\dot{6}403\dot{8}724\dot{6}.$
Sur-Solid Root, $\dot{7}5640\dot{3}8724\dot{6}.$

The Reaſon why in Pointing the Given Reſolvend Two Figures is allow'd in the Square, Three in the Cube, and Four in the Biquadrat: For one Figure in the Root may ſeveral ways be made evident. But the Table of Single Powers explain it, in which you may obſerve that all the Powers of the Figure 9, which is but a ſingle Figure, have the ſame Number of Places or Figures as the Index of thoſe Powers denotes, therefore ſo many Places of Figures muſt be aſſign'd for every Single Figure in the Root. By theſe Points conſequently is known how many Places of Figures, there will be in the Root; that is, ſo many Points as there are ſo in any Figure, there muſt be in the Root, and whether they muſt be Integers or Decimal Parts is eaſily determin'd by the reſpective Places of the Points.

To Extract the Square Root.

Having Pointed the Given Reſolvend into Periods of Two Figures, then by the Table of Powers find the Greateſt Square that is contain'd in the firſt Period towards the Left Hand, ſetting down its Root like a Quotient Figure in Diviſion, and Subſtract the Square out of the ſaid Period of Figures for a Dividend, and double the Root of the firſt Square for a Diviſor, inquiring how often it may be had in that Dividend; ſo as when the Quotient Figure is annex'd to the Diviſor, and that encreas'd Diviſor being multiply'd with the ſame Quotient Figure, the Product may be the greateſt Number that can be taken out of that Dividend, and to the Remainder bring down the next Period of Figures for another new Dividend; then ſee how often the laſt encreas'd Diviſor can be had in the new Dividend, with the ſame Caution as was before, *viz.* ſo as that the Quotient Figure being annex'd to the Diviſor, and that increas'd Diviſor multiply'd by the ſame Quotient Figure, their Product may be the greateſt Number that can be Subſtracted from the new Dividend as before; and ſo proceed from Period to a Period, that is, from Point to Point in the ſame manner till all is done. As neceſſary as Examples wou'd be in this Science, we muſt omit 'em here, having a narrow Sphere to work in.

Of ALGEBRA.

A Very Great Mathematician ſaid of *Algebra*, that none but *Maſters* ſhou'd read what's written upon it. If ſo, this Treatiſe might have been very well ſpar'd, ſince it ſeems a little too Intricate to make a Part of a Gentlemans Recreation; but this Deſign had been Imperfect if we had omitted it entirely as it was in the Firſt *Edition*, wherefore we have here from the beſt Authority inſerted as much upon this Subject as conſiſted with the Brevity to which we were confin'd. The Principal Rules in *Algebra* are the ſame as thoſe in *Arithmetick*, but differently perform'd, and therefore ſome call it *Algebraick Arithmetick*, others *Arithmetick* in *Specie*, becauſe all the Quantities concern'd in any Queſtion remain in their Subſtituted Letters (let 'em be manag'd either by *Addition, Subſtraction, Multiplication, Diviſion, Involution* or *Evolution)* without being deſtroy'd or chang'd into others as Figures in Common Arithmetick are.

Of *Notation.* The Method of Noting down *Letters* for *Quantities* is various, according to every one's Fancy. We ſhall here repreſent the *Quantity* taught by ſmall *a*, and if more *Quantities* than one are taught, mark them by the other ſmall Vowels, *e i o u* and *y*.

The Given *Quantities* are repreſented by the ſmall *Conſonants b c d f g.* &c. and for Diſtinction ſake mark the Points of *Lines* in all *Schemes* with the Capital Letters, A B C D F, *&c.*

When any Quantity, either given or taught, is taken more than once, you muſt prefix its Number to it, as 3*a* ſtands for A taken three times, and 7 6 for 6 taken 7 times.

All Numbers thus prefix'd are call'd *Co-efficients*, becauſe they multiply the Quantity; and if any Quantity be without a Co-efficient, it is always ſuppos'd to have a Unit prefix'd to it, as *a* is 1*a*, *&c.* As to the Signs by which Quantities are manag'd, they are the ſame as in *Arithmetick*, and 'tis abſolutely neceſſary, that whoever wou'd be acquainted with either this Science or that, ſhou'd be perfectly Maſter of them. To thoſe mention'd in the Beginning of our Diſcourſe of *Arithmetick* muſt be added theſe.

ᘓ the Sign } of Involution,
u u } of Evolution or Extraction of Roots.

All Quantities expreſs'd by Numbers only are call'd *Abſolute Numbers*; thoſe that are repreſented by Single Letters, or by ſeveral joyn'd together, are call'd Simple Quantities: But when different *Quantities* repreſented by different *Figures* are joyn'd together by the Signs (+ or —) as $a+b$, or $a-b$, &c. They are call'd Compound Quantities; and when Quantities are expreſs'd by theſe Signs, thus $\frac{a}{b}$ or $\underline{a+d}$ Like Vulgar Fractions they are call'd *Broken Quantities.*

The Sign by which *Quantities* are joyn'd, always belongs to that *Quantity* which immediately follows it, and therefore all the Quantities concern'd in any Queſtion may ſtand in any Order at Pleaſure, as is moſt convenient for the next Operation: As $a+b-d$ may ſtand thus, $b-d+a$, or thus $a-d+b$ or $d+a-b$, &c. theſe being ſtill the ſame, tho' differently plac'd. That Quantity which has no *Sign* before it is always underſtood to have the Sign + before it, As *a* is $+a$, or $b-d$ is $+b-d$, &c. for the Sign + is the *Affirmative Sign*, and therefore all Leading Quantities are underſtood to have it as well as thoſe that are to be added. But the Sign — being the *Negative* Sign, or *Sign* of *Defect*, 'tis neceſſary to prefix it before that Quantity to which it belongs.

The Method of *Tracing Steps* us'd in bringing *Quantities* to an *Equation*, is to Regiſter the ſeveral Operations with Figures and Signs plac'd in the Margent of the Queſtion: For Inſtance, If it be requir'd to ſet down and Regiſter the Sum of the Two *Quantities* A and B, the Work will ſtand

Thus	1	a
	2	b
1+2	3	$a+b$

	1	$a=9$
	2	$b=6$
1+2	3	$a+b=9+6=15$

Firſt ſet down the Propos'd *Quantities* A and B over againſt the Figures 1 . 2 in the Small Column, (which are here call'd Steps) and againſt 3 (the Third Step) ſet down their Sum, *viz.* $a+b$; then againſt that Third Step ſet down 1+2 in the *Margent*, which denotes that the Quantities againſt the Firſt and Second *Steps* are added together, and that thoſe in the Third *Step* are their Sum, as if it had been mark'd in Numbers as in the Margent.

There are ſeveral *Axioms* which relate equally to *Algebra* and *Geometry*, and the Reader is referr'd to what is ſaid in the Latter, where he will find 'em. The Five Firſt are applicable to *Algebra*, and therefore a Learner ought to get 'em by Heart: He muſt alſo be Careful not to go to the Second Rule before he is Maſter of the Firſt; that is, not to meddle with *Subſtraction* till he underſtands *Addition*.

Addition in *Algebra*,

OR *Addition* of Whole Quantities, admits of Three Caſes.

Caſe 1. If the *Quantities* are like, and have like *Signs*, add the *Co-efficients* together, and to their Sum joyn the *Quantities* with the ſame *Sign*, as Thus

	1	a	$-a$	$5b$	$-7bc$	$3a+5b$	$3a-5b$
	2	a	$-a$	$3b$	$-8bc$	$2a+5b$	$2a-7b$
1+2	3	$2a$	$-2a$	$8b$	$+15bc$	$5a+12b$	$5a-12b$

Caſe 2. If the Quantities are alike, and have unlike *Signs*, *Subſtract* the Co-efficients from each other, and to their Difference joyn the *Quantities* with the Sign of the Greater.

	1	$+5a$	$-5a$	$7bc$	$-9abd$
	2	$-3a$	$+3a$	$6bc$	$+7abd$
1+2	3	$+2a$	$-2a$	bc	$2abd$

Caſe 3. When the *Quantities* are *unlike*, ſet them all down without altering their *Signs*, and thence will ariſe Compound Quantities, which can be no otherwiſe added but by their *Signs*.

	1	$a-$	a	$5b+7dc$
	2	b	$-b$	$4a-20$
1+	3	$a+b$	$a-b$	$5b+7dc+4a-20$

Subſtraction in *Algebra*.

SUBSTRACTION of Whole *Quantities* is perform'd by one General Rule.

Change all the Signs of thoſe *Quantities* which are to be Subſtracted, or ſuppoſe them in your Mind to be Chang'd.

Then add all the Quantities together as before in *Addition*, and their Sum will be the Remainder requir'd.

For to Subſtract an Affirmative Quantity from an *Affirmative*, is the ſame as to add a Negative Quantity to an *Affirmative*; that is $+2a$ taken from $+3a$ is the ſame with $-2a$ added to $+3a$, and to Subſtract the Negative Quantity from an Affirmative, will be the ſame as to add an Affirmative *Quantity* to an Affirmative; that is, $-2a$ taken from $+3a$, will be the ſame with $+2a$ added to $+3a$. Thus,

		Example 1.	*Exam.* 2.	*Exam.* 3.	*Exam.* 4.
	1	$2a$	$-2a$	$8b$	$-15bc$
	2	a	$-a$	$3b$	$-8bc$
1—2	3	a	$-a$	$5b$	$-7bc$

If theſe Examples be compar'd with thoſe in *Addition* the Work will appear very *Evident*, theſe being only the Converſe or Proof of thoſe.

Multiplication in *Algebra*.

MULTIPLICATION of *Whole Quantities* admits of Three Caſes.

Caſe 1. When the Quantities have Like *Signs*, and no *Co-efficients* joyn them together, prefix the *Sign* + before them, and that will be the *Product*. Thus,

	1	a	Again,	1	$-a$
	2	b		2	$-b$
1+2	3	ab	1+2	3	$+ab$

Again,	1	$a+b$	Again,	1	$-a\ -b$
	2	d		2	$-d$
1+2	3	$ad+ba$	1+2	3	$+ad+bd$

Caſe 1. If there be *Co-efficients*, multiply them, and to their Product joyn the Quantities ſet together as before. Thus,

	1	$5a$	$-6d$	$3a+2b$	$a+b$
	2	$3b$	$-7b$	6	$5b$
1+2	3	$15ab$	$+42db$	$18a+12b$	$5ab+5bb$

Caſe. When the *Quantities* have unlike *Signs*, joyn them and the Product of their Co-efficients together, as before, but prefix the *Sign* — before them. Thus,

	1	$+a$	$-6d$	$4a-7b$	$4a-7b$
	2	$-b$	$+7b$	$3f$	$-3f$
1+2	3	$-ab$	$-42db$	$12af-21bf$	$-12af+21bf$

If the *Multiplier* conſiſts of ſeveral Terms, then every one of thoſe Terms muſt be multiply'd into all the Terms of the Multiplicand; and the Sum of thoſe particular Products will be the Product requir'd, as in Common Arithmetick.

	1	$a+b-d$	$7b+5d$
	2	$a-b$	$3a+5f$
1+a	3	$aa+ba-da$	$21ba+15da$
1+l	4	$-ba-bb+dl$	$-35lf-25df$
3+4	5	$aa-da-bb+dl$	$21ba+15da-35bf-25df$

Diviſion in *Algebra*.

DIVISION of Whole *Quantities* is the direct Contrary to that of *Multiplication*, and conſequently perform'd by direct contrary *Operations*. It admits of four Caſes.

Caſe 1. When the *Quantities* in the *Dividend* have like *Signs* to thoſe in the *Diviſor*, and no Co-efficients in either, caſt off all the Quantities in the *Dividend*, that are like thoſe in the *Diviſor*, and ſet down the other *Quantities* with the Sign + for the *Quotient*. Thus,

	1	ab	$-ab$	$ad+6d$	$-ad-bd$
	2	b	$-b$	d	$-d$
1÷2	3	a	$+a$	$a+b$	$a+b$

Caſe 2. When the *Quantities* in the *Dividend* have unlike Signs to thoſe in the *Diviſor*, then ſet down the *Quotient* Quantities found as before, with the Sign — before them. Thus,

	1	$+ab$	$-ab-bd$	$abc+bcd+bcf$
	2	$-b$	$+b$	$-bc$
1÷2	3	$-a$	$-a-d$	$-a-d-f$

Caſe 3. If the *Quantities* in the *Dividend* and the *Diviſor* have Co-efficients, divide the Numbers (as in Common Arithmetick) and joyn to their *Quotient* the *Quotient* Quantities. Thus,

	1	$15ab$	$42db$	$12af-21bf$
	2	$3b$	$-7b$	$3f$
1÷2	3	$5a$	$-6d$	$4a-7b$

Caſe 4. When the *Quantities* in the *Diviſor* cannot be exactly found in the *Dividend*, then ſet them both down like a Vulgar Fraction, as in Common Arithmetick. Thus,

	1	a	$6bc$	$5b+4a$
	2	b	$3d$	$5d+7b$
1÷2	3	$\frac{a}{b}$	$\frac{2bc}{d}$	$\frac{5b+4a}{5d+7b}$

Involution of *Whole Quantities* is the Raiſing *Power* from any propos'd *Root*, and is in all things like Multiplication; except in that *Multiplication* admits of any different Factors, but *Involution* ſtill retains the ſame Examples.

	1	a	$-a$	*The Root, or ſingle Power.*
1 @ 2	2	aa	$+aa$	*Square, or 2d Power.*
1 @ 3	3	aaa	$-aaa$	*Cube, or 3d Power.*
1 @ 4	4	$aaaa$	$+aaaa$	*Biquadrate, or 4th Power.*
1 @ 5	5	$aaaaa$	$-aaaaa$	*Sur-Solid, or 5th Power.*

The Figures plac'd in the *Margent* after the *Sign* of *Involution*, ſhew to what height the Root is involv'd, and are call'd *Indices* of the Power. They are uſually plac'd over the involv'd Quantities, in order to contract the Work, eſpecially when the Powers are any thing high. Thus,

$$\left.\begin{array}{l} a=a\\ a^2=aa\\ a^3=aaa\\ a^4=aaaa \end{array}\right\}\left\{\begin{array}{l} a^5=aaaaa.\\ a^6=aaaaaa.\\ a^5b^5=aaaaabbbbb.\\ a^3b^2d^4=aaabbdddd, \text{ \&c.} \end{array}\right.$$

If the *Quantities* have Co-efficients, they muſt be involv'd along with the *Quantities*, as in theſe,

	1	$2a$	$-3a$	$5bc$
1 @ 2	2	$4aa$	$+9aa$	$25bbcc$
1 @ 3	2	$8aaa$	$-27aaa$	$125bbccc$
1 @ 4	4	$16aaaa$	$+81aaaa$	$b25b^4c^4$
1 @ 6	5	$32aaaaa$	$-243a^5$	$3125b^5c^5$, &c.

Involution of Compound *Quantities* is perform'd in the ſame manner, due regard being had to their Signs and Co-efficients. As for Example.

Suppoſe $a+b$ were given to be involv'd to the fifth Power. Thus,

	1	$a+b$ call'd a Binomial Root.
		$a+b$
1×a	2	$aa+ab$
1×b	3	$+ab+bb$
1 @ 2	4	$aa+2ab+bb$ the Square of $a+b$
		$a+b$
4×a	5	$aaa+2aab+abb$
4×b	6	$+aab+2abb+bbb$
1 @ 3	7	$aaa+3aab+3abb+bbb$ the Cube of $a+b$
		$a+b$
7×a	8	$a^4+3a^3b+3aabb+abbb$
7×b	9	$+a^3b+3aabb+3abbb+b^4$
1 @ 4	10	$a^4+4a^3b+6aabb+4abbb+b^4$
		$a+b$
10×a	11	$a^5+4a^4b+6a^3bb+4aab^3+ab^4$
10×b	12	$+a^4b+4a^3bb+6aab^3+4ab^4+b^5$
1 @ 5	13	$a^5+5a^4b+10a^3bb+10aab^3+5ab^4+b^5$
		$a+b$, &c.

As to the *Reſidual Root*, the Powers rais'd from it are the ſame with their like Powers rais'd from a *Binomial Root*, (or the Sum of two *Quantities*) except the *Binominal Powers* have the Sign + to every Term, but the *Reſidual Powers* have the Signs + and — interchangeably to every other Term.

Evolution of Whole *Quantities*, is the Extracting of *Roots* from any given Power, that is, 'tis the direct Contrary Work to *Involution*, and is eaſy in ſingle *Quantities*, if the given Power has ſuch a *Root* as is requir'd; which is thus to be known.

If the given Power has no Numbers prefix'd to it, and its Index can be divided by the *Index* of the *Root* requir'd, the *Quotient* will be the Index of the *Root* ſought; thus, if the Cube of $aaaaaa$ were requir'd (the Index of the Cube is 3) (then 3) 6 (2 that is 3) a^6 (a^2 the *Root* requir'd) and ſuch Operations are uſually ſet down thus,

	1	a^6	a^6b^6	$a^6b^6d^6$
1 *uu* 2	2	a^3	a^3b^3	$a^3b^3d^3$
1 *uu* 3	3	aa	$aa\ bb$	$aa\ bb\ dd$
3 *uu* 4	4	a	ab	abd

The Figures plac'd in the *Margent*, after the Sign (*uu*) of Evolution, denote the Index of the *Root* to be extracted.

If the given Powers have Co-efficients, or Numbers prefix'd to them, then Extract their reſpective *Roots*, as in Vulgar Arithmetick. Thus,

	1	$81a^4$	$1296a^8b^8$	$20736a^4b^4c^4$
1 *uu* 2	2	$9aa$	$36a^4b^4$	$144aabbcc$
1 *uu* 4	3	$3a$	$6aabb$	$12abc$
1 *uu* 2	4	$3a$	$6aabb$	$12abc$

If the *Root* requir'd cannot be extracted out of both the Co-efficients and Indices of the given Power, then 'tis a *Surd*, and muſt have the Sign of the *Root* requir'd prefix'd to it. Thus,

	1	a^5	$67aaaa$	$216bbbddd$
1 *uu* 2	2	$\sqrt{a^5}$	$\sqrt{67aaaa}$	$\sqrt{216bbbddd}$
1 *uu*	3	$\sqrt[3]{a^5}$	$\sqrt[3]{67aaaa}$	$6bd$

As to the Evolution of Compound Quantities, it muſt be preſum'd that if either the Sum or Difference of ſeveral *Quantities* be involv'd to any Power, there will ariſe ſo many ſingle Powers of the ſame height, as there are different Quantities. As for Inſtance,

If $a+b+d$ be ſquar'd, that is, involv'd to the ſecond Power, it will be $aa+2ab+2ad+bb+2bd+dd$, or aa, bb, dd. Again, if $a+b+d$ were cub'd, that is, involv'd to the third Power, it would be aaa, bbb, and ddd. Wherefore in Extracting the *Roots* of all Compound Quantities, there muſt be conſider'd,

1. How many different *Letters* or *Quantities* there are in the given Power.

2. Whether the ſingle Powers of each of thoſe Letters be of an equal height, and have in them ſuch a ſingle *Root* as is requir'd; if ſo, it muſt be extracted.

3. Thoſe ſingle *Roots* muſt be joyn'd with the Sign +, and involv'd to the ſame height with the given Power; that being done, the new rais'd Power muſt be compar'd with the given Power, and if they are alike in all their reſpective Terms, then you have the *Root* requir'd; or if they differ only in their Signs, the *Root* may be eaſily corrected with the Sign —, as occaſion requires.

Example.

Let it be requir'd to Extract the ſquare *Root* of $cc+2cb-2cd+bb-2bd-dd$. In this Compound Square there are three diſtinct Powers, viz. bb, cc, dd, whoſe ſingle *Roots* are $b\ c\ d$; wherefore I ſuppoſe the *Root* ſought to be $b+c+d$, or rather $b+c-d$, becauſe in the given Power there is $-2cd$ and $-2bd$, therefore I conclude it is $-d$, then $b+c-d$ being ſquar'd, produces $bb+2bc-2bd+cc-2cd-dd$, which is the ſame in all its Terms with the given Power, tho they ſtand in a different Poſition, conſequently $b+c-d$ is the true *Root* requir'd.

The Difficulties in theſe Matters are ſo great, that there's occaſion of as many Examples as poſſible to explain and enlighten them; but our Deſign being only to preſent an Idea of them to the Reader, as clear as conſiſts with the Brevity of it in all its Parts, we muſt deſire him to be ſatisfy'd with this one Example, and refer him to *Oughtred*, *Pell*, *Ward*, *Jones*, and others, who have treated of this Intricate Subject more largely, and with good Reputation.

Algebraick Fractions, or broken Quantities, are expreſs'd like Vulgar Fractions. Thus,

$$\frac{a}{b}\quad\frac{2bc}{d}\quad\frac{5^b+4^a}{4^d+7^b}\quad\begin{matrix}\text{Numerators.}\\ \text{Denominators.}\end{matrix}$$

Fractional Quantities are manag'd in all reſpects like Vulgar Fractions in Common Arithmetick.

To alter or change different Fractions into one *Denomination*, returning the ſame Value, *multiply all the Denominators into each other, and each Numerator into all the Denominators but its own, for Numerators.* As for Inſtance,

Let it be requir'd to bring $\frac{a}{b}$ and $\frac{d}{c}$ into one Denomination.

Firſt, $a\times c$ and $d\times b$ will be the Numerators, and $b\times c$ will be the common Denominator.

Viz. $\frac{ca}{bc}$ and $\frac{bd}{bc}$ are the two Fractions requir'd.

That is, $\frac{ca-a}{bc\quad b}$ and $\frac{bd-d}{bc\quad c}$

Again, Let $\frac{b+c}{a+b}$ and $\frac{d-c}{b-d}$ be brought into one Denomination, and they will be,

$$\frac{bb+bc+bd-dc}{ba+bb-da-bd}\text{ and }\frac{ad-ac+bd-bc}{ba+bb-ad-bd}\text{ \&c.}$$

To bring Whole Quantities into *Fractions* of a given *Denomination, multiply the Whole Quantities into the given Denominator, under which ſubſcribe the given Denominator, and you will have the Fraction requir'd.*

Example.

Let it be requir'd to bring $a+b$ into a Fraction, whoſe Denomination is $d-a$: Firſt, $a+b$ $d-a$ is $da+bd-aa-ba$.

Then $\frac{da+bd-aa-ba}{d-a}$ is the Fraction requir'd.

Again, $b+\frac{a}{d}$ will be $\frac{db+a}{d}$ and $\frac{da}{a}-a$ will be $\frac{aa+da}{d}$ and $a+b+\frac{aa+bb}{a-b}$ will be $\frac{2aa}{a-b}$.

When whole *Quantities* are to be ſet down Fraction-wiſe, ſubſcribe an Unit for the Denominator

Thus, ab is ab, and $aa-bb$ is $\frac{aa-bb}{1}$, &c.

To *reduce* Fractional Quantities into their loweſt Denominations. *Divide both the Numerator and Denominator by their greateſt Common Diviſor,* viz. *by ſuch Quantities as are found in both, and their Quotients will be the Fraction in its loweſt Term:*

Thus, $\frac{aac}{de}$ is $\frac{aa}{d}$ and $\frac{abbb}{abc}$ is $\frac{bb}{a}$ alſo $a+\frac{bdc}{bc}=a+d$.

In Compound Fractions it muſt be done by dividing the Numerator by the Denominator till nothing remains, when that can be done, or elſe finding their Common Meaſure by dividing the *Denominator* by the *Numerator*, and the *Numerator* by the *Remainder*, and ſo on as in Vulgar Fractions; but if after all Means us'd there cannot be found One Common Meaſure to both the *Numerator* and *Denominator* then is that Fraction in its leaſt terms already.

In *Addition* and *Subſtraction* of *Fractional Quantities* add or ſubſtract their Numerators as occaſion requires, and to their Sum or Difference ſubſcribe the Common *Denominator*, as in Vulgar Fractions.

Example in Addition.

$$\begin{array}{r|c|c|c|c|c}
 & 1 & \frac{bb}{c} & \frac{a+b}{d} & \frac{2a-b}{d+c} & \frac{a-b+d}{d+a} \\
 & 2 & \frac{aa}{c} & \frac{2a+c}{d} & \frac{2b-a}{d+c} & \frac{a+b-d}{d+a} \\
\hline
1+2 & 3 & \frac{bb+aa}{c} & \frac{3a+b+c}{d} & \frac{a+b}{d+c} & \frac{2a}{d+a}
\end{array}$$

Example in Subſtraction

$$\begin{array}{r|c|c|c|c|c}
 & 1 & \frac{bb+aa}{c} & \frac{a+b}{d+c} & \frac{3a+b+c}{d} & \frac{2a}{d+a} \\
 & 2 & \frac{bb}{c} & \frac{2b-a}{d+c} & \frac{2a+c}{d} & \frac{a+b-d}{d+d} \\
1-2 & 3 & \frac{aa}{c} & \frac{2a-b}{d+c} & \frac{a+b}{d} & \frac{a-b+d}{d+a}
\end{array}$$

In *Multiplication* of Fractional Quantities prepare Surd Quantities if there be any by making them improper Fractions, and whole Quantities by ſubſcribing an Unit under them; then *multiply the Numerators together for a new Numerator, and the Denominators together for a new Denominator; as in Vulgar Fractions.* Thus,

$$\begin{array}{r|c|c|c}
 & 1 & \frac{ab}{c} & \frac{-3a-2b}{2d+c} \\
 & 2 & \frac{d}{f} & \frac{4a+2b}{d} \\
1+2 & 3 & \frac{abd}{cf} & \frac{12aa-2ab-4bb}{2dd+dc}
\end{array}$$

Any Fraction is multiply'd with its Denominator by taking the Denominator away; as $\frac{b}{a}+a$ gives b for $\frac{b}{a}+\frac{a}{1}=\frac{ba}{a}=b$, &c.

Diviſion of *Fractional Quantities* is perform'd thus, after the Quantities are prepar'd, as is obſerv'd *in Multiplication, Multiply the Numerator of the Dividend into the Denominator of the Diviſor; for a new Numerator. And multiply the other Two together for a new Denominator; as in Vulgar Fractions.*

Example.

Let $\frac{abd}{cf}$ be divided by $\frac{ab}{b}$ the Work may ſtand thus:

$$\frac{ab}{c}\Big)\,\frac{abd}{cf}\,\Big(\frac{abde}{abcf}=\frac{d}{f}$$

As by the Reduction of Fractional Quantities before ſpoken of may appear. Or thus:

$$\begin{array}{c|c|c|c}
1 & \frac{abd}{cf} & \frac{a+b}{d} & \frac{aaa-bbb}{a+b} \\
2 & \frac{ab}{c} & \frac{c-b}{a} & \frac{aa-ab+bb}{c} \\
\hline
3 & \frac{d}{f} & \frac{aa+ba}{dc-db} & \frac{aaac-bbbc}{aaa+bbb}
\end{array}$$

When *Fractions* are of one *Denomination*, caſt off the *Denominators*, and divide the *Numerators*, thus:

If $\frac{ab^3}{c}$ were to be divided by $\frac{bb}{c}$ it will be $bb)\,ab^3\,(ab$ the Quotient requir'd.

Involution of Fractional Quantities, is done thus: *Involve the Numerator into itſelf, for a new Numerator, and the Denominator into itſelf for a new Denominator: Each ſo often as the Power requires.*

$$\begin{array}{r|c|c|c|c}
 & 1 & \frac{b}{a} & \frac{3bc}{2ad} & \frac{b+d}{a-c} \\
\hline
1\ @\ 2 & 2 & \frac{bb}{aa} & \frac{9bbcc}{4aadd} & \frac{bb+2bd+dd}{aa-2ac+cc} \\
\hline
1\ @\ 3 & 3 & \frac{bbb}{aaa} & \frac{27bbbccc}{8aaaddd} & \frac{bbb+3bbd+3bdd+ddd}{aaa-3aac+3acc-ccc}
\end{array}$$

In *Evolution* of *Fractional Quantities*, if the *Numerator* and *Denominator* of the given *Fraction* have each of them ſuch a *Root* as is required, which (very rarely happens) then *evolve* them, and their reſpective *Roots* will be the Numerator and Denominator of the new Fraction requir'd thus:

	1	$\frac{9aabb}{4dd}$	$\frac{aa+2ab+bb}{aa-2ab+bb}$
1 uu 2	2	$\frac{3ab}{2d}$	$\frac{a-b}{a-b}$

When the *Numerator* has ſuch a *Root* as is requir'd, and the *Denominator* has not, or the *Denominator* has ſuch a *Root* when the *Numerator* has not, then the Operations may be ſet down thus:

		$\frac{aabb}{ddd}$	$\frac{aaa+4bb-dd}{aa+2ab+bb}$
1 uu 2	2	$\frac{ab}{\sqrt{ddd}}$	$\frac{\sqrt{aaa+4bb-dd}}{a+b}$

As to Surd Quantities, if we enter'd upon 'em we ſhou'd carry the Reader too far in ſo ſhort an Eſſay, ſo we are well pleas'd with our uſual excuſe for not medling with them, and proceed to *Equations.*

We come now to the Nature of Equations, and how to prepare them for a Solution.

Having got ſo clear an Underſtanding of the Queſtion propos'd, as to place down all the Quantities concern'd, *viz.* all the ſubſtituted Letters in ſuch order as the Nature of the Queſtion requires. The next Thing to be conſider'd is, Whether it admits of more Anſwers than one; in order to which, obſerve the Two following Rules.

1. *When the Number of the Quantity ſought exceeds the Number of the given Equations the Queſtion is capable of innumerable Anſwers.*

Example, *There are Three ſuch Numbers, that if the Firſt be added to the Second, their Sum will be 22. And if the Second be added to the Third, their Sum will be 46. Queſt.* What are thoſe Numbers?

Let the 3 Numbers be repreſented by 3 Letters thus: Call the Firſt a, the Second e, and the Third y,

$$\text{Then } a+e = 22$$
$$e+y = 46$$

Here the Number of Quantities ſought are Three, a, e, y, and the Number of the given Equations are but Two, therefore this Queſtion admits of various Anſwers; becauſe for any of thoſe Three Letters you may take any Number at pleaſure that's leſs than 22.

2. *When the Number of given Equations, not depending upon one another, are juſt as many as the Number of the Quantities ſought, then each Quantity ſought has but one ſingle Value.*

Let there be Three Numbers, a, e and y as before. If the Firſt be added to the Second, their Sum will be 22; if the Second be added to the Third, their Sum will be 46; and if the Firſt be added to the Third, their Sum will be 36.

That is $a+e = 22$ $e+y = 46$ and $a+y = 36$

Now here each ſingle Quantity has but one Value, to wit, $a = 6$ $e = 16$ and $y = 36$ where the Queſtion is ſtated in its ſubſtituted Letters, and found to have but one *Anſwer*; let all thoſe ſubſtituted Letters be ſo order'd and compar'd together either by adding, ſubſtracting, multiplying, or dividing them according as the Nature of the Queſtion requires till all the unknown Quantities, except one, are caſt off. Great care muſt be taken to keep them to an exact *Equality*, and when that unknown Quantity, or ſome Power of it (as Square, Cube, &c.) is found equal to thoſe that are known; then the Queſtion is ſaid to be brought to an *Equation*, and conſequently to a *Solution.* There are no Rules for this caſting off Quantities which is only to be obtain'd by Care and Practice. The buſineſs of reducing Equations is grounded, and depends upon a right Application of the 5 firſt Axioms in Geometry, to which we refer the Reader. If thoſe Axioms be well underſtood, the Reaſon of ſuch Operations will appear very plain.

Of Reduction by *Addition.* This is grounded upon the Firſt *Axiom*, and is only the *tranſpoſing* any Negative Quantity from either ſide of an *Equation* to the other ſide, with the ſign + before it; as,

	1	$a-b=d$
	2	$a-d+b$
	3	$b=b$
$1+3$	4	$a=d+b$

Again,	1	$3a-4=6-a$
$1+\underline{4}$	2	$3a=6+4-a$
$2+a$	3	$4a=6+\ -10$

When any abſolute Number is regiſter'd in the Margent, draw a Line over it to diſtinguiſh it from the other Numbers, as 4 in the ſecond Step of this Example.

Reduction by *Subſtraction*, is grounded upon the Second *Axiom*, and perform'd by *tranſpoſing* any *Affirmative Quantity* from either ſide of the *Equation*, to the other ſide with the Sign — before it; as in theſe *Examples.*

	1	$a+b=d$
	2	$b=b$
$1-2$	3	$a=d-b$

Again,	1	$3a+4=6+a$
$1-\underline{a}$	2	$2a+4=6$
$2-4$	3	$2a=6-4=2$

Reduction by *Multiplication* is perform'd by multiplying every Term in the *Equation*, with the *Denominators* of the Fractions, as by the Third *Axiom* and theſe *Examples.*

Suppoſe,	1	$\frac{a}{5} = 6$
Then,	2	$a = 6\times5=30$, for $\frac{a}{5}\times5=\frac{5a}{5}=a.$

	1	$3a = \frac{dc}{2b}$
$1\times2b$	2	$6ba = dc$

	1	$a = \frac{dd}{a-b}$
$1+ab$	2	$aa-ba=dd$

Reduction by *Diviſion* is thus: When any *Quantity* known or unknown is in every Term of an *Equation*; if the whole Equation be divided by that Quantity, it will be reduc'd into lower Terms, as by the Fourth *Axiom* and theſe *Examples.*

$$\begin{array}{r|c|r|} \text{Suppoſe,} & 1 & baa+bca=bcd \\ 1\div b & 2 & aa+ca=cd \\ \hline \end{array} \qquad \begin{array}{r|c|r} \text{Again,} & 1 & aa=7a \\ 1\div a & 2 & a=7 \\ \hline \end{array}$$

10

Or when the unknown Quantity is multiply'd with any that is known, let the whole *Equation* be divided by the known Quantity, that ſo the unknown may be clear'd, as thus:

$$\begin{array}{r|c|r} & 1 & ba-ca=d \\ 1\div b-c & 2 & a=\dfrac{d}{b-c} \\ \hline \end{array}$$

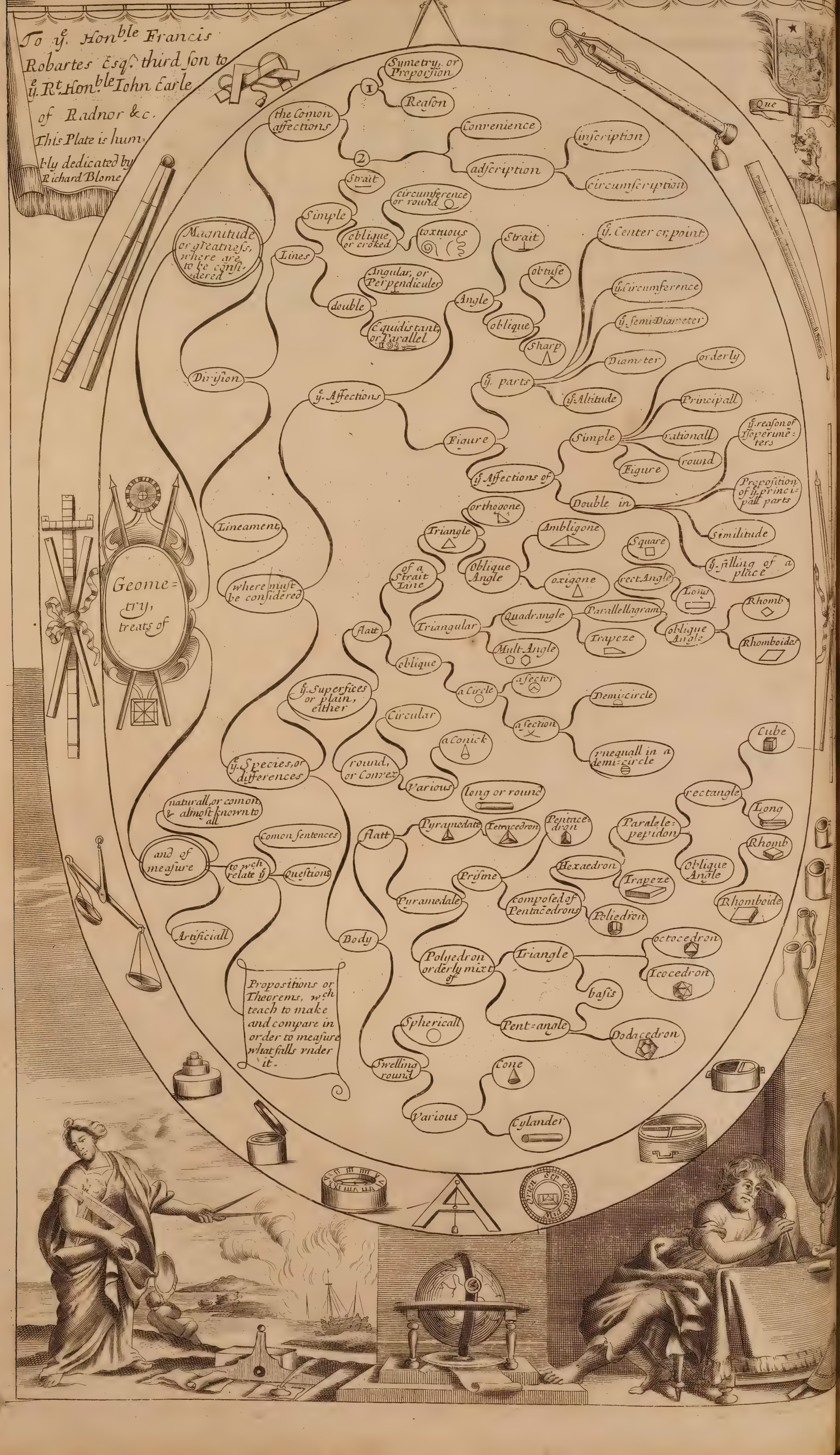
$$\begin{array}{r|c|r} \text{Again,} & 1 & caa-daa=cd-dd \\ 1\div c-d & 2 & aa=\dfrac{cd-dd}{c-d}=d \\ \hline \end{array}$$

We ſhall ſay no more of *Algebra*, which is a Science ſo conciſe of itſelf, 'twill not bear to be abridg'd, and we cannot enlarge upon it.

GEOME-

GEOMETRY.

To ye Honble Francis Robartes Esqr third son to ye Rt Honble Iohn Earle of Radnor &c.
This Plate is humbly dedicated by Richard Blome


Geome=try, treats of
Magnitude or greatness, where are to be considered
Division
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Simple
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circumference or round
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Symetry, or Proporsion
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inscription
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ye Affections
Angle
Strait
obtuse
oblique
Sharp
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ye parts
ye Center or point
ye Circumference
ye semi=Diameter
Diameter
ye Altitude
ye Affections of
Simple
orderly
Principall
rationall
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Figure
ye reason of Isoperimeters
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Proposition of ye principall parts
Similitude
ye filling of a place
Lineament
where must be considered
flatt
of a Strait Line
Triangle
orthogone
Oblique Angle
Ambligone
oxigone
Triangular
Quadrangle
Parallellagram
Square
rectAngle
Long
oblique Angle
Rhomb
Rhomboides
Trapeze
Mult Angle
oblique
a Circle
a sector
a section
Demi=circle
vnequall in a demi=circle
ye Superfices or plain, either
Circular
round, or Convex
a Conick
Various
long or round
ye Species, or differences
naturall, or comon, & almost known to all
and of measure
to wch relate ye
Comon sentences
Questions
Artificiall
Propositions or Theorems, wch teach to make and compare in order to measure what falls vnder it.
Body
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Pentacedron
Pyramedale
Prisme
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rectangle
Cube
Long
Oblique Angle
Rhomb
Rhomboide
Hexaedron
Trapeze
composed of Pentacedrons
Poliedron
Polyedron orderly mixt of
Triangle
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Sphericall
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GEOMETRY

IS an Art of well meaſuring any *Magnitude*, that is, any continu'd *Quantity*, by which a Thing is call'd *Great* or *Small*.

The continu'd *Quantity* is that in which the *Parts* are continu'd in a common *Term*.

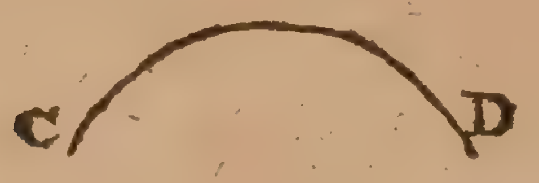
A *Term* is the utmoſt *Part* or *Point* of *Magnitude*.

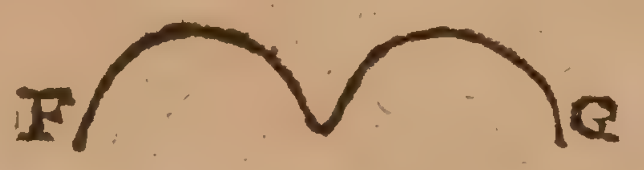
A *Point* has no Parts, that is, a Geometrical *Point* is not any *Quantity*, but only an *aſſignable Place* in any *Quantity*, denoted by a Point, as at A. and B. Such a Place may be conceiv'd, tho' infinitely ſmall, as to be void of *Length*, *Breadth*, and *Thickneſs*, wherefore a Point is ſaid to have no Parts.

A *Line* is call'd a *Quantity* of one *Dimenſion*, becauſe it may have any ſuppos'd Length, but no Breadth nor Thickneſs being made or repreſented to the *Eye* by the Motion of a *Point*; that is, if the Point at A be mov'd (upon the ſame *Plane*) to the *Point* at B, it will deſcribe a *Line*, either *Right* or *Crooked*, according to its *Motion*. Wherefore the *Ends* or *Limits* of a *Line* are *Points*.

A *Right Line* is that *Line* which lies *Even* or *Streight*, between thoſe *Points* that limit its *Length* being the ſhorteſt Line that can be drawn between any two Points, as the *Line* A———B. Wherefore between any two *Points* there can lie or be drawn but one *Right Line*.

A *Crooked Line* is that which lies bending between thoſe *Points* which limit its *Length*, as the Line



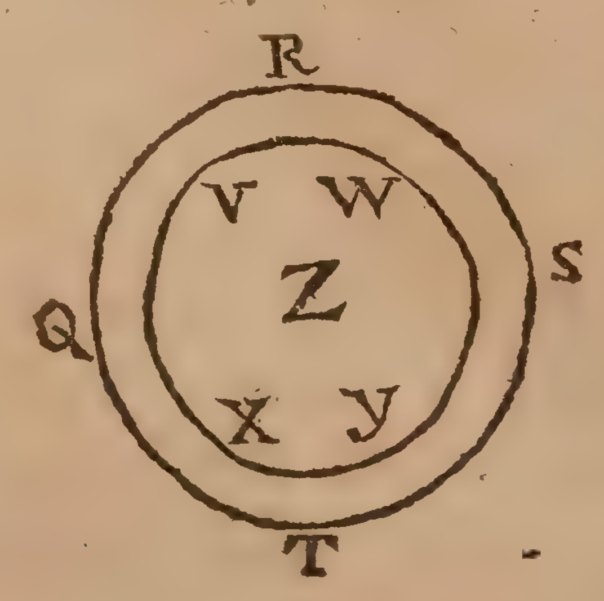


There are ſeveral ſorts of theſe Lines, but the Circle, the Parabola, Ellipſis, and Hyperbola, are moſt us'd in Geometry.

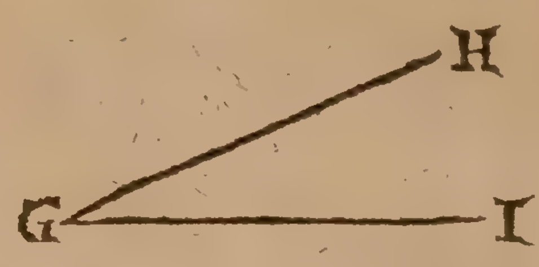
Parallel Lines are thoſe that lie equally diſtant from each other in all their Parts, which being extended infinitely, would never touch, as the Lines

M———N
O———P

A *Circular Parallel* is a *Line* drawn within or without another *Circle* upon the ſame *Center*, as the two Circles Q R S T V W X Y Z, which being drawn upon the ſame *Center* Z, are Parallel one to the other.

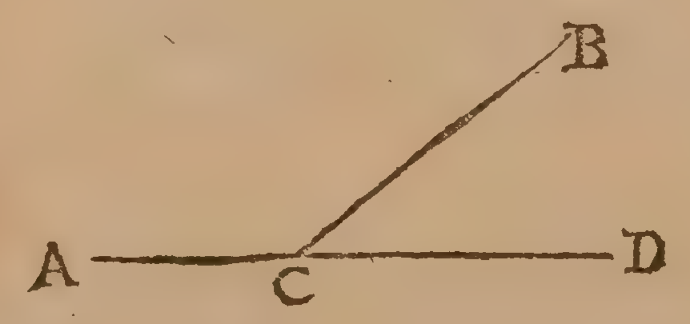


An *Angle* is the Inclination or Bowing of two Lines one towards the other, the one touching the other, and not being directly joyn'd together, it is commonly ſign'd by three Letters.



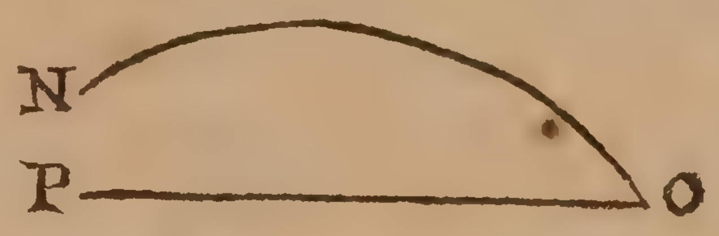
If the Lines that contain the *Angle* are Right Lines, then 'tis call'd a *Right Angle*, as G H I.

An *Obtuſe Angle* is that which is greater than a Right Angle. Such is the Angle included between the Lines A C and C B.

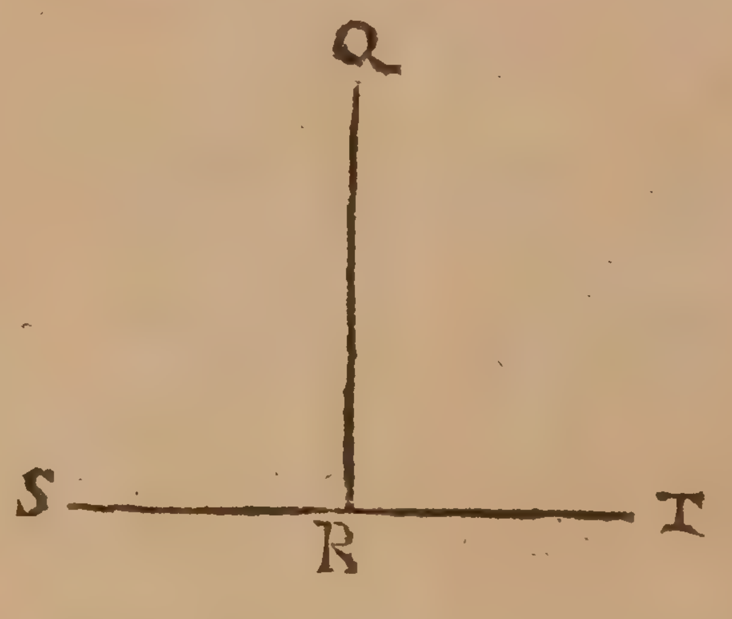


An *Acute Angle* is that which is leſs than a *Right Angle*, as the *Angle* included between the Lines B C and C D.

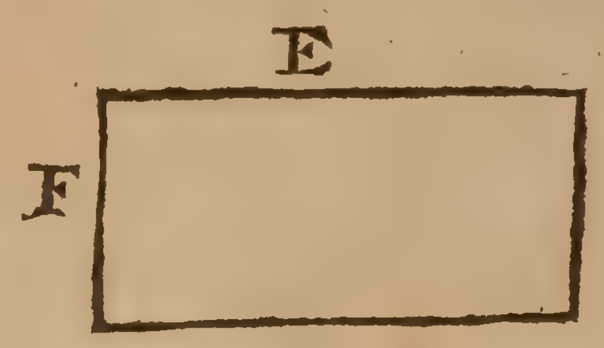
A *Mix'd Angle* is that which is contain'd both of a *Right* and *Crooked* Line, as the Angle N O P.



When a *Right Line*, Q R, ſtanding upon a Right Line S T, makes the *Angles* on either ſide of it Q R S and Q R T equal one to the other; then both thoſe Equal *Angles* are *Right Angles*, and the Line Q R, which ſtands on the other, is term'd a *Perpendicular* to that S T whereon it ſtands.



A *Superficies* has only *Length* and *Breadth*,



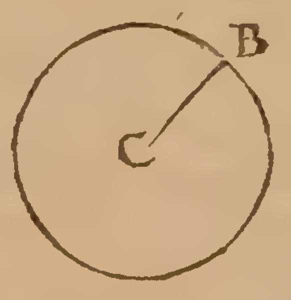
The *Extreams* or *Limits* of a *Superficies* are Lines.

A *Superficies* is the Limit of a Body or Solid, and repreſents its Shape to the Eye. 'Tis uſually call'd the Area of any Figure.

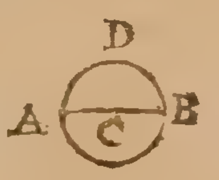
A Plain *Superficies* is that which lies equally between its *Lines*.

A *Circle* is a *Plain Figure*, contain'd under one *Line*, call'd a *Circumference*.

Suppoſe a *Right Line*, as C B to have one of its Extream *Points*, as C, ſo fix'd upon any *Plane*, as that the other *Point* at B may move about it; then if the *Point* at B be ſo mov'd on the ſame *Plane*, it will deſcribe a *Line* equally diſtant in all its *Parts* from the *Point* C, which will be the *Circumference* or *Periphery* of that Circle. The *Point* C will be its *Center*, the contain'd *Space* its *Area*, and the *Right Line* C B, by which the *Circle* is thus deſcrib'd, its *Radius*.



The *Diameter* of a *Circle* is twice its *Radius* joyn'd into one *Right Line*, as A B, drawn thro' the *Center* C, and ending at the *Circumference* on each ſide.

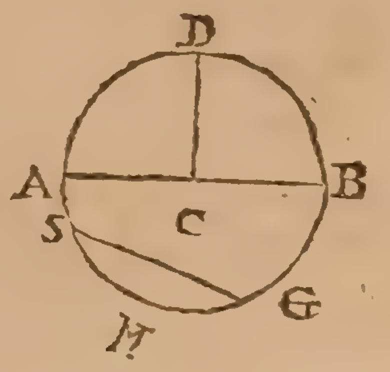


A *Semicircle* is a *Figure* contain'd under the *Diameter*, and that part of the *Circumference* cut off by the *Diameter*, as A B D.

A *Quadrant* is half a *Semi-circle*, and is made by a *Radius*, as D C, ſtanding *Perpendicular* upon the *Diameter* at the *Center* C, cutting the *Periphery* of the *Semi circle* in the middle, as at D.

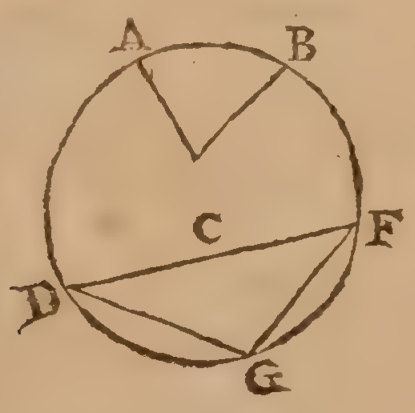
A *Chord* Line is any Right Line that cuts the Circle into two unequal Parts, as the Line S G.

A *Segment* of a Circle is a Figure included between the *Chord* and the *Arch* of the *Periphery*, which is cut off by the *Chord*, and it may either be greater or leſs than a *Semi-circle*, as the Figure S M G or S D G.



A *Sector* is a *Figure* included between two *Radius's* of a *Circle*, and that Arch of its *Periphery* where they touch, as the Figure A C B, and the Arch A B is the Meaſure of the Angle at C, included between the *Radius's* A C and B C.

An *Angle* in the *Segment* of a *Circle*, is that which is included between two *Chords* that flow from the ſame Point in the *Periphery*, as at D, and meet with the ends of another *Chord* Line, as at F and G.

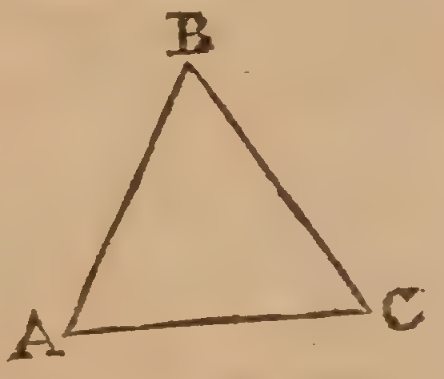


Of Triangles.

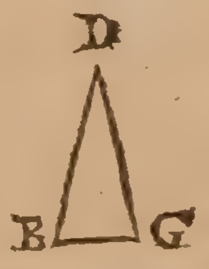
A *Plain Triangle* is a Figure, whoſe *Superficies* is contain'd within the *Limits* of three *Right Lines*, call'd *Sides*, including three *Angles*; and it may be divided, and takes its Name either according to its *Sides* or *Angles*.

By its *Sides*,

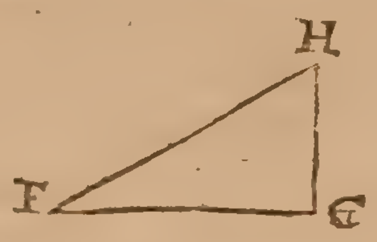
As an *Equilateral Triangle*, is that which has all its three *Sides* equal, as A B C, that is, $AB=BC=AC$.



An *Iſoſcheles* is that which has two *Sides* only *Equal*, as

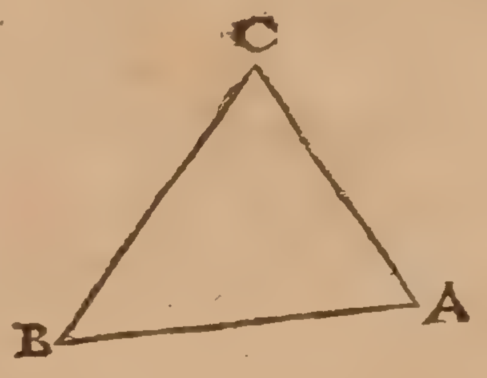


A *Scalenum* has all its three *Sides* Unequal.

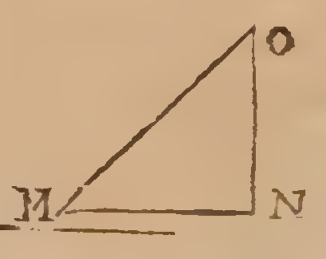


By its *Angles*,

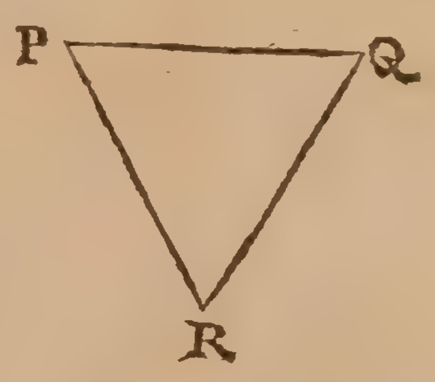
A *Right Angled Triangle*, is that which has one *Right Angle*, as



An *Ambligonium*, or an *Obtuſe Angled Triangle*, has in it one *Obtuſe Angle*, as

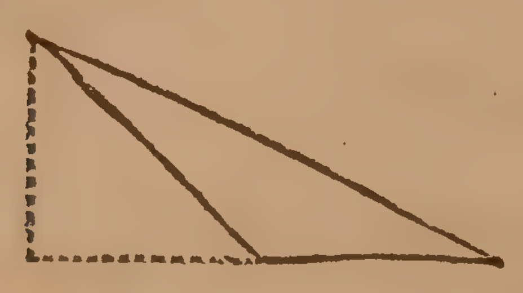


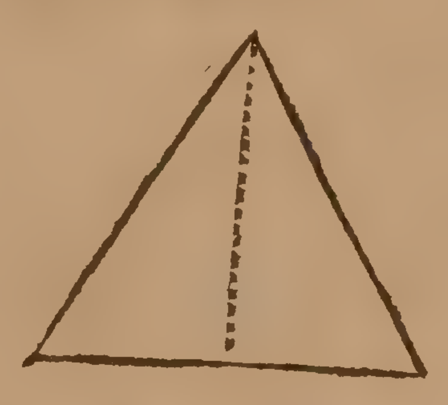
An *Oxygonium*, or an *Acute Angled Triangle*, has all its *Angles Acute*, as



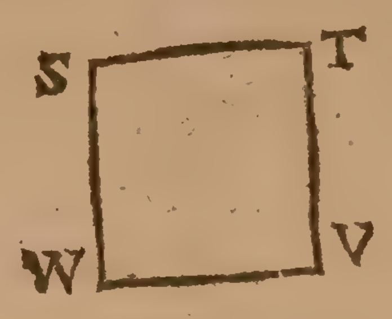
All *Triangles* that have not a *Right Angle*, whether they are *Acute* or *Obtuſe*, are in general Terms call'd *Oblique Angles*; and the longeſt Side of every *Oblique Angle* is uſually call'd *Baſe*, the other two are term'd the *Sides* or *Legs*.

The *Altitude* of any *Plain Triangle*, is the Length of a *Right Line*, let fall *Perpendicular* from any of the *Angles* on the Side oppoſite to that Figure from whence it falls, and may be either within or without the *Triangle*, as occaſion requires, being mark'd by the two *Prick'd* Lines in the next *Triangles*.

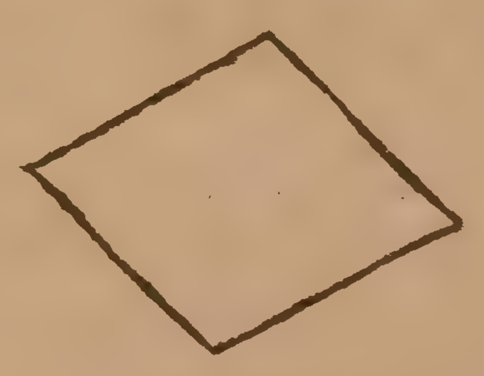




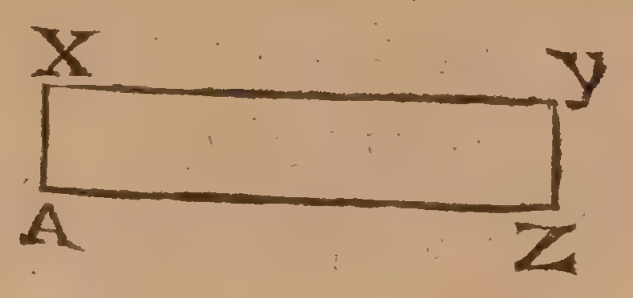
A *Square* is that whoſe *Sides* are *Equal*, and *Angles Right*.



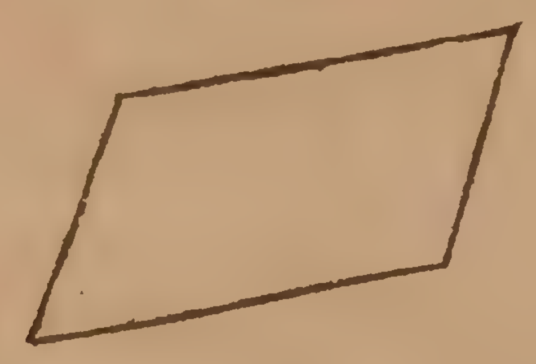
A *Rhombus* or *Diamond* is that which has four *Equal Sides*, but not *Right Angles*, as



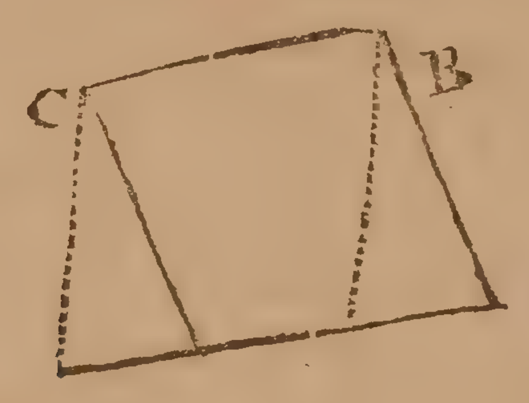
A *Rectangle*, often call'd an *Oblong Square*, has four Right *Sides*, and its two Oppoſites *Equal*, as



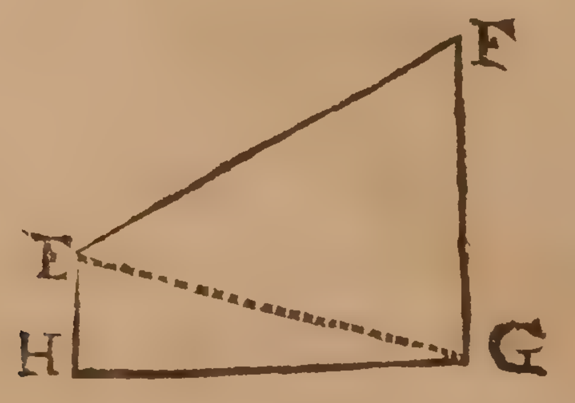
A *Rhomboides* is a Figure whoſe Oppoſite *Sides* and *Angles* are *Equal*, but has neither *Equal Sides* nor *Right Angles*, as



The *Altitude* of either Rhombus or Rhomboides, is a Right *Line* let fall *Perpendicular* from any Angle on the Oppoſite Side to that Angle, and it may be either within or without the Figure, as the Prick'd Lines B C.



All other Figures of four *Sides* are call'd *Trapezia's*, that is, when they have neither Oppoſite Sides nor Oppoſite Angles Equal, as



A *Diagonal Line* is a *Right Line* drawn from any *Angle* in a four ſided Figure to its Oppoſite *Angle*, and divides the *Superficies* of the Figure into two *Triangles*, as the Prick'd Line E G.

Polygons are Right Lin'd Figures, which have more than four ſides, and are either *Regular* or *Irregular*.

A *Regular Polygon* is that which has all its *Sides Equal*, ſtanding at Equal *Angles*, and is nam'd according to the Number of its Angles, *Pentagon*, *Hexagon*, *Heptagon*, *Octagon*, i. e. *Five*, *Six*, *Seven*, or *Eight Angles*. All *Regular Polygons* may be *inſcrib'd* in a Circle.

An *Irregular Polygon* has many unequal *Sides* ſtanding at unequal *Angles*; but they may all be reduc'd to *Regular* Figures, by drawing *Diagonal* Lines in them.

Problems in *Geometry*.

FOR the performing a Problem in Geometry, the Performer muſt be provided with a thin ſtraight Ruler, and two Pair of Compaſſes, one call'd three pointed Compaſſes, uſeful for drawing of Figures, or Schemes, either with Black-Lead, or Ink, and one Pair of Plain Compaſſes, with very fine Points, to meaſure and ſet off Diſtances; He ſhould alſo have a very good Steel drawing Pen, and be ſure to make himſelf Maſter of the Reaſon of one Problem, before he undertakes another. They are all grounded on theſe following *Poſtulata's*.

1. That a *Right Line* may be drawn from any one given *Point* to another.

2. That a *Right Line* may be produc'd, increas'd, or made longer from either of its Ends.

3. That upon any given *Point* or *(Center)* and with any given *Diſtance*, viz. with any *Radius* a Circle may be deſcrib'd.

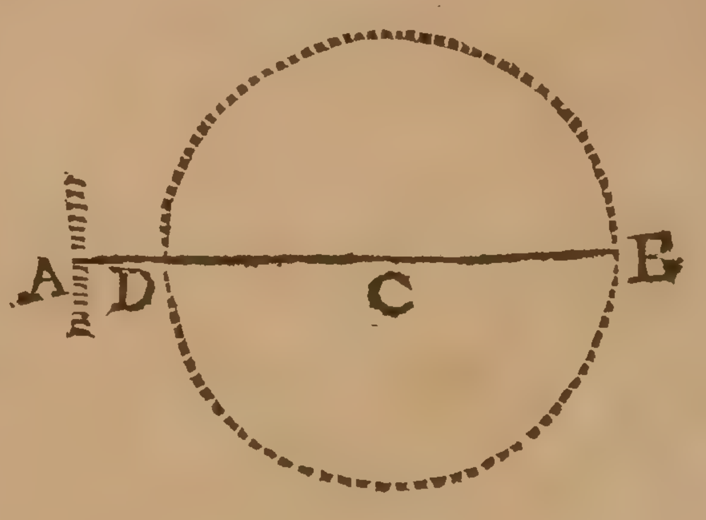
A *Problem* is that which propoſes ſomething to be done, and relates more immediately to *Practical* than *Speculative Geometry*; the Nature of it being to be perform'd by ſome known Rules, without regard to their *Inventions* or *Demonſtrations*.

Problem I.

Two *Right* Lines being given to find their *Sum* and *Difference*.

Let the given Lines be A———C.
C———B.

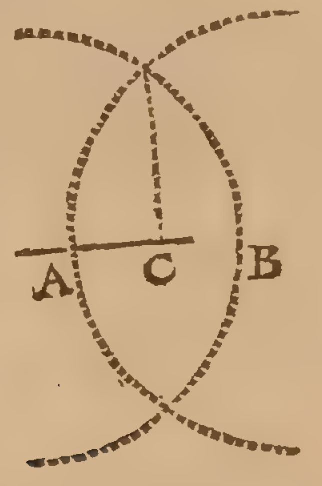
Make the ſhorteſt *Line* at C B *Radius*, and with it deſcribe a Circle. From its Center C, ſet off the other Line A C, and joyn A C B with a *Right Line*, then will $AB=AC+CB$ and $AD=AC=CB$, as was requir'd.



Problem II.

To divide a *Right Line* given, as A B, into two *Equal Parts*.

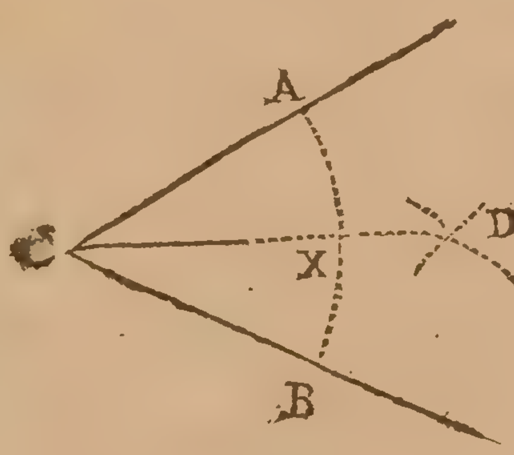
From both ends of the given *Line*, viz. A B with any *Radius* greater than half its *Length*, deſcribe two *Arches*, that may croſs each other in two *Points*, as at D F; then joyn thoſe *Points* D F with a *Right Line*, and it will divide the *Line* A B in the middle at C, that is, it will make AC=CB, as was requir'd.



Problem III.

To divide a *Right-lin'd Angle* given, into two Equal *Angles*.

Upon the *Angle Point*, as at C, with any convenient *Radius*, deſcribe an *Arch* as A B; and from thoſe *Points*, A and B, deſcribe two Equal *Arches*, croſſing each other, as at D; then joyn the *Points* C D, with a *Right Line*, and it will divide the *Arch* A B, and conſequently the *Angle*, as was requir'd.



It will be eaſily imagin'd that theſe Problems might be continu'd to what Length we pleas'd. Enough is already propos'd and work'd to give the Curious Reader an Idea of this Part of Geometry, and more is not pretended in a Science which requires ſo much Application to maſter; we therefore proceed to

Theorems.

A *Theorem* is when any Common Rule, or any new Propoſition is requir'd to be demonſtrated, ſo that it may afterwards become a *Certain Rule*, to be rely'd upon in Practice.

Demonſtration

Here ſuppoſes the higheſt Degree of Proof that Humane Reaſon is capable of by a Train of Arguments, deduc'd from ſuch Plain Axioms, and other ſelf-evident Truths as cannot be deny'd by any one that conſiders them.

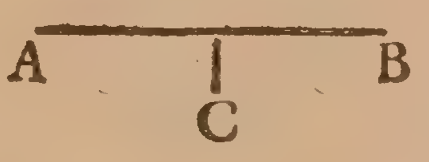
In order to ſhorten the following *Demonſtrations* of the *Theorems* propos'd; *Note*,

1. That the *Circumference* of every *Circle* is ſuppos'd to be divided into 360 Equal Parts, call'd Degrees; and every one of theſe Degrees are divided into 60 Parts, call'd Minutes.
2. All Angles are meaſur'd by the Arch of a Circle, deſcrib'd upon the Angular *Point*, and are eſteem'd *Greater* or *Leſs*, according to the Number of Degrees contain'd in that Arch.
3. A *Quadrant*, or *Quarter* Part of any Circle, is always 90 Degrees, being the Meaſure of a *Right Angle* and a *Semi-circle* is 180 Degrees, being the Meaſure of two *Right Angles*.
4. *Equal Arches* of a *Circle* meaſure *Equal Angles*.

Before the Learner goes farther, 'twill be neceſſary he ſhould underſtand the following

Axioms.

1. If *Equal Quantities* be added to *Equal Quantities*, the *Sum* of thoſe *Quantities* will be *Equal*.
2. If *Equal Quantities* be taken from *Equal Quantities*, the *Quantities* remaining will be *Equal*.
3. If *Equal Quantities* be multiply'd with *Equal Quantities*, their Products will be *Equal*.
4. If *Equal Quantities* be divided by *Equal Quantities*, their Quotients will be *Equal*.
5. Thoſe *Quantities* that are *Equal* to one and the ſame Thing, are *Equal* to one another.
6. Every *Whole* Thing is *Greater* than its *Part*, that is, the Whole Line A B is *Greater* than its *Part* A C.



7. Every *Whole* is *Equal* to all its *Parts* taken together; thus, the *Whole Line* A B is *Equal* to its *Parts*, AC+*cd*+*d*+*e*+*e*B.

8. Thoſe things which being laid one upon another, *agree* or *meet* in all their *Parts*, are Equal one to the other.

This Axiom relates particularly to *Lines* and *Angles*, and not to *Superficies*, unleſs they be alike in Figure and Form; for a *Circle* may be *Equal* in *Area* to a *Square*, yet if laid one upon another, 'tis plain they cannot *meet* in all their *Parts*, becauſe they are unlike Figures.

☞ The Reader muſt be very careful to remember the Signs ſet down in the beginning of the Diſcourſe on Arithmetick, to diſtinguiſh the Rules of Numeration, Addition, Subſtraction, Multiplication, &c. by, as alſo the following Marks, which are to ſhorten the *Operations* in Geometry.

Thus, L ſignifies an *Angle*, LL *Angles*, Δ a *Triangle*, □ a *Square*, ▭ a *Parallelogram*. When an *Angle* is denoted by three Letters, as A B C. The middle Letter, as B always denotes the *Angular Point*, and the other two Letters, as A B and B C, or Sides of a *Triangle*, which includes that *Angle*.

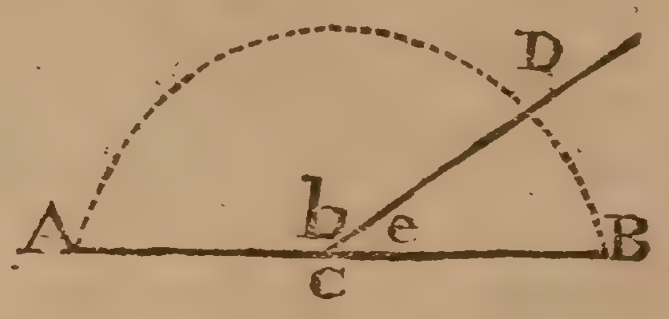
Theorem.

If a *Right Line* ſtand upon or meet with another *Right Line*, and make *Angles* with it, they will either be two *Right Angles*, or two *Angles* Equal to two *Right Angles*.

Demonſtration.

Suppoſe the Lines to be A B and D C, meeting in the *Point* at C; upon C deſcribe any *Circle* at pleaſure, then will the *Arch* A D be the Meaſure of the Angle *b*, and the Arch D B, the *Meaſure* of the

Angle *e*, but the Arches $AD+AB=180^\circ$, *viz.* they compleat the *Semi-circle*, conſequently the $Lb+Le=180^\circ$, which was to be prov'd.



Corollaries.

1. Hence it follows that if the L $b=90$, then L $e=90$; but if L be obtuſe, then the L e will be acute, &c.

2. Hence it will be eaſie to conceive, that if ſeveral *right Lines* ſtand upon or meet with any *right Line* at one and the ſame *Point*, all the *Angles* taken together will be $=180$, *viz.* two right Angles.

Note, *Corollaries* or *Conſectaries*, in *Geometry*, are ſome *conſequent* Truths, or gain'd from any *Demonſtration*.

Lemma's are the *Demonſtration* of ſome *Premiſes* laid down or propos'd as a *Preparative* to obviate or ſhorten the Proof of a *Theorem*.

A *Scholium* is a brief *Obſervation* made on ſome *precedent Diſcourſe*.

We have ſo often obſerv'd to the Reader that we have not room to enter far into the various Operations of any of the *Parts* of theſe *Sciences*, that he will not now expect it, ſo we ſhall in the next Place give the *Solution* of eaſie *Problems* in *Plain Geometry*.

Note, When a Line, or the Side of any Plain *Triangle*, is any way *cut* in two or more *Parts*, either by a Perpendicular Line let fall upon it or otherwiſe, thoſe *Parts* are uſually call'd *Segments*; and ſo much as one of thoſe Parts are longer than the other is call'd the Difference of the *Segments*.

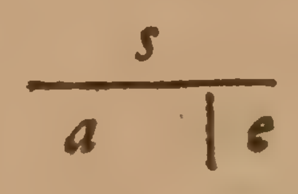
And when any *Side* of a *Triangle* or any Segment of its *Side* is given 'tis uſually mark'd with a ſmall Line croſs it thus +, and thoſe *Sides* or Parts of *Sides* that are ſought are mark'd thus ÷.

Problem.

To cut or divide a given *right Line* (as S) into *extream* and *mean* Proportion. (11 e 2)

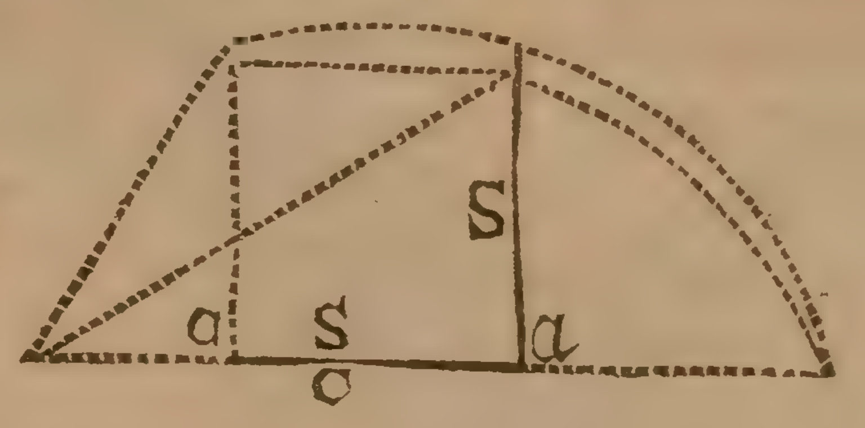
That is to divide a *Line* ſo, that the *Square* of the greater *Segment* or Part *a*, may be equal to the *Rectangle*, made of the whole Line *S*, and the leſs Segment *e*, *viz.*

	1	$S=aa$, by the Problem.
	2	$S-a=e$, for $S=a+e$.
$1+S$	3	$\frac{aa}{S}=e$.
2 and 3	4	$\frac{aa}{S}=S-a$ *per Axiom* 5.
$4+S$	5	$aa=SS-Sa$
$5+Sa$	6	$aa+Sa=SS$
6 ſolved	7	$a=\sqrt{SS+\frac{1}{4}SS}:-S$



This *Problem* cannot be truly anſwer'd by *Numbers*, but *Geometrically* it may be perform'd thus:

1. Make a Square, whoſe ſide is = S the given Line, and cut off one of its *ſide* G, S, in the *Middle*, as at C, upon the Point C deſcribe ſuch a *Semi-circle* as will paſs through the remoteſt *Points* of the *Square*, and compleat its *Diameter*.



2. Then will either Part of the *Diameter* on each end of the ſide S be $=a$, the greater *Segment* ſought.

$$\text{For, } a+S:S::S:a$$
$$\text{Therefore, } aa+Sa=33.$$

Problems may be continu'd *ad infinitum* by altering the Propoſitions. The Variety of which wou'd ſwell this Treatiſe to what bulk we pleas'd; but for the Reaſons often mention'd before, we ſhall content our ſelves with this, and go forward to *Practical Problems*, for finding the *Areas* of *Right Lin'd* Figures.

The *Area* of any Figure, whether it be *Right Lin'd* or *Circular* is made up of *Squares* either *greater* or *leſs*, according to the different Meaſures by which the *Dimenſions* of the *Figure* are taken; that is, if the *Dimenſions* are taken in *Inches*, the *Area* will be compos'd of Square *Inches*. If the *Dimenſions* are taken in *Feet*, the *Area* will be compos'd of Square Feet, &c. Theſe Things being underſtood, and the *Definitions* at the beginning of this Diſcourſe of *Geometry* well conſider'd, will help to render the following *Rules* eaſie.

Problem I.

To find the *Area* of a *Square*, or any *right Angled Parallelogram.*

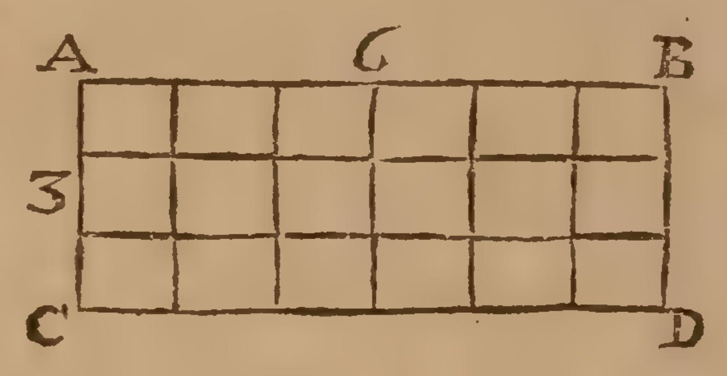
Rule.

Multiply the *Length* into its *Breadth*, and the *Product* will be the *Area* requir'd.

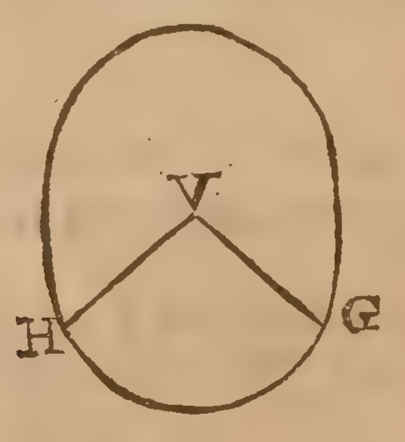
Example.

Suppoſe the *Line* A B=6 Yards, and the *Breadth* A, C, or B, D=3 Yards, then A, B, + A, C, 6 + 3=18, will be the Number of Square *Yards* contain'd in the *Area* of the *Parallelogram*.

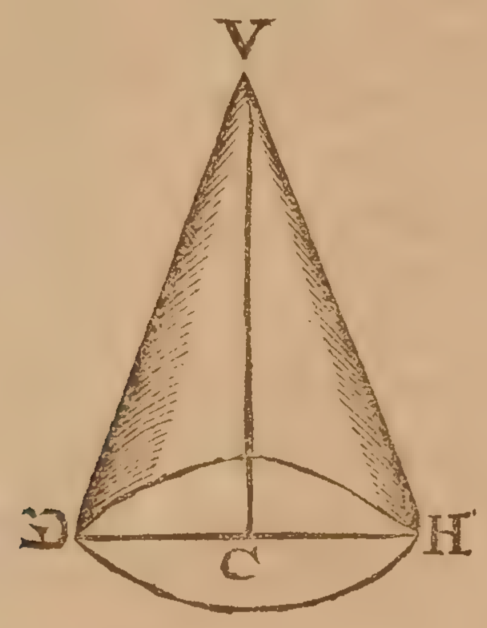
This need no *Demonſtration*, 'tis ſo evident by the *Figure*.



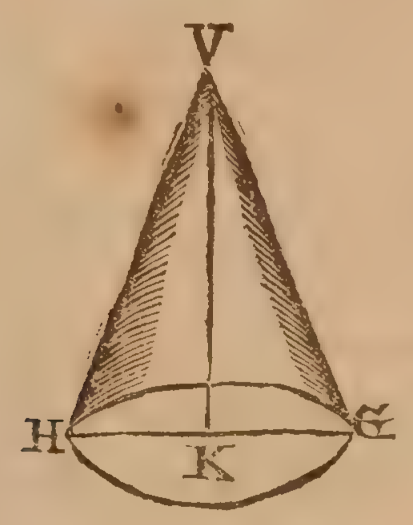
From theſe Problems my Author leads me to an eaſie Method to find out the Circle, Periphery and Area to any aſſign'd Exactneſs (or Number of Figures) by one Equation only; but the Working of ſuch a Geometrical Propoſition wou'd take up too many Figures, and we muſt refer the Reader to the Treatiſe at large, and proceed to Cones, and their Sections. A Cone is thus defin'd by the ſame Mathematician. If a Circle deſcrib'd upon Paper (or any other pliable Matter) of what Buſineſs you pleaſe be cut into two, three, or more Sections, and one of thoſe Sections be ſo roll'd up as that the Radius may exactly meet each other, it will form a conical Superficies; that is, if the Section H, V, G, be cut out of the Circle, and ſo roll'd up as that the Radius's V, H, and V, G, may firſt meet each other in all their Parts, it will form a Cone, and the Center V will become a ſolid Point, call'd the Vertex of the Cone; the Radius V, H, being every where equal, will be the Side of the Cone, and the Arch H, G, will become a Circle; whoſe Area is call'd the Conick Baſe.



A right Line being ſuppos'd from the Vertex or Point V, to the Center of the Cone's Baſe, as at C that Line, *viz.* V, C, will be the Axis or Perpendicular Height of the Cone.

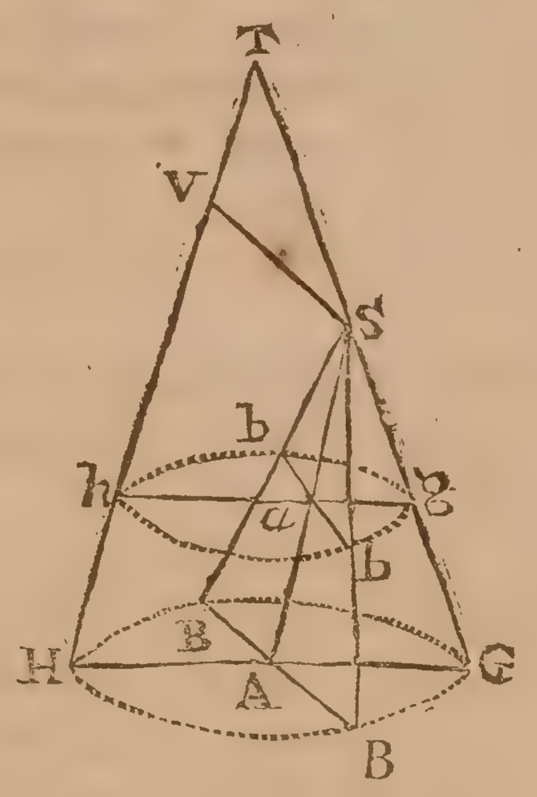


If a Solid be exactly made in ſuch a Form it will be a compleat Cone. Any Cone, whoſe Axis is not at right Angles with the Plane of its Baſe, may be properly call'd an imperfect Cone; becauſe its Sides are not every where equal (as in this Figure). This is uſually call'd a Scalenum or Oblique Cone.



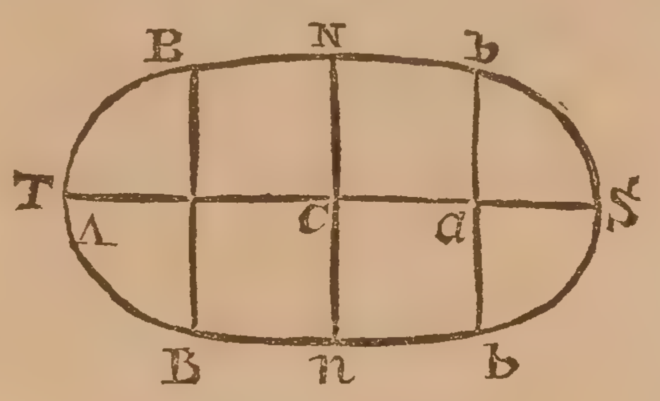
A Conick Section is the Figure made by the Solidity of a Cone, being ſuppos'd to be cut by a Plane. If the Section be made by the Axis, or thro' the Vertex, the Figure ariſing is a Triangle. If by a Plane parallell'd to the Baſe of the Corner or ſubcentrarily poſited, the Figure produc'd is a Circle. If the Section be made parallel to one Side of the Cone, the Figure produc'd is a Parabola. If thro' both Sides of the Cone, 'tis an Ellipſis; and if thro' one Side of the Cone, thro' the Baſe, and not parallell'd to the other Side of the Cone, 'tis an Hyperbola. *Archimedes, Euclid,* and other Mathematicians, call'd that only a Conick Section when the Plane cutting that Cone was at right Angles to the Side of the Cone; and according as the Angle made by the Sides of the Cone meeting in the Vertex, as it was in right Obtuſe or Acute one; they call'd it the Section of a Right Angled, Obtuſe Angled, or Acute Angled Cone; by which Word they underſtood what we now call the Parabola, Hyperbola, and Ellipſis. We ſhall ſay ſomething of each in particular, and Firſt of an Ellipſis.

If the tranſverſe Diameter of an Ellipſis as T, S, in the following Figure, be divided into any two Parts by an Ordinate rightly apply'd; As at the Points A, c, a, *&c.* then are thoſe Parts T, A, T, C, T, a, and S, A, S, C, S, a, *&c.* what are call'd Abſciſſes, which ſignify Lines or Parts cut off; and by the Rectangle of any two Abſciſſes, is meant the Rectangle of ſuch two Parts, as being added together will be equal to the tranſverſe Diameter. As,



T, A, + S, A, = T, S, and T, C, + S, C, = T, S, or, T, a, + S, a, = T, S, *&c.*

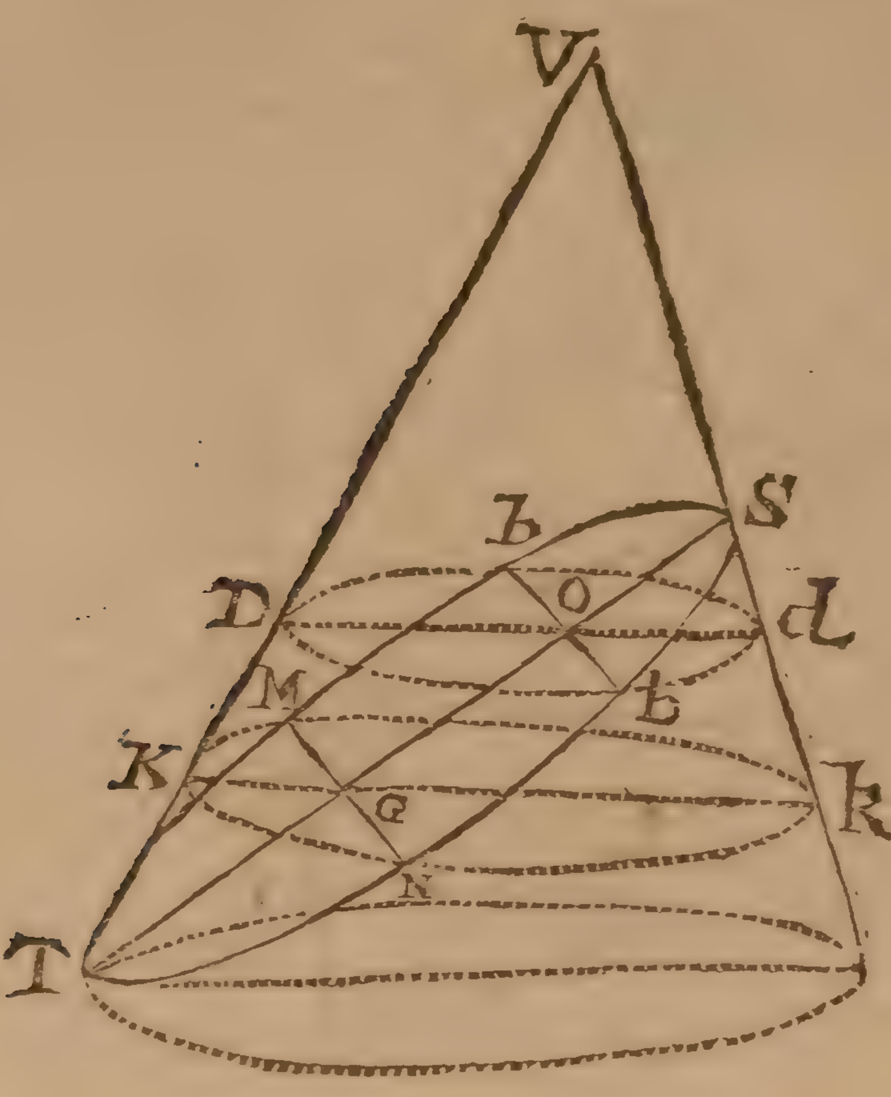
Every Ellipſis is proportion'd, and all ſuch Lines as relate to it are regulated by help of one general Theorem. As the Rectangle of any two Abſciſſes, is to the Square of half the Ordinate, which divides them, ſo is the Rectangle of any other two Abſciſſes to the Square of half that Ordinate which divides them. That is,



T, A, + S, A, : □ B, A, : : T, a, + S, a, : □ b, a.
T, A, + S, A, : □ B, A, : : T, e, + S, e, : □ n, e.
T, C, + S, C, : □ N, C, : : T, a, + S, a, : □ b, a.

The further Demonſtration of this ſhou'd be prov'd by a regular Working, but it wou'd be of too great Length; however we ſhall go ſo far as to obſerve: Let the annex'd Figure repreſent a right Cone, cut thro' both its ſides by the right Line T, S, then will the Plane of that Section be an Ellipſis, T, S will be the tranſverſe Diameter N, C, N, and b, a, b, will be Ordinates rightly apply'd as before. Again, if the Lines D, d, and K, k, be parallel to the Cone's Baſe, they will be Diameters of Circles then will Δ T, C, K, and T, a, d, be alike; alſo Δ G, a, d, and Δ S, c, k, will be alike.

The



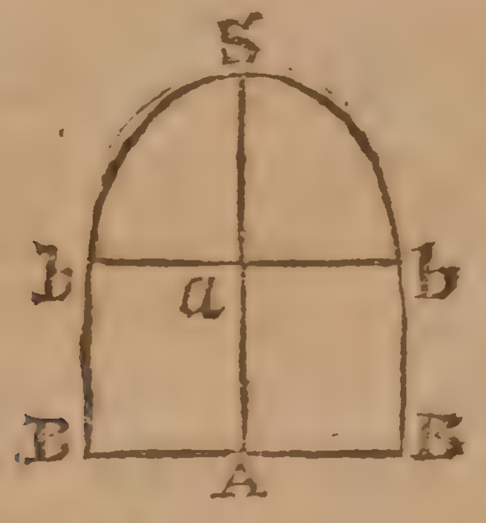
The Plane or Figure of every Parabola is proportion'd by its Ordinates and Abſciſſa's, as in the following Theorem.

> As any one Abſciſſa : is to the Square of its Semi-ordinate : : ſo is any other Abſciſſa : to the Square of its Semi-ordinate.

That is if we ſuppoſe the annex'd Figure to be a Parabola, wherein a, and f, a, and S, A, are Abſciſſa's, and b, a, b, B, A, B, Ordinates rightly apply'd, it will be,

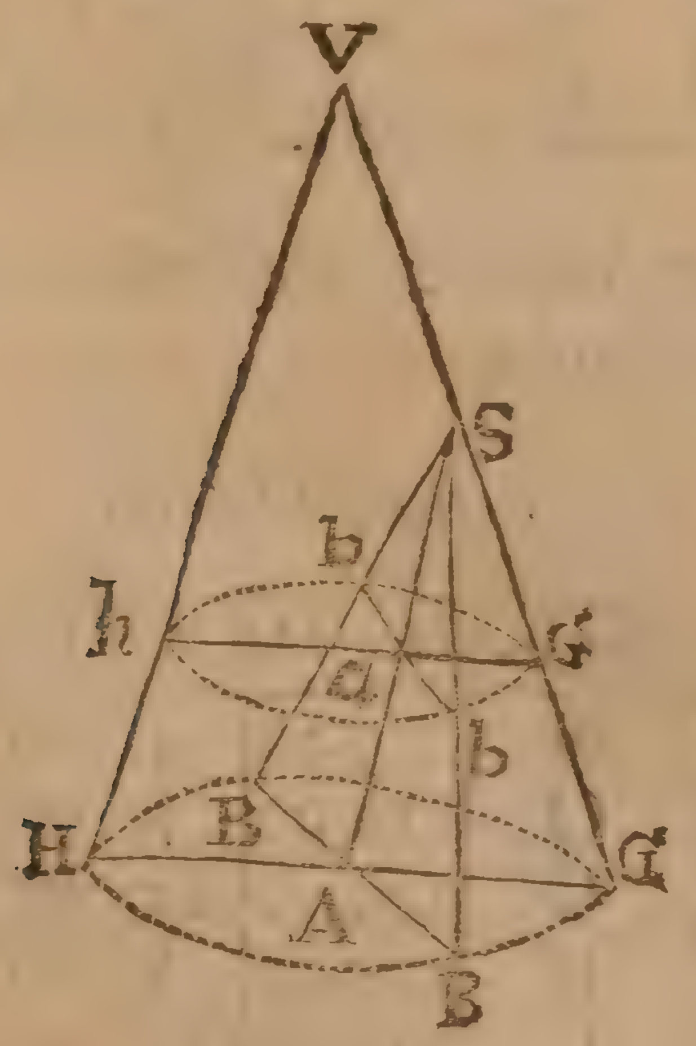
s,a, : □ b, a, : : s, A, : □ B, A, } Whereſoever the Point
Or, s, a, : s, a, : : □ b, a, : B, A, } a, A are taken.

And ſo for any other Abſciſſa, &c.



Demonſtration.

Let the following Figure H, V, G, repreſent a right Cone cut into two Parts by the right Line S, A, Parallel to its ſide V, H, then the Plane of that Section, *viz.* B, b, S, b, B, will be a Parabola; wherein, let us ſuppoſe, S, A, to be its Axis, and b, a, b, B, A, B, to be Ordinates rightly apply'd to that Axis. Again, imagine the Cone to be Cube, by the right Line h, g, Parallel to its Baſe H, G, then will h, g, be the Diameter of a Circle. And Δ s, a, g, like to Δ s, A, G.

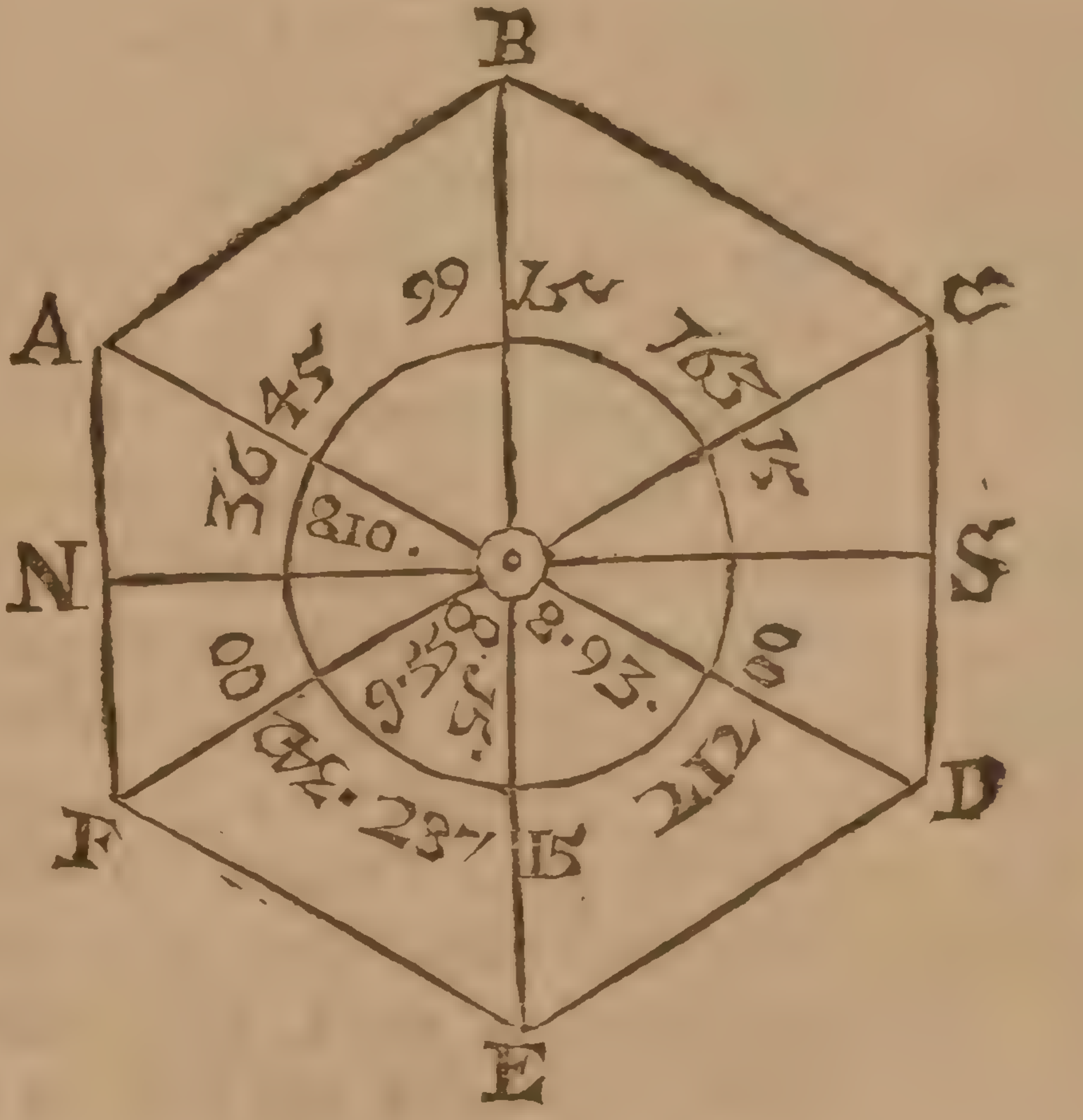


SURVEYING.

SURVEYING of Land, or *Planometria*, is the Art of Meaſuring all manner of Plain Figures, in order to know their Superficial Content, which how to do Geometrically has been in part treated of already; but how to bring this to Practice, ſo as to Meaſure the Area's of real Lands, Fields, Grounds, &c. by the help of proper Inſtruments, is what is uſually call'd Surveying. In order to which, the Surveyor being furniſh'd with a good Inſtrument to take Angles, as a Theodelite, or entire Braſs Circle, with a well-graduated Limb and Teleſcope-Sights, as alſo with a well divided Pole-Chain, an Off-ſet-Rod, Station-Staves, &c. he may proceed thus.

1. *Take the Plot of a Field at one Station in any place of it, from whence you may ſee all the Angles.*

Suppoſe A B C D E F G to be a Field, of which you are to take the Plot. Having ſet your Inſtrument in any convenient place of it, as at ⊙, and let Marks or Station-Staves, with Paper, be ſet up in every Angle; ſet your Inſtrument, ſo that the Needle may hang directly over the Meridian Line of the Cord, and there ſcrew faſt the Inſtrument. Then direct your Sights to A, and you will find the Index cutting 36.45, which note down in your Field-Book, in the ſecond Column of it, and Meaſure the Diſtance from ⊙ to +, containing, ſuppoſe 8 Chains and 10 Links, which ſet down alſo in the third Column of your Field-Book. Then direct your Sights to B, the Index cutting 99 Degrees 15 Minutes, and the Diſtance from ⊙ to B is 8 Chains and 75 Links, both which ſet down in your Field-Book as before; do the like for the reſt of the Angles, from ⊙ to C D E, and ſet them down as you obſerve them, with their Diſtances meaſur'd from the Station, as you ſee ſet down in this following Table, which is a Copy of the Field-Book, and will ſhew you the Method how to note down your Obſervations.



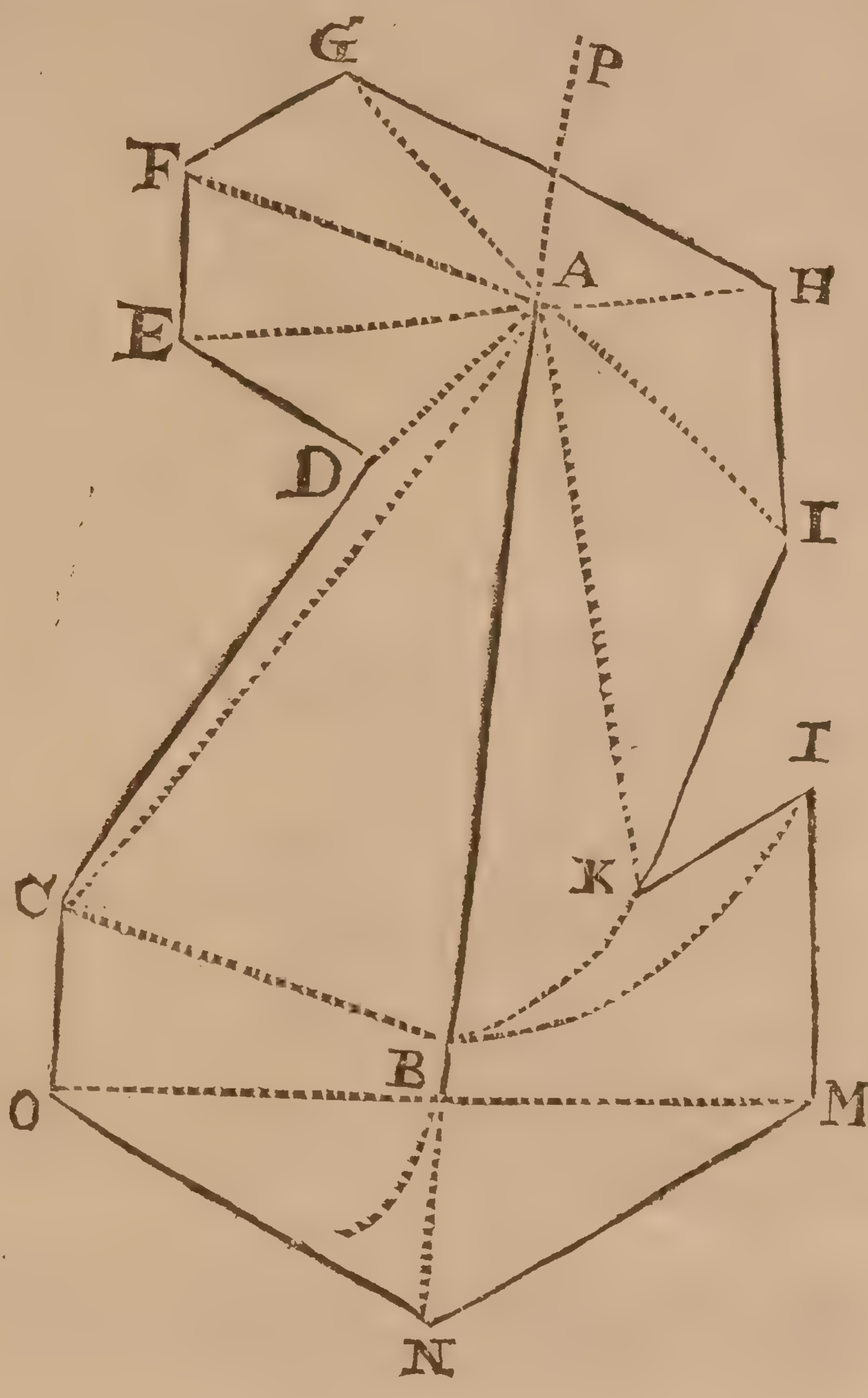
	D. M	Ch. Lin.
A	36.45	8. 10
B	99.15	8. 75
C	163.15	16. 65
D	212.00	8. 53
E	287.15	8. 15
F	342.00	9. 55

Having thus finiſh'd your Work in the Field, the next Buſineſs muſt be to Protract it, that is, lay down a Plot of it on Paper or Parchment, which is done thus; Draw a Line, as N S, repreſenting the Meridian Line; then in part of that Line, as at ⊙, make a Point, repreſenting your Place of ſtanding in the Field; upon this Point place the Center of your Protractor, ſo that its Diameter may be directly upon a Line, N S. This Protractor is commonly made of a well poliſh'd thin Piece of Braſs, and conſiſts of a Semi-circle, divided into Degrees, and a Parallelogram with Scales upon it, and may be of any bigneſs deſir'd. On the Limb of your Protractor, againſt 36.45, ſet a Point repreſenting the Degrees of your firſt obſerv'd Angle, and let the ſame be done with the ſecond and third Obſervations. To Prick off the fourth, *viz.* 212, the Protractor muſt be turn'd downwards, becauſe the Degrees are greater than a Semi-circle. Then proceed to Protract the reſt of the Angles, then take away the Protractor, and laying a Ruler to the Station-Point ⊙, draw obſcure Lines from thence to thoſe Points, on which Lines ſet their reſpective Meaſures from your Scale, as 8 Chains, 10 Links, from ⊙ to A, and 8 Chains, 75 Links from ⊙ to B, and ſo of the reſt, as you have them down in your Field-Book. Then correct theſe Points by the Lines A B, B C, C D, D E, E F, and F A, ſo ſhall you have the true Figure of the Field.

2. *To take the Plot of a Field at two Stations, when the Field is ſo irregular, that from one Station you cannot ſee all the Angles,*

Let C D E F G H I K L M N O be the Field, in which from no one Place all the Angles of it may be ſeen, wherefore chuſe two Places for your Stations, as A B.

Set your Inſtrument at A, and look thro' the Sights towards your ſecond Station B, and then fix your Inſtrument; and as before taught, with the Index, take all the Angles at that end of the Field, as C D E F G H I K, and Meaſure the Diſtance between your Inſtrument and each Angle, as alſo the Diſtance between the two Stations. Then remove your Inſtrument to the ſecond Station B, and having made it faſt, ſo as thro' the Back-Sights you may ſee the firſt Station A; take the Angles at that end of the Field, as N O C K L M, and Meaſure their Diſtances as before; all which being done, your Field-Book will ſtand thus.



Firſt Station.

	D. M.	Ch. Lin.
Angle.	25.00	20. 75
C	31.00	8. 10
D	67.00	9. 85
F	101.00	10. 80
G	137.00	7. 00
H	262.00	6. 70
I	316.00	13. 17
K	354.00	24. 50

The Diſtance between the two Stations B A, is 31 Chains, 60 Links.

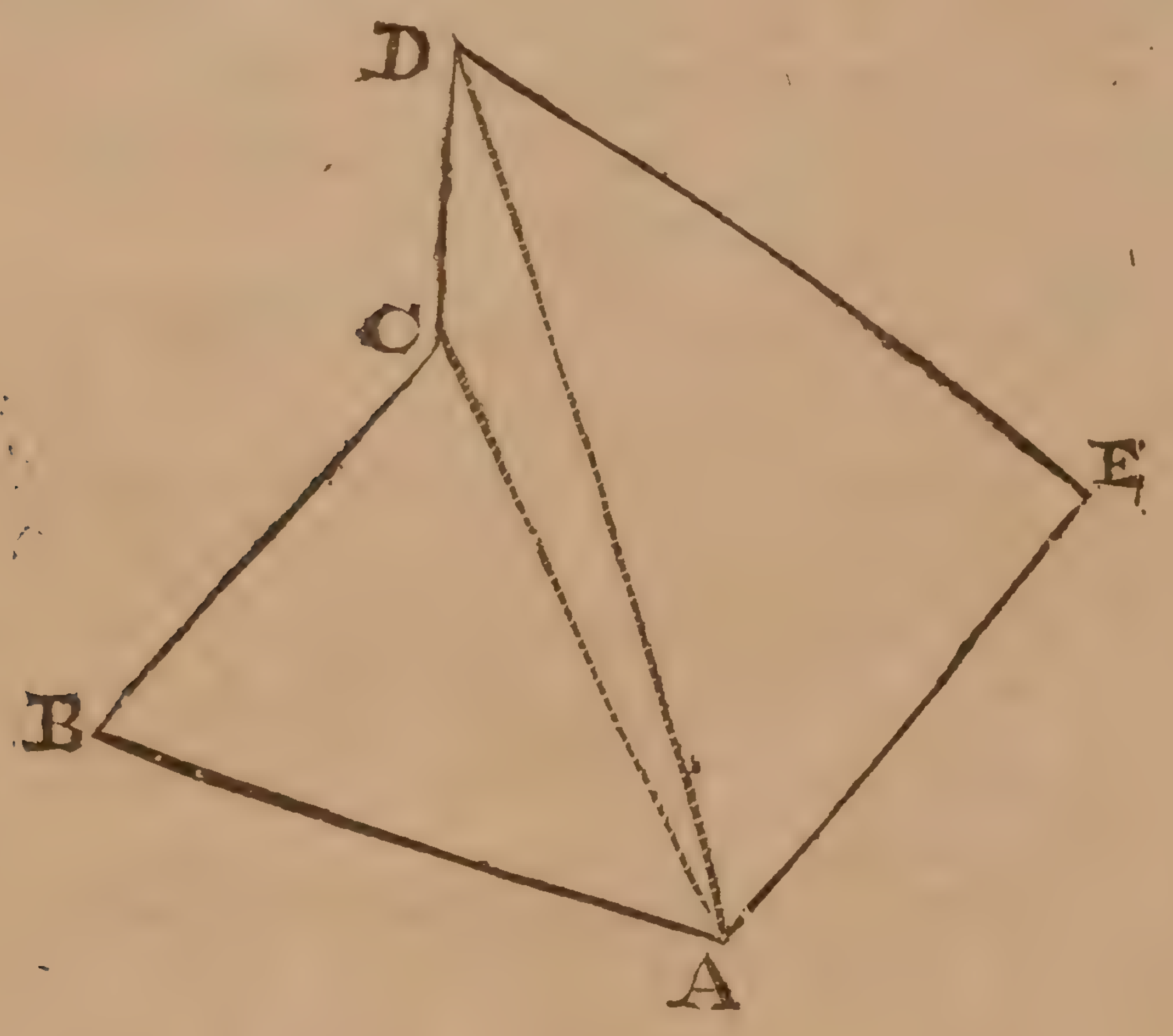
Second Station.

Angle.	D. M.	Ch. Lin.
N	3.30	4. 00
O	111.00	7. 00
C	145.00	15. 60
K	205.00	8. 40
L	220.00	15. 00
M	274.00	11. 20

To Protract this, draw a Right Line at adventure, as P A B B, on which let from your Scale 31 Chains, 60 Links, (the Diſtance between the two Stations) making Marks with the Compaſs, as A and B for your firſt and ſecond Station. Lay the Protractor to A, the North end of the Diameter being towards B, and mark out the ſeveral Angles obſerv'd at your firſt Station, draw Lines and ſet off the Diſtances meaſur'd; do the ſame at B, the ſecond Station; and when you have mark'd out all the Diſtances between theſe Marks, draw the Bound-Lines. If the Field be very irregular, you may after the ſame manner make three, four, or five Stations, as you pleaſe; tho' 'tis much better to go round ſuch a Field, and to Meaſure the Bounding-Lines.

3. *To take the Plot at one Station in an Angle (ſo that from that Angle you may ſee all the other Angles) by meaſuring round about the ſaid Field.*

Suppoſe A B C D E the Field, and A the Angle appointed for the Station; place your Inſtrument in A, and turn it round 'till you ſee (thro' the fix'd Sights) the Arch at B, then ſcrew it faſt and turn the Index to C, obſerving what Degrees are there cut on the Limb, which ſuppoſe to be 68 Degrees, turn it further 'till you ſee D, and note down the Degrees there cut, *viz.* 76 Degrees; do the like at E, and the Index will cut 124 Degrees. This done, Meaſure round the Field, noting down the Length of the Side-Lines between Angle and Angle, your Field-Book will ſtand thus.

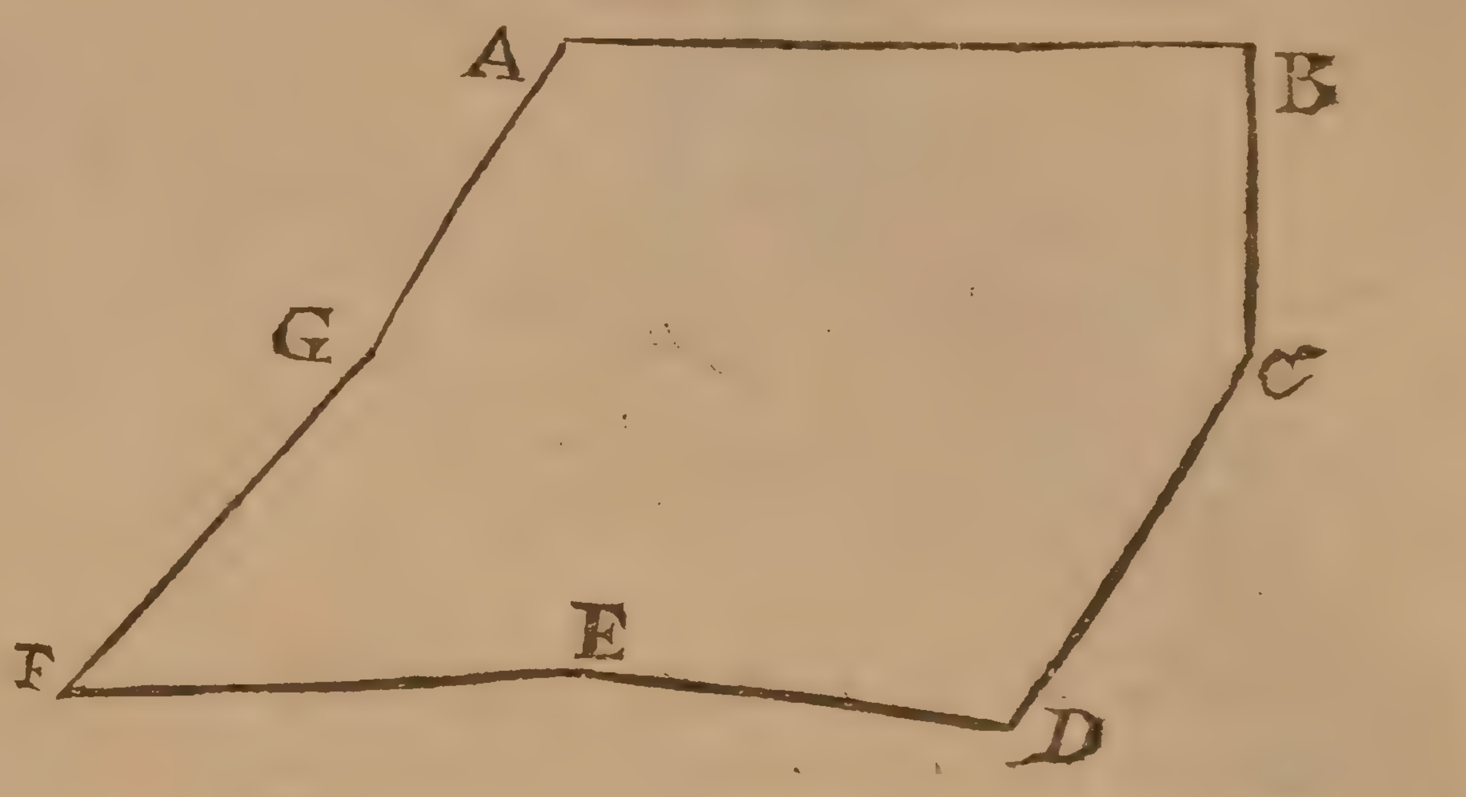


Lines.	Ch. Lin.
AB	14. 00
BB	15. 00
CD	7. 00
DE	14. 40
EA	14. 05

To Protract which, draw A B as you pleaſe, and applying the Center of the Protractor to A (the Diameter lying upon the Line A B) prick off the Angles, and make Marks, thro' which draw Lines, A C, A D, and A F, in which you may find the Points C D E, by the Meaſures taken, as you have them in your Field-Book, and taken of a Scale, then draw the Bounding-Line, and you have done.

4. *To take the Plot of a Park, Wood, a very great Common, or a large Champagne Field, by going round about it, and making Obſervations.*

Let A B C D E F G be a large Field, or Wood, thro' which you cannot ſee to take the Angles, but muſt be forc'd to go round it; place your Inſtrument at the Angle A, and lay the Index on the Diameter of it, moving the whole Inſtrument about 'till, thro' the Sights, you ſee the ſecond Angle at B, and there fix it; then turn the Index about backwards 'till you ſee the Angle at C, the Index cutting 97 Degrees, which is the Quantity of the Angle G A B. Meaſure the Line A B, it contains 12 Chains, 5 Links, which ſet down in your Field-Book. Then remove your Inſtrument to B, the Index lying upon the Diameter, turn it about 'till you ſee the Angle at A, then ſet down the Degrees cut on the Limb, and the Meaſure of the Line B C in your Field-Book. Remove to C D F and G, making your Obſervations after the ſame manner, and Meaſuring the length of every Line, they'll ſtand thus in the Field-Book.



	D. M.	Ch. Lin.
A	97.00	12. 5
B	120.30	4. 45
C	132.00	8. 85
D	125.00	13. 4
E	121.30	7. 70
F	80.00	5. 67
G	227.00	7. 87

The manner of Protracting this is nearly the ſame as before.

How to diſcover whether the Angles made at their ſeveral Stations, be truly taken or not.

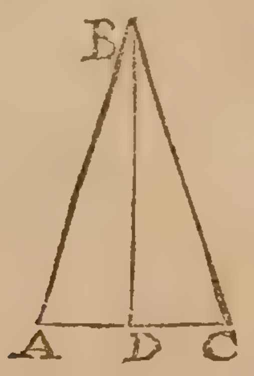
Rule.

Multiply 180 Degrees by a Number leſs by two than the Number of Sides or Angles in your Plot, the Product ſhall be equal to the Sum of all the Angles obſerv'd, if you have wrought true, otherwiſe not. Thus, there were ſeven Angles or Sides in the laſt Plot, therefore I multiply 180 by 5, the Product is 900, which is equal to all the Angles reckon'd in the inſide of the Plot, for the outward Angles are not included in the Rule.

To take the Horizontal Line of a Hill.

When you Meaſure a Hill you muſt take the Superficies of it, and accordingly caſt up the Contents. But when you plot it down, becauſe you cannot make a Convex Superficies upon the Paper, you muſt only plot the Horizontal Line or Baſe of it, which you muſt ſhadow over with the Reſemblance of a Hill; that Horizontal or Baſe-Line, is found after this manner.

Suppoſe A B C D a Hill, whoſe Baſe you would know; your Inſtrument being plac'd at A, cauſe a Mark to be ſet up at B, ſo high above the Top of the Hill, as the Inſtrument ſtands from the Ground at A, then take the Angle B A D, 58 Degrees, Meaſure the Diſtance A B, 16 Chains, 80 Links. Then ſay,



As Radius : A B :: S. B A D : A D.
S. 90°, 00 : 16 Chains, 80 Links :: S. 32°, 00.
8 Chains, 90 Links.

Then remove your Inſtrument to B, and take the Angle C B D, 46 Degrees, Meaſure the Diſtance B C, 21 Chains, then ſay,

As Radius : B C :: S. C B D : D C.
S. 90 D. : 21 Ch. :: S. 46 D. : 15 Ch. 12. Links.

The 15,12 added to 8,90 makes 24 Chains, 2 Links for the whole Baſe A C.

Otherwiſe thus,

Take the Angles B A C, 58 Degrees, and A B C, 78 Degrees, Subſtract theſe two from 180 Degrees, there will remain the Angle C, 44 Degrees; Meaſure A B, then ſay,

As S. C : A B :: S. B : A C.

To find the Contents of your Field in Acres and Parts of an Acre.

Since Mr. *Gunter*'s 4 Pole-Chain, all along here us'd, is ſuppos'd to be divided into 100 equal Links, and that every Acre contains 160 Square Poles. Therefore 160 Poles divided ÷ into 160 Poles = a Square Acre; but the Chain being decimally divided, ſo that in one 4 Pole-Chain there are 100 Links, therefore 10 Square Chains muſt make an Acre, that is, an Acre will contain 10000 Links.

Suppoſe therefore the Baſe of any Triangle, in my Plot were 27 Chains, 53 Links, whoſe Area in Acres and Parts of an Acre I would find by multiplying its half Altitude, 8 Chains, 25 Links, into that Baſe or Side, Work juſt as in Decimals, thus,

```
C. L.
27.53
 8.25
------
 13765
 5506
22024
------
22|71225
```

Only from the Product I cut off 5 Places (or which is all one, divide it by 10000) there remains 22 Acres; · 71225, to reduce which Decimal Fraction 71225 into Roods or Poles, I conſider there are 4 Roods in an Acre, and therefore I multiply by 4, and cut off 5 Places as before.

```
71225
    4
------
2|84900
```

This gives me 2 Rood, and this Fraction:

```
 84900
    40
-------
33|96000
```

Which I multiply by 40, becauſe there are 40 Poles in a Rood, and the Product is 33,96000; from whence cutting off 5 Places as before, it gives me 33 Poles or Perches, ſo the whole Content is 22 Acres, 2 Rood, 33 Perches. Which way of working is very eaſy, and will give a Gentleman a quick Apprehenſion of the manner of it. 'Twill ſoon be perceiv'd of what neceſſity the Chain is, wherefore we ſhall deſcribe it, and therein treat of the ſeveral kinds us'd in meaſuring.

The firſt is a Chain of 100 Foot long, each Link being 1 Foot in length; and at each 10 Foot there is a Plate of Braſs with a Figure engraven on it to ſhew readily how many Feet are from the beginning of the Chain; and for more eaſe in accounting, there's a Braſs Ring at every 5 Links. This Chain is moſt Commodious for meaſuring of large Diſtances or Lengths.

The ſecond is a Chain of 16 Foot and a half in length, and made ſo as to contain 100 Links, with Rings at every tenth Link. This Chain is to meaſure ſmall Gardens and Orchards by Perch or Pole-Meaſure.

The third is a Chain of 4 Pole or Perches in length, which is 66 Foot, or 22 Yards, for each Perch contains 16 Foot and a half. This whole Chain is divided into 100 equal Parts or Links, whereof 25 are a juſt Pole; and for ready accounting, there's uſually a remarkable Diſtinction by ſome Plate or Ring at the end of every 25 Links. Alſo at the end of every tenth Link, 'tis uſual to faſten a Plate of Braſs, with Notches therein, denoting how many Links are in the beginning of the Chain. This Chain is the moſt Commodious for Land-Meaſure.

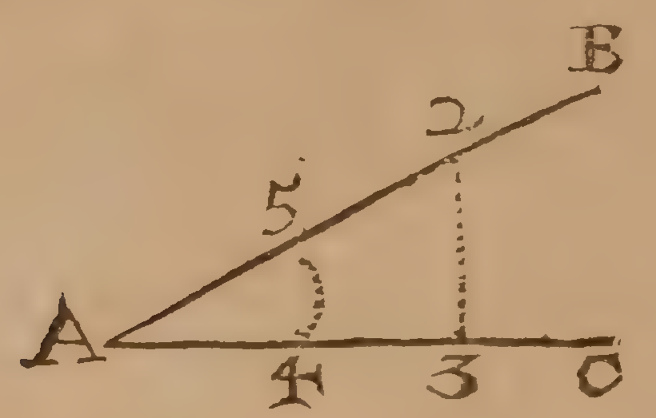
When you are to meaſure any Line by the Chain only, you need not regard any other Denomination but Chain and Links, ſet down with a Point between them. Thus, if you find the ſide of a Cloſe to be 6 Chains, 35 Links, put down 6.35; but if the Links be under 10, prefix a Cypher, as for 7 Chains, 9 Links, ſet down 7.09.

How to caſt up the Contents of a Figure, the Lines being given in Chains and Links.

Having multiply'd Length by Breadth, or Baſe by the half Perpendicular, *&c.* from the Product cut off 5 Figures towards the right-hand with a daſh of your Pen, ſo ſhall thoſe to the left-hand ſignify Acres, as by the Example before-mention'd, of Acres, Rods, and Poles.

How by the Chain to take an Angle in the Field.

Firſt meaſure along the Hedge A B, any ſmall diſtance, as A 2, two Chains; alſo meaſure along the Hedge A C what Number of Chains you pleaſe, no matter whether they be equal to the former or not, as A 3, two Chains; then meaſure the Diſtance 2, 3, ſuppoſe it be 1 Chain, 68 Links.



To Plot which, draw the Line A B at pleaſure, and ſet off 2 Chains from A to 2, then take in your Compaſſes the Diſtance A 3, 2 Chains, ſetting one Foot in A, deſcribe the Arch 2, 3; take alſo your Compaſſes in 1 Chain 68 Links, ſet from 2 to 3, and thro' the Point 3 draw A C, ſo you have the Angle B A C of the Field truly plotted. By this means you may Survey a Field by going round it with the Chain only, by taking all the Angles, and meaſuring the Sides.

Knowing the Contents of a Piece of Land, to find what Scale it was Plotted by.

By any Scale meaſure the Contents of the Plot, then ſay,

As the Content found is to the ſquare of the Scale I try'd by,

So is the true Content to the ſquare of the true Scale it was plotted by.

As ſuppoſe there's a Plot of a Piece of Land containing 10 Acres, and I meaſure it by the Scale of 11 in an Inch, and find it to contain 12 Acres, $\frac{1}{10}$ of an Acre. Then ſay,

As $12\frac{1}{10}$: 121 (=) Sq.) :: 10 : 100.

And the Square Root of 100 is 10, therefore I conclude the Plot to be made by a Scale of 10 in an Inch.

How to change Cuſtomary Meaſure into Statute-Meaſure, and the contrary.

Say, as the ſquare of one ſort of Meaſure is to the ſquare of the other,

So is the Content of the one to the Content of the other.

Thus, Suppoſe a Field meaſur'd by a Perch of 18, contain 100 Acres, how many Acres ſhall the ſame Field contain by a Perch of 16 Foot and an half.

Say, if the ſquare of 16 Foot and an half, *viz.* 272.25, give the ſquare of 18, *viz.* 324, what ſhall 100 Acres, Cuſtomary give? Anſwer, $119\frac{9}{10}$ Statute Acres.

The *Scale* us'd in Surveying is call'd the *Surveying* or *Reducing Scale.* 'Tis a thin broad Piece of Box, with ſeveral different Scales of equal Parts and Lines, to turn Chains and Links into Acres and Rods by Inſpection, and is by Surveyors to reduce any Map or Draught.

What follows will be of uſe to Country Gentlemen if they will give themſelves the trouble to enquire a little into it. As,

How to lay out ſeveral Quantities in Common Fields to Tenants.

Plot out the Field, Common, or ſeveral, with its particular Bounds, as you obſerve them in the Survey of the whole Mannor; or if you only Survey that Particular, take no notice of all the Bounds, provide a Book rul'd with 10 Columns, in the Firſt write the Tenant's Name, and the Tenour by which he holds his Land. The Three next Columns are to contain the Breadth of every Man's Parcel of Lands, noted over the Head of every Column with theſe Three Characters 0, 1, 2, anſwering to the ſeveral Diviſions of your Chain 0, ſignifying *Unites*, 1 *Prime*, and 2 *Seconds.* In the next 3 Columns is expreſs'd the Length of every Tenant's Parcel, having the like Characters of 0, 1, 2, over the Head of each Column as that of the Breadth; and in the Three laſt Columns is to be expreſs'd the Quantity of each Tenant's Parcel.

In laying out of ſeveral Parcels in this kind, you will uſe your Chain only; then when you begin your Work, firſt write the Name of the Field by way of Title; the Tenant's Name in the firſt Column, and Tenure as aforeſaid from what Place you begin to meaſure, and upon what point of the Compaſs you paſs from thence; which Direction being obſerv'd in all the reſt, you may, if need requires, bound every Parcel.

This being noted in your *Book*, obſerve the Species or Shape of the Furlong, whether it be all of one Length or not; if all of one Length, then take the Length but once for all; but if of different Lengths, then take the Length at every ſecond, or third Breadth, and expreſs the ſame in your *Book* under the *Title* of Lengths. As for the expreſſing the ſeveral Breadths only croſs over the whole Furlong, taking every Man's Breadth by the middle thereof, entring the ſame as you paſs along. But in caſe there be a conſiderable difference at either end, then take the Breadth at either end, adding them together into one Sum; take the Half of that Sum for your Mean, or true Breadth, and enter it in your *Book* or *Paper* under the Title of *Breadth.*

In this manner you may proceed from one Furlong to another, till you have gone thro' the whole *Field*; which when you have done, and noted down the ſeveral Lengths and Breadths in your *Book*, Multiply the Length and Breadth of every Parcel together, and ſo ſhall you have the quantity of every Parcel by it ſelf, which quantity muſt be noted down in the three laſt Columns of your Book, as in the following Example appears.

GRAVEL-PIT FIELD.

Tenants Names	Breadth			Length			Quantity		
	0	1	2	0	1	2	a	r	p
John Price from the Lane Eaſtward, free	6	8	2	16	2	0	0	2	30
Thomas Jones for two Lives	1	3	2	16	2	0	0	0	21
William Smith by Copy	5	6	3	15	4	2	0	2	7
Robert Weſt, at Will	8	4	1	14	2	3	0	3	0

To take the Plot of a Mannor, or of divers Severals, whether Wood-lands, or otherwiſe.

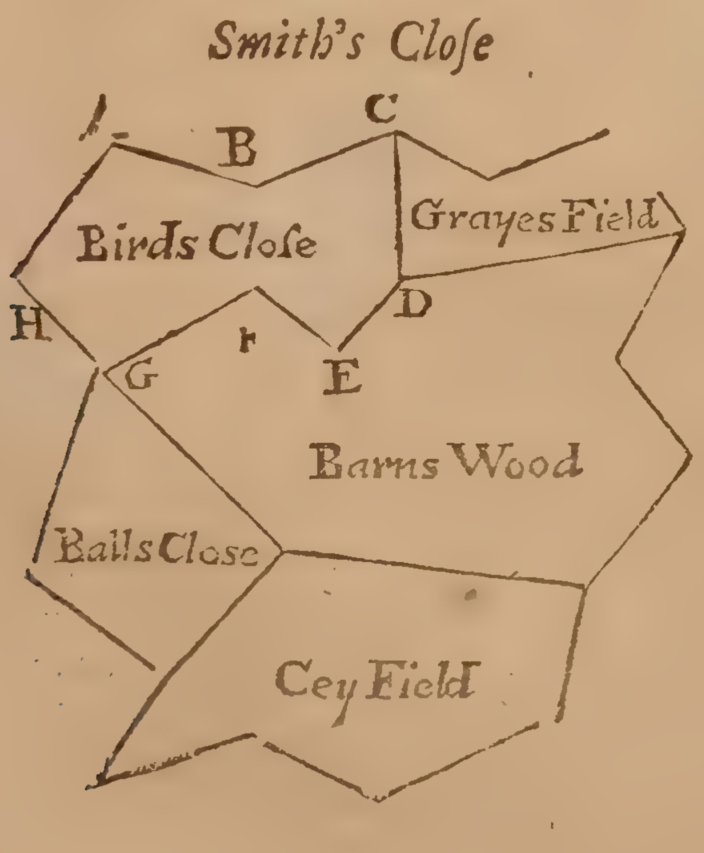
SUPPOSE therefore that the following Figure were part of a Mannor, as the Mannor of *Hutton*, you muſt firſt write the Title in your *Field-Book*, thus.

Mannor of Hutton, *in* Com. Som.

Then having your *Field-Book* in a readineſs, write over every Cloſe as you Survey, the Tenant's Name, and the Tenure by which he holds the ſame, as in the following Example; for the firſt Cloſe, *Richard Price, Bird's Cloſe, Paſture free*; then beginning to Survey this Parcel, firſt place your *Inſtrument* at *A*, and direct your Sights to *B*, obſerving the *Degrees* there cut, which will be 195, Note it in the firſt Column of your *Field-Book*; then with your *Chain* meaſure the diſtance from *A*, to *B*, and you ſhall find it to contain 30 *Perches*, 4 *Primes*, which place in the third and fourth Columns.

2. Remove your *Inſtrument* to *B*, and direct your Sights to *C*, the *Index* cuting 205 *Degrees*, 30 *Minutes*, Note it in the firſt and ſecond Columns of your *Field-Book*; then meaſure the diſtance *B*, *C*, 26 *Perches*, 7 *Primes*, which obſerve in the third and fourth Columns; Now in regard you are to leave the *Hedge*, or *Border A*, *B*, *C*, adjoyning to *Smith's Cloſe*, (which belongs to another Mannor, and therefore naming is ſufficient for your remembrance) draw a *Line* quite croſs your *Field-Book*, and in the laſt Column thereof, which is very broad, write the Name of the *Bounder* you went againſt, as in the *Example*. Theſe two Obſervations being made by the Hedge, or Bounder of *Smith's Cloſe*, therefore againſt theſe Obſervations write *Smith's Cloſe*; and being you are now to leave that Bounder, therefore draw a *Line* quite through your *Field-Book*, which denotes that you leave the Bounder of *Smith's Cloſe*.

3. Place your *Inſtrument* at *C*, and direct your Sights to *D*, the *Degrees* cut being 120, and 45 *Minutes*, and the diſtance *C*, *D*, being 27 *Perches*, 8 *Primes*; theſe 120 *Degrees*, 45 *Minutes*, muſt be noted in the firſt and ſecond Columns of your *Field-Book*, and the 27 *Perches*, 8 *Primes* in the third and fourth Columns. Now becauſe at theſe three Obſervations you went againſt the Hedge, or Bounder of *Gray's Field*, you muſt againſt them in the broad Column of your *Field-Book* ſet down *Gray's Field*; and becauſe at your next Obſervation you are to leave that Bounder, therefore draw a *Line* croſs your Book, ſhewing that you have done with that Bounder.



4. Place your *Inſtrument* at *D*, and direct your Sights to *E*, the *Index* cutting 86 *Degrees*, 15 *Minutes*, and the diſtance *D*, *E*, being 10 *Perches*, 4 *Primes*, the *Degrees* and *Minutes* muſt be noted in the firſt and ſecond Columns of your *Field-Book*, and the 10 *Perches*, 4 *Primes*, in the third and fourth.

5. Remove your *Inſtrument* to *E*, and direct your Sights to *F*, the *Index* cutting 300 *Degrees*, and the diſtance *E*, *F*, being 12 *Perches*, 3 *Primes*, the *Degrees* and *Minutes* ſet down in the ſecond and fifth Columns of your *Field-Book*, and the 12 *Perches*, 3 *Primes* in the third and fourth Columns.

6. Place your *Inſtrument* at *F*, and direct your Sights to *G*, the *Index* cutting 55 *Degrees*, 30 *Minutes*, and the diſtance *F*, *G*, being 16 *Perches*, 4 *Primes*; the 55 *Degrees*, 30 *Minutes* muſt be noted in the firſt and ſecond Columns of your *Field-Book*, and the 16 *Perches*, 4 *Primes* in the third and fourth.

Now becauſe in theſe three laſt Obſervations you went againſt the Hedge or Bounder of *Barns's Wood*, and that you are now to leave it, you muſt againſt theſe three Obſervations, in the broad Column of your Book, write *Barns's Wood*, and being now to leave that Bounder, draw a ſingle *Line* croſs your *Book*.

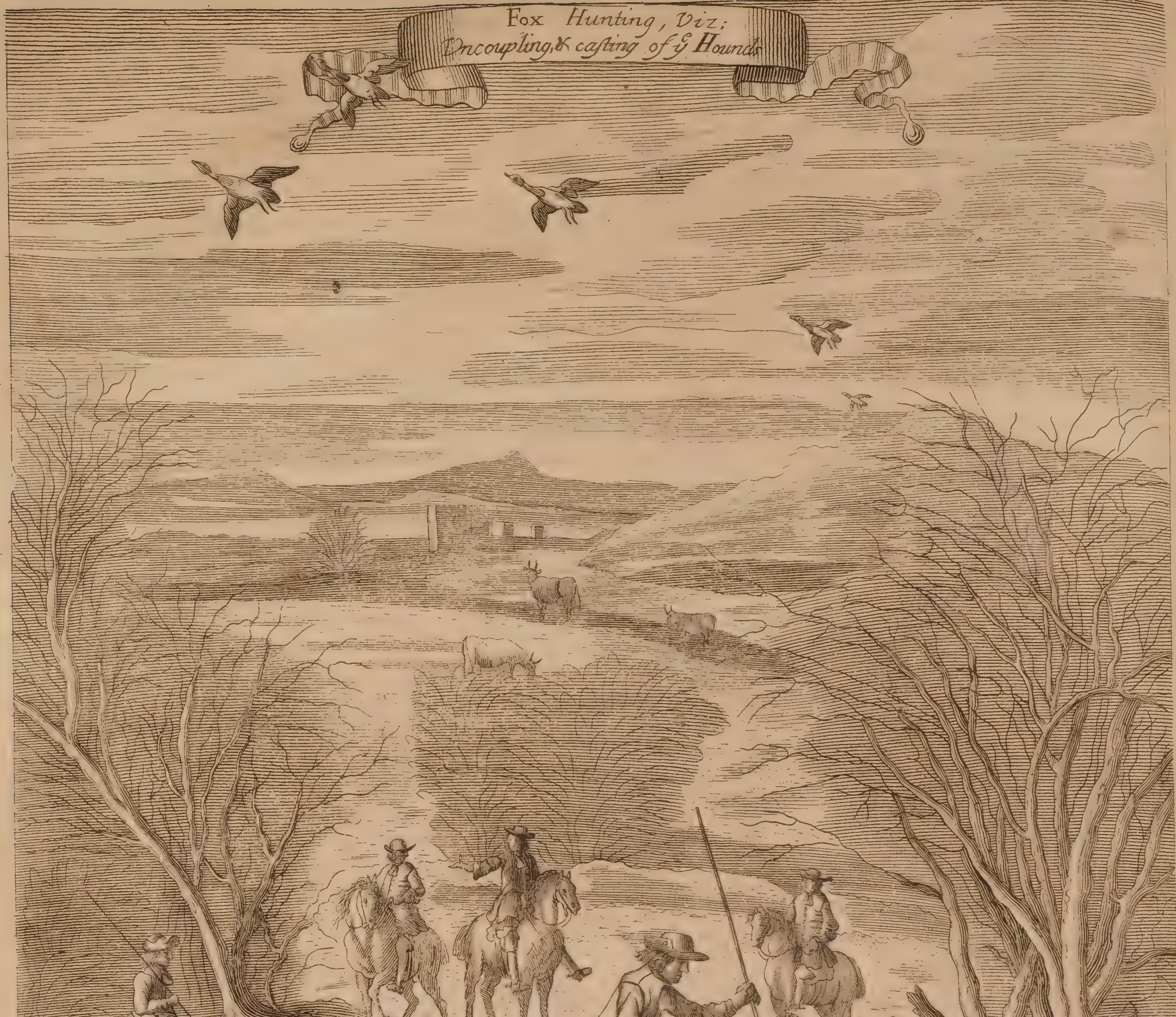
7. Place your *Inſtrument* at *G*, and direct your Sights to *H*, the *Index* cutting 324 *Degrees*, 15 *Minutes*, and the diſtance *G*, *H*, being 36 *Perches*, 2 *Primes*, the *Degrees* and *Minutes* muſt be noted, in the firſt and ſecond Columns, and the *Perches*, and *Primes* in the third and fourth.

8. Remove your *Inſtrument* to *H*, and direct your Sights to *A*, where you began the *Index*, cutting 107 *Degrees*, 15 *Minutes*, and the diſtance *H*, *A*, being 34 *Perches*, 6 *Primes*. The *Degrees* and *Minutes* muſt alſo be noted in the firſt and ſecond *Columns*, and the *Perches* and *Primes* in the third and fourth. Now becauſe in theſe two laſt Obſervations you went by the River-ſide, therefore againſt them write the River; and becauſe you have now finiſh'd your firſt Cloſe, draw a double *Line* for a remembrance.

Then conſider which Cloſe is next fitting to be Survey'd, which let be *Gray's Field*, and withal at what *Angle* it is beſt to begin, which let be at *C*, and here (for your help when you come to Protraction) expreſs in the Title of this ſecond Cloſe at what *Angle* you begin, (unleſs you had begun where you ended the laſt): Wherefore ſeeing you begin at *C*, look in your Book on the Work of your laſt Cloſe, at what place the Line *B*, *C*, ended, as at the end of 205 *Degrees*, 30 *Minutes*, and 26 *Perches*, 7 *Primes*, and againſt that Number make this * or any other Mark, on the right ſide of your down-right *Lines*, and then write your Title for your ſecond Cloſe thus:

Thomas Rich, Gray's Field, free, begin at *.

By this means you ſhall readily know when you come to Protraction, where to begin with this Cloſe, and in the *Margin* place (2) for the Number of your ſecond Cloſe, and then proceed in your Work, as before taught for your laſt Cloſe, until you come to *K*; where obſerving that you want but one *Line*, as *K*, *D*, to incloſe this ſecond Cloſe, and alſo that this *Angle R*, is the fitteſt place to begin your third Cloſe at, place there your *Inſtrument*, and directing your Sights to *D*, where you are to incloſe, and then write in the *Margin* of your


Fox Hunting, Viz:
Uncoupling, & casting of ye Hounds

To the Right Honourable Thomas Earle of Ailisbury
& Elgin, Viscount Bruce of Ampthill, Baron Bruce of
Wharlton, Skelton and Kinloss, Hereditary High=
Steward of ye Honour of Ampthill, Gentleman of
his Majesties Bedchamber, Lord Leiutenant and
Custos Rotolorum of ye Countys of Bedford, &
Huntington, Recorder & High=steward of Bedford
& Huntington &c.

Fuimus

This Plate is humbly dedicated by Ric: Blome

your Book (againſt the Degree here taken) draw a ſhort *Line*, as thus —— 21, 30, 40, 2, which ſerves to put you in mind when you come to *Protraction*, that you are to begin your third *Field*, where now you are at the *Angle K*, where you took your laſt Sight; and then having incloſ'd this ſecond Cloſe, proceed to the third from *K*, in the Title of which you need not make mention at what place you begin, for the former Reaſon, but working in that and all the reſt, as before ſhew'd, and if there were never ſo many Incloſures you may without confuſion eaſily diſtinguiſh the Work of the one from the other, and be able to draw a *Plot* thereof at any time, remembring always that theſe Numbers in the *Margin* of your Book, are to be plac'd ſeverally in your *Plot* in thoſe Cloſes they repreſent; And by this means you are eas'd of much trouble that you muſt by the other ways be put to in protracting upon the Table it ſelf: For then in every *Plot* you muſt write the Name of the Tenant, or the Cloſe, or the *Tenure* or Quality of it, which breeds confuſion, and occaſions much trouble in caſting up the Contents.

Theſe *Inſtructions* being ſufficient for the Application and Uſe of the *Field-Book*, it were convenient to practiſe the ſame, and compare this *Book* with the *Plot*, and protracting it according to the Directions hereafter given.

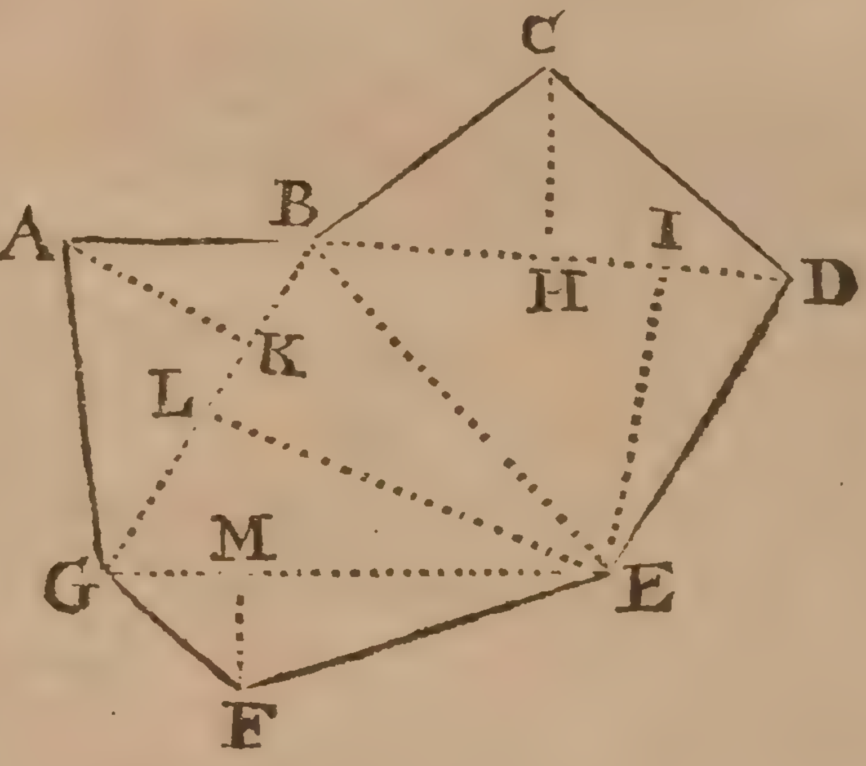
An Example of a Leaf of the Field-Book, as it ought to be Rul'd, and taken according to the preceding Example.

	Ric. Price, Bird's Cloſe, Paſture, tree.				
	Deg.	Mim.	Perch.	Prim.	
(1)	191	00	30	4	Smith's Cloſe.
	205	30	26	7	*
	120	45	27	8	Gray's Field.
	86	15	10	4	
	300	00	12	3	Barn's Wood.
	55	30	16	4	
	324	15	36	2	The River.
	106	15	34	6	
	Tho. Rich, Gray's Field, free from *				
(2)	160	00	12	3	
	180	45	16	2	The Common
	95	15	14	7	
(3)	21	30	40	2	Barn's Wood.

To protract, or lay down mountainous and uneven Grounds, with the beſt way to find the Area, or Content of ſuch Irregulars.

LET *A, B, C, D, E, F, G*, be a mountainous Piece of Ground to be meaſur'd; Firſt, place your *Inſtrument* at *A*, and direct your Sights to *B*: then meaſure the *Line A, B*, draw the ſame by the Side of the *Ruler* upon the *Table*; then in regard that from *B*, to *C*, there is an Aſcent, find the *Horizontal Line* of it, and draw it upon your *Table*, reckoning thereon the Length of the *Hypothenuſal Line*; then meaſure round the Field according to former Directions, and having the Figure thereof upon your *Table*, reduce it into *Trapezias*, as *A, B, E, G*, and *B, C, D, E*, and the *Triangle G, E, F*; then from the *Angles A, C, E, F*, let fall the *Perpendiculars*.

Now by reaſon there are many *Hills* and *Valleys* all over the *Field*, you muſt meaſure with your *Chain* in the *Field* over *Hill* and *Dale* from *B*, to *D*, and to the *Line B, D*, ſet the Number of *Perches* as you find them by meaſuring, which will be much longer than the ſtreight *Line B, D*, meaſured on the *Scale*; then by the help of your *Inſtrument* find the Point *H*, in the *Line B, D*, and meaſure with your *Chain* from *C*, to *H*, over *Hill* and *Dale*, as aforeſaid, and to the Perpendicular *C, H*, ſet the Number, as you find it by the *Chain*; then likewiſe find the *Perpendicular I, E*, and alſo meaſure that with your *Chain*; all which *Lines* in reſpect of the *Hills* and *Valleys* will be found much longer than if meaſur'd by your *Scale*: Then by the meaſur'd *Lines BD, CH*, and *IE*, caſt up the Contents of the *Trapezium B, C, D, E*, and in this manner caſt up the Content of the *Trapezium AB, EG*, and the *Triangle G, E, F*; and this is the exacteſt way to be preſcrib'd from the Menſuration of uneven Grounds, which being carefully perform'd, will not much vary from the true Content. And to diſtinguiſh theſe from other Grounds, Shadow them off in your *Plot* with *Hills* and *Valleys*, leſt any ſhould meaſure your *Plot* by your *Scale*, and find your work to differ.



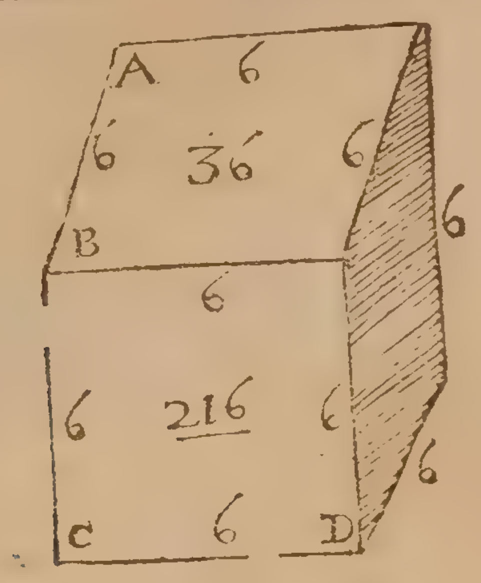
STEREOMETRY is the Art of Meaſuring all ſorts of ſolid Bodies.

Directions how the Content of moſt Regular Figures may be attain'd; alſo how to find the Craſſitude, or ſolid Content of any Timber, either ſtanding, rough, or ſquar'd.

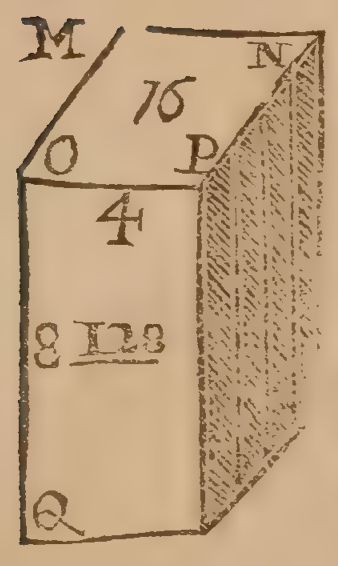
To meaſure the Solidity of a Cube.

A *Cube* is a Figure comprehended under 6 equal Sides, each being a *Geometrical Square*. Now for the finding the *Solidity* thereof, do thus; Meaſure one of the Sides, which Multiply in itſelf, which being again Multiply'd by the Side, will give the *ſolid* Content thereof. For Example, Let the *Figures A, B, C, D*, be a *Cube*, whoſe Side *A, B*, ſuppoſe 6 *Foot*, this 6 being Multiply'd in its ſelf produces 36, which Multiply by 6, and the *Product*

duct will be 216, and ſo many *ſolid Feet* of Timber or Stone are contained within the *Cube A, B, C, D.*



To meaſure the Solidity of a long Cube.



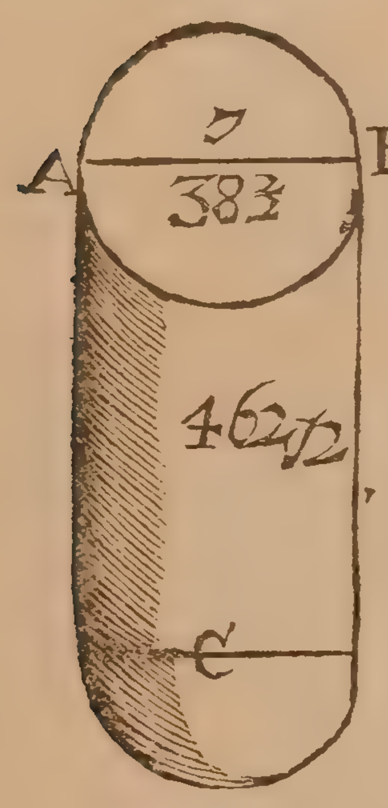
Let *M, N, O, P, Q,* be the *Figure* of a long *Cube,* or Oblong, the Side whereof O, P, is 4 *Foot,* which being Multiply'd in itſelf, gives 16 *Foot* for the *Square M, N, O, P*; this 16 being Multiply'd by 8, the Length of the Side O, Q, gives 128, and ſo many ſolid Feet of *Stone* or *Timber* are contain'd in the whole Figure *M, N, O, P, Q.*

To meaſure the Solidity of a Cylinder, or Pillar.

Let the *Cylinder* given be *A, B, C,* the Craſſitude, or ſolid Content whereof is requir'd. Let the *Diameter* of the *Circle* at the end *A, B,* be 7 *Foot*; then is the ſuperficial Content thereof 38 ½ *Foot.*

This Number being Multiply'd by 12, the Length of the *Cylinder,* gives 462 for the *Craſſitude* of the whole *Cylinder.*

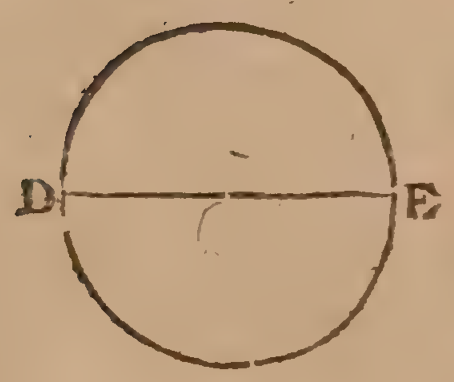
To meaſure the Content of a Cone.



Let the *Cone* given be *A, B, C,* the Height whereof *A, C,* is 12 *Foot,* and the *Diameter* of the *Baſe* is 10, by which the ſuperficial Content of the Circle will be found to be 78 $\frac{4}{7}$, which Multiply'd by 4, the third Part of the *Perpendicular*, gives 314 $\frac{2}{7}$ for the Content requir'd.

But by reaſon it is not eaſie to meaſure the Altitude of a *Cone,* without the true knowledge of the *Perpendicular,* it will be neceſſary to ſhew how that may be found; Firſt take half the *Diameter C, B,* which is 5, and Multiply'd it in itſelf, makes 25, which Number keep; then meaſure the Side C, *A,* 13, which Multiply'd in itſelf, makes 169, from which take the Square of half the *Baſe*, which is 25, (your Number being found) and there remains 144, the *Square Root* whereof is 12, and that is the Length of the *Perpendicular.*

To find the Content of a Sphere.

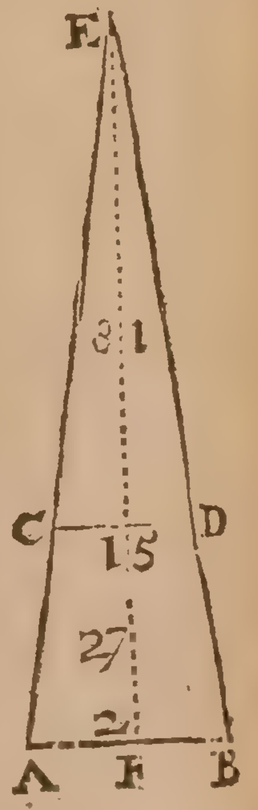


Take the *Diameter,* which Multiply by 11, and divide by 21, gives the *Solidity.*

In this Figure, let *D, E,* the *Diameter* contain 14 *Inches*; Firſt, Multiply 14 in itſelf, which makes 196, which being again Multiply'd by 14, gives 2744; this Number Multiplied by 11, makes 30184, and divided by 21, is 1437 $\frac{2}{3}$ the Content of the *Sphere.*

How to meaſure a Taper-grown Piece.

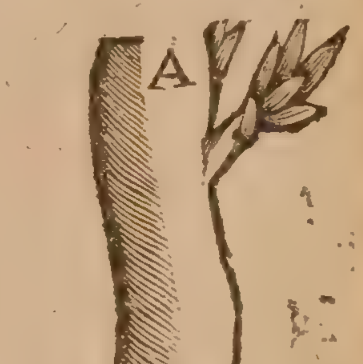
Every Piece of *Taper-grown Timber*, the Sides of which being extended, would be a *Pyramid,* as this Piece *A, B, C, D*; if the Sides *A, C,* and *B, D,* were extended till they meet at *E,* they would include the *Pyramis A, E, B.* Now to meaſure the *Segment A, B, C, D,* Firſt, find the Length of the whole *Pyramis, E, F,* which is thus done. Subtract 1 | 5 Primes, the Length C, *D,* from the *Baſe,* gives 5 *Primes* for the difference; then ſay by the *Rule* of *Proportion:*



As the Difference 5 *Primes,* is to the *Baſe* 2 *Foot,* ſo is the Length 27 to the whole Length *F, E,* 108 *Foot,* out of which ſubtract the Length of the Piece 27 *Foot,* and there remains 81, for the Height of the leſſer *Pyramis C, D.* Secondly the *Baſe A, B,* ſquar'd, makes 4 *Foot,* which Multiply'd by 2 third Parts of 108, the Length of the whole *Pyramis,* which is 36, gives 144 *Foot,* the Content of the whole *Pyramis.* Laſtly, find the Content of the leſſer *Pyramis C, E, D,* by Multiplying 1 | 5 *Primes,* the *Baſe C, D,* in itſelf, and it makes 2 | 25 Seconds, which Multiply'd by one third part of 81, the Heighth of the leſs *Pyramis* 27, which makes 60 | 75 Seconds, that is 60 ¾ *Foot* of the Content of the leſſer *Pyramis,* which being deducted out of the whole *Pyramis,* the Remainder will be 83 | 25 Seconds, the true Content of the Piece *A, B, C, D.*

To meaſure any Timber-Tree as it is ſtanding.

With a *Cord* or *Ring* girt the *Tree* about the middle, then meaſure the Length, which is equal to the *Circumference* of a *Circle,* deſcrib'd upon the mean *Diameter* of the *Tree,* by help of which *Circumference* you muſt find the *Diameter,* and *Area* thereof; Then meaſure the Length of the *Tree,* which being Multiply'd by the Content of the *Circle,* gives the Content of the whole *Tree.* For Example; Let *A, B,* be a ſtanding Tree to be meaſur'd; then firſt girt the ſame about the middle thereof at C, then meaſure the Length of the String, which let be 7 *Foot,* 4 *Inches,* that is 88 *Inches,* which being Multiply'd by 7, gives 616, which divided by 22 gives 28 for the Length of the *Diameter.* Having attain'd the *Diameter* of the *Circle,* find the *Area* of it thus; Multiply the *Diameter* 28 in itſelf, which makes 784, this again, Multiply'd by 11, produces 8624, which divide by 14, and the *Quotient* will be 616, the Content of the ſuppos'd *Circle,* which being Multiply'd by 10 *Foot* (which is 120 *Inches*) the Heighth of the *Tree A, B,* the *Product* will be 73920, and ſo many Square *Inches* are in the *Tree*; which being divided by 1728, the Number of *Inches* in a *Foot* of Square *Timber,* the *Quotient* gives 42 $\frac{21}{27}$, and ſo many *Foot* is in the whole *Tree.*



GAUGING

GAUGING.

IS a Branch of the Art of *Stereometry* or Meaſuring of Solids; becauſe the Contents of all ſorts of Veſſels us'd for Liquors, *&c.* are computed as if they were Solids. 'Tis to be ſuppos'd that before a Man can benefit himſelf of the following Rules, he has acquir'd a competent Knowledge in *Arithmetick* and *Geometry.*

In *Arithmetick* he ſhou'd be a perfect Maſter of Multiplication and Diviſion both in whole Numbers and Decimals.

In *Geometry* he ſhou'd underſtand not only how to take Dimenſions, but alſo how to divide any irregular Figure, as Brewers Backs or Coolers, into the feweſt regular Figures they will admit off, that ſo their Areas may be truly computed with the leaſt Trouble.

He ought alſo to have ſo much skill in Solids as to be able even at firſt ſight to determine what ſort of Figure any Veſſel is off, or what Figure it may be reduc'd to, that its Dimenſions may be truly taken, and the Contents computed with the leaſt Error. We ſay with the leaſt Error; becauſe 'tis very difficult if not impoſſible to do it exactly; for there is not any *Tun* or *Cask*, *&c.* ſo regularly made as by the Rules of Art 'tis requir'd to be.

He muſt know further, that all the Dimenſions in *Gauging* are to be taken in Inches and decimal Parts of an Inch, and if they are taken in Feet or Yards, *&c.* thoſe Meaſures muſt be reduc'd to Inches; becauſe the Contents of all ſorts of Veſſels are computed by the Standard Gallon of its kind, whoſe Content is known to be a certain Number of Cubick Inches.

The Beer or Ale Gallon contains——282
The Wine Gallon —— ——231
The Corn Gallon —— —— ——268,8

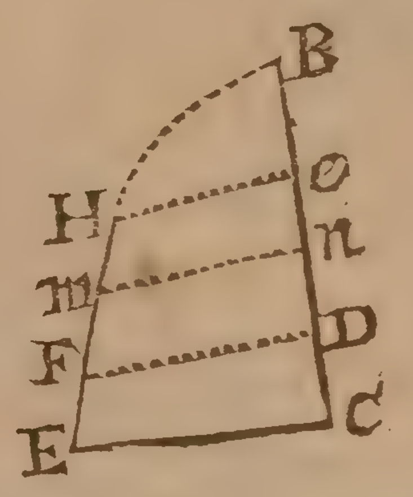
In the Buſineſs of *Gauging*, all Superficies are underſtood to be one Inch deep; otherwiſe it cou'd not be ſaid (as 'tis in the Gauger's Language) that the Area or Superficies of ſuch a Back, or of ſuch a Circle, *&c.* is ſo many Gallons.

Theſe Things being premis'd, the Learner in the Art of *Gauging* may proceed to Experiment, and endeavour to find the Capacities and Contents of all ſorts of Veſſels which hold Liquids, Powder, Meal, Corn, *&c.*

If theſe are of a ſquare Form, like hollow Cubes, ſuch as are many ſorts of Backs, Coolers, Fats, *&c.* their Content is eaſily found by multiplying the Area of the Baſe by the Perpendicular Altitude as you find the Solidity of *Parallel opipeds*, and *Priſms.* If they are of Cylindrical Figure as Buſhels, Gallons, *&c.* you muſt as near as you can find the Area of the Circular Baſe, and multiply that by the Perpendicular Altitude as before.

If they are Casks of the uſual Form of our Hogſheads, Barrels, *&c.* Mr. *Oughtred* conſiders them as Segments of a Spheroid cut off by Two Planes Perpendicular to the Axis.

And then Mr. *Caſwell* thus eaſily deduces his Theorem for Meaſuring Wine and Ale Casks.



Suppoſe C, E, B, a Quadrant of an Ellipſis, whoſe Semi-Axis are C, B, and C, E, and let the Ratio of the Semi-Parameter to C, B, be as l to t; and let E, C, F, D, m, n, H, G, be conſider'd as the *Radii* of Circles; which when turn'd round, the Axis B, C, ſhall form a Spheroid. Therefore the Elemental Circle

$$\begin{array}{r} D,F \\ \odot\, n,m \\ \odot\, G,H \end{array}\left\{\begin{array}{l} = \quad \odot\, C,B - \odot\, C,D \\ = \frac{l}{t} \times \odot\, C,B \times \quad C,n \\ = \quad \odot\, C,B - \quad C,G \end{array}\right.$$

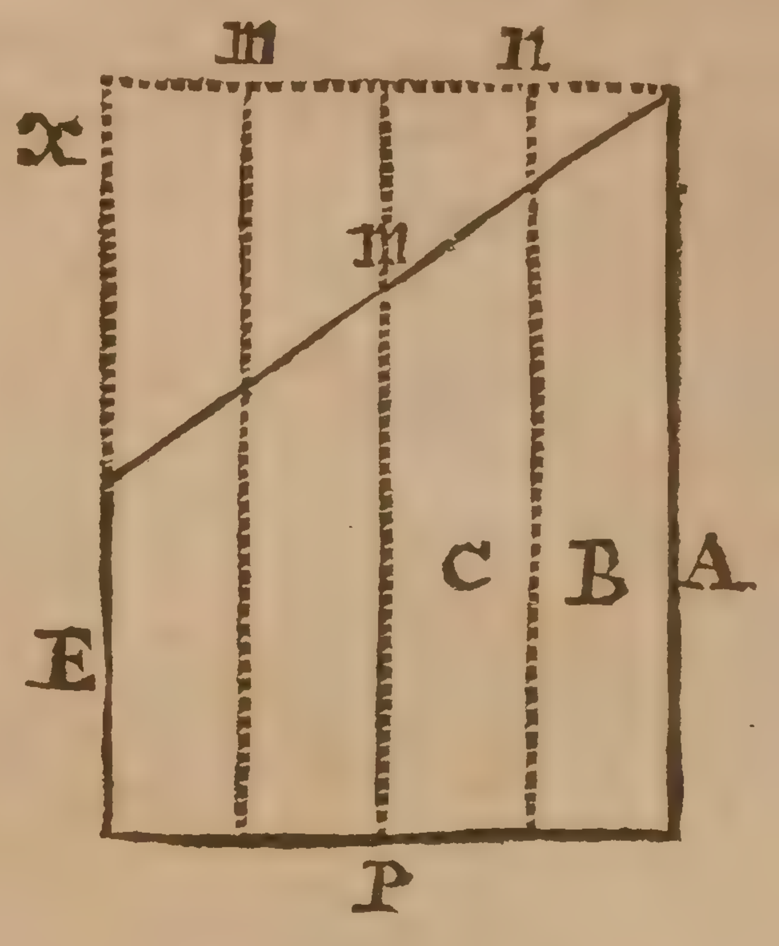
Wherefore the *Fruſtrum* of the Spheroid is =

$$\frac{l}{t}\, p \times C,B - \tfrac{1}{3} \odot C,G := \tfrac{1}{3}\, p \times \frac{l}{t} \odot C,B$$
$$\frac{l}{t} \odot C,G =.$$

$$\boxed{\tfrac{1}{3}\, p + 2 \odot C,E + \odot H,G.}$$

Which laſt is Mr. *Oughtred*'s Theorem, in Words thus: *Add twice the Area of the Circle at the Bung to the Area of the Circle of the Head, and then multiply that Sum by one Third of the Length of the Cask (which* p *ſtands for here as being a Perpendicular to the Planes of theſe Circles)* the Product is the Content of the Veſſel in Cubick Inches.

Having made uſe of the word *Fruſtrum*, 'twill be convenient to explain a little what it is. It ſignifies in Mathematicks a Piece cut off or ſeparated from any Body, as the Fruſtrum of a Pyramid or Cone is a Part or Piece of it cut off, uſually by a Plane parallel to the Baſe; all round and ſquare Timber that is tapering may be conceiv'd as the Fruſtrum of a Cone or Pyramid. To return to *Gauging. But perhaps*, ſays *Mr.* Caſwell, *moſt of our Cask had better be conſider'd as Fruſtra of a Parabolick Spindle, and then the Ground of their Menſuration he thus deduces.*



Suppoſe *A*, the Axis of a Parabola, and P an Ordinate to that Axis divided into innumerable Parts by B, C, *&c.* drawn Parrallel to the Axis, whoſe differences from A, ſuppoſe n, m, *&c.*

$$\text{That is,}\left\{\begin{array}{l} B = A - n. \\ C = A - m. \\ E = A - x. \end{array}\right.$$

$$\text{Therefore,}\left\{\begin{array}{l} B^2 = A^2 - 2An + nn. \\ C^2 = A^2 - 2Am + mm. \\ E^2 = A^2 - 2Ax + xx. \end{array}\right.$$

But $A\,2$, A, &c. is a Series of Equals; therefore $= p\,A\,2$, and $2\,A\,n$, $2\,A\,m$, &c. (by the Nature of the Parabola) is a Series of *Secundans*; therefore $= p + \frac{2}{3}\,A\,x$, and $n\,n$, $m\,m$, $x\,x$, is a Series of Quartans; therefore $= \frac{1}{3}\,p, x\,x$. Therefore the Fruſtrum of a Pyramidoid, made of A^2, B^2, C^2, &c. is $P\,x.\ I^2 - \frac{2}{3}\,A\,x + \frac{1}{3}\,x\,x = \frac{1}{3}\,p + : \frac{3}{5}\,x\,x + 2\,A^2 + (A^2 - 2\,A\,x =)$ $E^2 - x\,x = \frac{1}{3}\,p\,x : 2\,A\,2 + E^2\,\frac{2}{5}\,x\,x$.

Therefore if a Segment of a Parabola, cut off by a Line parallel to the Axis be turn'd about, it's ordinately applicate $p : \surd$ the Fruſtrum of the Acute Paraboilck Conoid ſo generated, or as 'tis alſo call'd a Parabolick Spindle, is $= \frac{1}{3}\,P\,x;\ 2 \odot A + \odot E + \frac{2}{5} \odot x$.

So that the Fruſtrum of a Parabolick Spindle is leſs than the Fruſtrum of the Spheroid of the ſame Baſe and Height by $\frac{7}{3} \odot x\,x\,\frac{1}{3}\,p$, and for the moſt Part he gives the Capacity of Casks nearer the Truth than the Theorem of *Oughtred*; who ſuppoſes Casks to be the Fruſtra of Spheroids, or than that of others *by multiplying the Circles at the Bung and Head into half the Length of the Cask*, which ſuppoſes it to be a Parabolick Conoid; or laſtly, with others to ſuppoſe them for Fruſtra of *Cones*; which is fartheſt of all from the Truth.

The common Rule for all Ale or Wine Casks, is to take the Diameters at the Bung, and at the Head, by which you muſt find the Area of the Circle there; then you muſt take $\frac{2}{3}$ of the Area of the Circle at the Bung, and add them together into one Sum, which Sum multiply'd by the internal Length of the Cask, gives the Content in ſolid Inches. Thoſe Inches you may turn into Gallons, by dividing by 282 for Ale, and 231 for Wine Gallons; but certainly 'tis eaſier and ſhorter to uſe the Theorem, as Mr. *Oughtred* expreſſes it before-mention'd, *viz.* $\frac{1}{3}\,p + 2 \odot C\,E + \odot H\,G$, than to make Fractions of the Area's of thoſe Circles, as in the common Way.

'Tis very plain that the Gauger muſt be pretty far gone in Algebra as well as common Arithmetick and Geometry to work his *Gauge* after this way. Mr. *Ward* is more plain and eaſie to a Man who has not made any progreſs in thoſe Sciences *to find the Area of any ſquare Tun, Back or Cooler*, &c. *either in Ale, Wine or Corn Gallons.*

Rule.

Multiply the given Length or Breath (being here equal) *into itſelf, and the Product will be the Area in Inches. Then divide that Area by* 282, *or* 231, *or* 268, 8, *and the Quotient will be the Area requir'd.*

Example.

Suppoſe the Side of a ſquare Tun, Back or Cooler be 124, 5 Inches, what will its Area be in Gallons?

Firſt, 124, 5. + 124. 5 = 15500, 25 the Area in Inches.

Then 282) 15500, 25 (54, 96, &c. the Area in Gallons of Ale.

231) 15500, 25 (67, 10, &c. the Area in Gallons of Wine.

268, 8) 15500, 25 (57, 66, &c. the Area in Corn Gallons.

To find the Area of any Tun or Back, &c. *in the Form of a Right Angled Parallelogram in Ale Gallons,* &c.

Rule.

Multiply the Length into its Breadth, and the Product will be the Area requir'd: Then divide that Area by the Number of Inches, in the ſeveral Meaſures as before, and you will have the Area in Gallons.

Example.

Suppoſe the Length of a Brewer's Tun, Back or Cooler be 217, 5 Inches, and its Breadth 85, 6 Inches, what will its Area be in Ale Gallons?

217. 5, × 85, 6 = 18648, then 282) 18648 (66. 12, &c. the Area requir'd.

To find the Area of a Triangular Tun, Back or Cooler in Ale Gallons, &c.

Rule.

Multiply the Baſe of the given Triangle into half its Perpendicular Heighth; or, half the Baſe into the whole Perpendicular. Thus divide that Area as before, and you will have the Area requir'd.

Example.

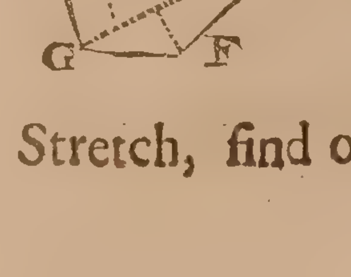
If the Length of the Baſe of a Triangular Cooler be 86, 4 Inches, and its Perpendicular Breadth be 57 Inches, what will its Area be in Ale Gallons?

Firſt 86, 4 + $\frac{57}{2}$ = 2462, 4. Then 282) 2462, 4 (8, 73, &c. the Area in Ale Gallons.

By this way you may eaſily find the Area of any Tun, Back or Cooler, whether it be in the Form of a Rhombus, Rhomboides, Trapezium, or of any other Polygon, either regular, or irregular, in Ale or Beer Gallons, &c. if you firſt divide it into Triangles, and then find the Areas of thoſe Triangles; the Sum of thoſe Area's being divided by its proper Diviſor as above, will give the Area requir'd.

Now the practical way of dividing any Polygonious Tun, Back, &c. into Triangles, is by help of a chalk'd Line ſuch as the Carpenters uſe, and may be thus perform'd.

Suppoſe any Brewer's Tun, Back or Cooler, in the Form of the annex'd Figure, A, B, C, D, F, G, let one end of the chalk'd Line be faſten'd with a Nail in any Corner or Angle of the Back as at A, then ſtraining it to the Angle at C, ſtrike the Diagonal Line A, C, upon the Bottom of the Back, and ſtraining it again to the Angle D, ſtrike another Diagonal Line, as A, D, and ſo on for the Diagonal Line G, D, &c. Then having mark'd out all the Diagonals, the Perpendiculars may be thus found; faſten one end of the chalk'd Line in the Angle B, and then by moving it to and fro upon the Stretch, find out the neareſt Diſtance between the Angle



Angle at B, and the Diagonal Line A, C, there ſtrike a Line, and it will mark out the Perpendicular from B, to the Line A, C, and ſo on for the other Perpendiculars; which being all mark'd out upon the Bottom of the Back meaſure them, and each Diagonal, Line of Inches, *&c.* and then the Area of that Back may be computed as directed above.

Obſerve here that the Number of Triangles will always be leſs by Two; and the Number of the Diagonal leſs by Three than the Number of the Sides of any Right Lin'd Figure that is divided.

Having found the true Area of any Back or Cooler. The next thing will be to find out the true Dipping or Gauging Place in that Back, *&c.* that ſo the true Quantity of Liquor may be computed or caſt up at any depth, which may be done thus:

1. When the Bottom of the Back is cover'd all over with any Liquid, dip it in 8 or 10 ſeveral Places, more or leſs according to the largeneſs of the Back, as remote and equally diſtant one from another as you well can, noting down the Wet Inches and Decimal Parts of every Dip.

2. Divide the Sum of all thoſe Wet Inches by the Number of Places you dip'd in, and the Quotient will be the Mean Wet of all thoſe Dips.

3. Find out ſuch a Place by the Side of the Back that juſt wets the ſame with that Mean, dip and make a Notch or Mark there for the true and conſtant Dipping Place of that Back. Then if any quantity of Liquid, which covers the Back or Veſſel be gaug'd at that Place, and the Wet Inches ſo taken be multiply'd into the Area of the Back in Gallons, the Product will ſhew what quantity of Liquids are in that Back or Veſſel at that time, provided the Sides of ſuch Back or Veſſel ſtand at Right Angles with its Bottom.

We hope that this ſmall Eſſay will give Gentlemen ſome Light into this uſeful and difficult Art; which having moſt relation to Officers of the Exciſe, will not, however, be of general Uſe to Gentlemen, tho' there are few that may not at ſome time or other have occaſion to make uſe of it. Wherefore we ſhall proceed to ſome more difficult Parts of it.

To compute the content of any cloſe Casks in Gallons, viz. *of any Butt, Pipe, Hogſhead, Barrel, &c.*

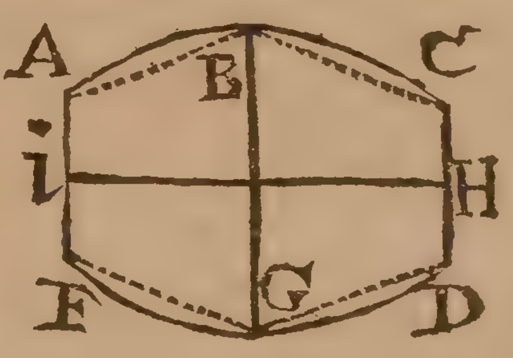
In order to perform this, the Three following Dimenſions of the propos'd Cask muſt be truly taken in Inches and Decimal Parts of an Inch, *viz.*

The Bulge or Bung Diameter within the Cask.
Either of the Head Diameters, ſuppoſing them both equal.
And the Length of the Cask within.

In taking theſe Dimenſions, you muſt carefully obſerve, 1. *That the Bung Hole be in the Middle of the Cask; that the Bung Staff, and the Staff overgainſt the Bung Hole are both regular or even within.* 2. *That the Heads of the Cask are equal and truly Circular; if ſo, the diſtance between the Inſide of the Chine to the Outſide of its oppoſite Staff will be the Head Diameter within the Cask very near.* 3. *Then with a ſliding Pair of Callipers* (made like a ſliding Rule to embrace the Two Heads of any Cask) *take the ſhorteſt Length between the Outſides of the Two Heads* (ſuppoſing them even); *from that Length ſubſtract* 1 ½ *Inch* (more or leſs according to the Largeneſs of the Cask) *for the Thickneſs of the Head, the Remainder will be the Length of the Cask within.*

By theſe Dimenſions one wou'd ſuppoſe the Content of the Cask was perfectly limited; but the Diameters, and the Length of one Cask, may be equal to thoſe of another, and yet one of thoſe Casks may contain ſeveral Gallons more than the other.

As for inſtance, ſuppoſe the annex'd Figure A, B, C, D, G, F, to repreſent a Cask. 'Tis plain if the outward curv'd Lines A, B, C, and F, G, D, are the Bounds of the Cask, it muſt needs hold more than if the inner ſtreight or prick'd Lines were its Bounds. And yet the Bung Diameter B, G, Head Diameters C, D, and A, F, and the Length L, H, are the ſame in both theſe Casks.



We ſhall now ſhew the way to gueſs at the Casks Form, and thereby compute its Content. If the Bounds or Staves of the Casks are very curv'd 'tis ſuppos'd to be the Fruſtrum of a Spheroid. And,

To twice the Area of the Bung Circle, add the Area of the Head Circle, multiply their Sum into one third of the Length, and the Product will be the Content in their reſpective Gallons.

Example.

Suppoſe a Cask in this form, whoſe Bung Diameter is 31.5, Head Diameter 24.5, and its length 42 Inches.

Bung Diameter 31. 5, twice its Circles Area is	5,5270
Head Diameter 24.5, its Circle's Area is	1,6718
The length 42, divided by 3 is 14	7,1988

Then 7,1988 × 14=100,78 the Content in Ale Gallons.

If the Staves of the Cask are not quite ſo curv'd as was ſuppos'd before, the Cask is then taken for the middle Fruſtrum of a Parabolick Spindle, and its Content is computed by this

Rule.

To twice the Square of the Bung Diameter, add the Square of the Head Diameter; from their difference ſubſtract four Tenths of the Square of the difference of Diameters, multiply the Remainder into the length, and divide the Product by 1077 : 15,

Viz. 3,8197 × 282 for Ale Gallons, and by 882,36
Viz. 3,8197 × 231 for Wine Gallons.

Example.

Suppoſe the Dimenſions the ſame as before.

Then 31, 5 × 31, 5 × 2 :+24, 5 × 24,5=2584,75, and 31, 5—24, 5=7.

Again, $7\times7\times0,4=19,6$. And $2584,75-19,6:\times42=107736,3$.
Then 1077,15 (107736,3 (100,01: The Contents in Ale Gallons, *&c.*

If the Staves of the Cask are but very little curv'd, then 'tis ſuppos'd to be in the Form of the Fruſtrums of Two equal *Parabolick Conoids*, and the Contents may be found thus,

To the Area of the Bung Circle add the Area of the Head Circle, Multiply the Sum into half the Length, and the Product will be the Length requir'd.

Example.

Suppoſe the Dimenſions the ſame as before.

Then $31,5:\times24,5\times24,5=1592,5$.
And $1592,5+42\div66885$.
And 718.8) 66885 (93,01 the Content in Ale Gallons.

If the Staves of the Cask are ſtreight from the Buldge to the Head, as the Inner Prick'd Lines in the laſt Figure (if ſuch a Cask can be made) 'tis then taken for the lower Fruſtrum of Two equal Cones joyning together on one common Baſe at the Buldge, and its Contents may be computed thus,

To the Sum of the Square of the Head and Bung Diameters add their Product; then multiply the Sum in the Length, and divide the laſt Product by 1077,15, as before.

Example with the ſame Dimenſions.

Firſt, $31,5\times31,5:24,5\times24,5:\times31,5\times24,5=2364,25$.
$2364,25+42=99298,5$
Then 1077,15) 99298,5 (92,18 the Content in Ale Gallons.

Coſmography and *Aſtronomy.*

BEFORE we enter into the Body of this Diſcourſe, it will be neceſſary to ſet down certain *Definitions* of great Uſe in the Study of *Coſmography.* As

1. The *Globe* or *Sphere* is a Solid *Figure* conſiſting of one Curv'd Superficies, in which all the Right Lines drawn from the Center to the Superficies are equal between themſelves.

2. The Center of the Sphere is that ſame Point from which all the Lines drawn from the Superficies are equal between themſelves.

3. The Diameter of the Sphere is a Right Line which paſſes by the Center, and terminates at both Ends of the Superficies.

4. The Axis of the Sphere is one of its Diameters on which it turns.

5. The Poles are Two Oppoſite Points in its Superficies at the Extremity of its Axis.

6. The Circle in the Sphere is a Superficies made when 'tis cut in any Part whatſoever.

7. The Great Circles are thoſe that paſs by the Center of the Sphere and cut it into Two Equal Parts which cauſes them to be equal between themſelves.

8. The Little Circles are thoſe that do not paſs by the Center of the Sphere nor cut it into Two Equal Parts.

All the Circles of the Sphere are commonly divided into 360 Equal Parts, which are call'd Degrees, each Degree is Subdivided into 60 Minutes, each Minute into 60 Seconds, each Second into 60 Terces, *&c.* The Minutes are mark'd by a little Stroke above the Cypher, the Seconds by Two Strokes, the Thirds by Three, and ſo onwards, as $15^{d}.\ 10'.\ 20''.\ 30'''$, *&c.*

9. The Axis of a Circle is one of the Diameters of the Sphere falling perpendicularly on the Centre of the Circle.

10. The Poles of a Circle are Two Oppoſite Points in the Superficies of the Sphere at the Extremity of the Axis of the Circle.

11. Parallel Circles are ſuch as are deſcrib'd with the ſame Point taken as a Pole in the Superficies of the Sphere. The Greateſt of all theſe Parallels is a Great Circle, and the nearer they are to one of their Poles the leſs they are.

12. A Spherical Angle is form'd by Two Arches of a Great Circle meeting in one Point. Its Meaſure is the Arch of a Great Circle deſcrib'd from the Top of the Angle as a Pole, and diſtant 90 Degrees.

13. A Hemiſphere is Half of a Sphere.

14. The Segment of the Sphere is one of its Parts in two unequally.

15. The Zone of a Sphere is a Part of its Superficies, and generally ſignifies Girdle.

16. An Orb is a Solid Body conſiſting of Two Spherical Superficies, the one *Convex*, the other *Concave*.

17. Concentrical Orbs are thoſe that are within one another, having the ſame Center equally diſtant from each of their Superficies.

18. Excentrical Orbs are ſuch as are within one another, but have each their Particular Centers one without another.

The *World* or *Univerſe* is the Whole Creation, the Principal Parts of which are, the Heaven, the Stars, and the Earth, with the Animals that Inhabit it. The Science which teaches the Diſpoſition of all the Parts of the Univerſe, as the Heaven, the Stars, and the Earth, is call'd *Coſmography*, or the Deſcription of the World; and ſince we ſhall treat of it in Conjunction with *Aſtronomy*, it will be convenient to define the latter Science, which is an Art that teaches the Knowledge of the Stars or Heavenly Bodies, and their Magnitudes, Diſtances, Eclipſes, Order and Motions, having premis'd this, we ſhall begin with *Coſmography*, or the World in General.

The Common Opinion is, That its Figure is Spherical or Round, being the moſt Regular and moſt Perfect which the Soveraign Creator gives to his Works; *Phænomena's* or Appearances have prov'd this Hypotheſis. The Heaven is a Body of an Immenſe and Liquid Subſtance, Tranſparent and extremely Subtle, yielding a Free Paſſage to Light and the Motion of the Stars.

OSMGRARHY & ASTROLOGY

his Excellency Roger
mer, Earle of Castlemain
Baron of Limberick in
land, Embassadour
traordinary from
Ma.ty King Iames
2d to his Holy:
ess Pope Innocent
11th Anno Dom
686.
his Plate is
umbly DD
y Richard
Blome.

Cosmography, and Astronomy, hath two parts.
Vniversall, wch treats of ye History of ye Vnivers, of wch is
Region
high, & Constant, as ye Heaven
Empereon
Primum Mobile
Etherial
Cristilin
Second
Starry heaven
Fixed as ye Firmament
Planitary as
Saturne
Iupiter
Mars
Earth
Venus
Mercury
the Moon wch moves about ye Earth
low, and inconstant, as ye Earth
Superior or fiery Region
Aire
Inferior Region as ye
Water
Earth
Composition, & Figure, are represented in ye materiall Sphaere, wch is perfect in its parts
Center
Diameter
ye Poles
Artick
Antartick
Circles
Small
Polary
Articks
Antartick
Tropicks
Cancer
Capricorn
Great, as ye
Horizon
Meridian
Æquator
Colures
Æquinoctialls
Solstices
The Zodiack, above is capeable of Latitude in, ye middle of wch is ye Ecliptick, divideing it selfe like ye other greater, according to length into
4 Quarters, each Quarter into 3 Signes, each Signe into 30 Degrees, each Degree into 60 Minutes, each Minute into 60 Seconds, each Second into 60 thirds, & soe consequently into Decimates.
of these Circles, is ye division of ye Earth, & Heavens
first, into 5 Zones
Secondly into 7 Climates.
Contemplateing the Stars, & planets for ye knowing their influences.
wch is Astrology & treats of the Influences there of, & may be considered in two parts
Iudiciall, in wch is considered
Conjuntions
Eclipses
ye great, & yearly Revolutions, in which are to be considered
Comets
ye Weather
ye Seasons of ye year.
Speciall
the Nativityes and Geniures, by wch Questions &c are resolved as to
Life
health
Future events &c.
Terestiall, as Geography wch contains ye Superficies of ye Globe of ye Earth discovered, by
Earth
Continent &c.
Isles
Water as
Seas
Lakes
Rivers
known, & unknown, Inhabited, & not, wherein are to be considered its Inhabitants as to Religion, manners, Armes, Habits &c. alsoe ye Cittyes, Ports, Bayes, Comodityes, Drugs, mineralls, Manufactures &c.
Saturn
Iupiter
Mars
ye Earth
Venus
Mercury
Sol
Frigid
Temperate
Torid
Temperate
Frigid
Climates
1
2
3
4
5
6
7
8
Meroe
Siene
Alexandria
Rhodes
Rome
Boristhen
Mont Ripha
Degrees of Latitude
Degrees of Longitude
PALMA

The Stars are diſtinguiſh'd by the Names of Fix'd Stars and Planets. As to Fix'd Stars, 'tis generally thought that they are Bodies which ſhine by their own Light; they are call'd Fix'd, not becauſe they are without Motion, for they have two; One in common with the whole Heaven, which is made in four and twenty Hours from Eaſt to Weſt on the Poles of the World, and which carries with it all the Stars, and even all the Comets, when there are any: The other, which they make on the contrary from Weſt to Eaſt on the Poles of the *Ecliptick*, and is very ſlow, even incomparably ſlower than the Motion of the Planets, ſince, according to the Famous Aſtronomer *Tycho Brache*, they don't finiſh their Revolution in leſs than 25816 Years; but they are term'd Fixt Stars, becauſe they always keep the ſame Diſtance among themſelves: They are divided into ſeveral Conſtellations.

The Region of Heaven where they are plac'd, is call'd the Firmament. There's Reaſon to believe they are not all contain'd in the ſame Spherical Superficies, but ſome are higher and ſome lower; and the loweſt much farther from the Earth than all the other Stars, ſince one cannot find any Parallax or Difference of Aſpect, and they have never Eclips'd any Planet.

The Planets may be term'd Wandring Bodies, as their Name ſignifies, becauſe their Second or Proper Motions from Weſt to Eaſt, are not regular as thoſe of the Stars, and they do not always keep the ſame Diſtance from one another. Thus they are ſometimes nearer, ſometimes farther off; ſometimes joyn'd, being obſerv'd under the ſame Point of Heaven, and ſometimes oppoſite, being Diſtance half its Circle.

There's no Planet but the Sun which ſhines with its own Light: 'Tis he who enlightens them, and Cauſes the Days which are in them as well as in the Earth. There are ſome that turn about on their *Axis* at ſeveral times; and thoſe Planets which one may imagine to be much like our Earth, are Opake Bodies, as the Earth do's, and receive Light from the Sun and reflect it. They are lower than the Fixt Stars, ſince they Eclipſe them and hide their Light from us ſometimes. There's a great deal of Difference among them as to their Luſtre. The Sun ſeems of a Gold Colour, the Moon a Silver, *Venus* very White, Brillant and Luminous, *Jupiter* not ſo White nor Luminous, *Saturn* is of a Pale Lead Colour and do's not ſhine, *Mars* on the contrary glitters very much, and is as Red as Fire; *Mercury* is a Planet which we do not often ſee in our Climates, becauſe of the Obliquity of the Sphere, and being very near the Sun, 'tis almoſt always plung'd in its Rays, or the Vapours of the Horizon; its Colour is a bright Silver, and it glitters a little. 'Tis often ſeen in the Torrid Zone, becauſe the Sphere is not in ſo Oblique a Poſition there.

The Planets are diſtinguiſh'd into great and little Spheres. The Great are Seven in Number; the Names and Characters of which are *Saturn* ♄, *Jupiter* ♃, *Mars* ♂, the *Sun* ☉, *Venus* ♀, *Mercury* ☿, the *Moon* ☽; the Little are Nine in Number, Four of which turn about *Jupiter* and are term'd *Satellites*, and the other Five revolve about *Saturn*, Three of which thoſe neareſt to the Body of that Planet were diſcover'd by M. *Caſſini*, and the Fourth by M. *Huygens.*

As to the Order which theſe Cœleſtial Bodies obſerve among themſelves, and with reſpect to the Earth, it has given riſe to Three Conſiderable Opinions; thoſe of *Ptolemy*, *Copernicus*, and *Tycho Brache*, to which a Fourth has been added, compos'd of all of them: Theſe are call'd Syſtems, and will be explain'd in the Sequel.

The Earth which, with Reference to us, is the moſt Important Part of the Univerſe, forms, with the Water that covers Part of its Surface, a Globe or Body of a Spherical Figure as well as the Univerſe. About it is the Region of Air, compos'd of Parts more ſubtle than thoſe of the Earth and Water. This Globe hangs in the middle of the Air, without any thing to ſupport it; and the Place where it is fix'd is determin'd only by the Equality of the Preſſure of that Subtle Matter that encompaſſes it.

Such is the General Idea of *Coſmography.* 'Tis divided into Two Principal Parts, *viz. Aſtronomy*, which takes in every Thing belonging to the Heaven and Stars, and *Geography*, which includes whatever relates to the Earth and Water.

Of Ptolemy's *Syſtem.*

ACcording to which the Globe of the Earth is in the Centre of the Univerſe. About the Terreſtrial Globe is the Region of Air. After this, and ſtill about the Earth at the Center, are deſcrib'd the Circles of the Motions of the Planets in this Order: Firſt, that of the *Moon*; then thoſe of *Mercury*, *Venus*, the *Sun*, *Mars*, *Jupiter*, *Saturn*, and the *Fix'd Stars.* Above theſe muſt be imagin'd a Spherical Superficies, in which all the Circles that are ſuppos'd to be in the Sphere of the World, are contain'd. The Circle above *Saturn* is call'd the *Firmament*; that above the *Firmament*, the Second *Chryſtallin* that above, the *Firſt*; then the *Primum Mobile*, and at laſt the *Empyrean.* But here Imagination comes too near the Seat of him who has confin'd our Knowledge within very narrow Limits, and makes it a High Preſumption in Man, to ſuffer his Conceptions to form Images of the Dwellings of *Infinity.*

The Copernican Syſtem.

Copernicus was not the Firſt who had the Thought of making all the Planets turn about the Sun, and giving Motion to the Earth. He only perfected his Obſervations, by what *Ariſtarchus* a *Samian*, *Philolaus* a *Pythagoræan*, and others of the Ancients had imagin'd a long time before; inſomuch that *Copernicus's* Hypotheſis is only an Ancient Opinion re-eſtabliſh'd and renew'd, but enlighten'd and enrich'd with ſo many New Obſervations and particular Remarks in favour of this Syſtem that he may very well paſs for the Inventer of it. He places the *Sun* in the Center of the Univerſe, as a great Light which enlightens and vivifies; after which he places *Mercury*, *Venus*, then the Earth about which as its Center the Moon turns. He ſettles the Place of the Fix'd Stars ſo far diſtant from the *Sun*, that the Diſtance between the *Sun* and *Saturn* is nothing in Compariſon to it. About the Planets of *Jupiter* and *Saturn* turn Nine *Satellites*, Five about *Saturn* and Four about *Jupiter.*

Tycho Brahe's Syſtem.

This Aſtronomer, who was a *Daniſh* Gentleman, approv'd of all *Copernicus's* Syſtem, but the Motion of the Earth; ſo he compos'd another, which is very Ingenious.

In the Center of the World he plac'd the Earth, about which he makes the Moon turn after the ordinary manner. Then from the ſame Center, and at a good diſtance, he deſcribes the Circle of the Motion of the Sun, which he calls the Annual Orb, or the Great Orb. He afterwards deſcribes the Circle of the five Planets from the Center of the Sun, as that of *Mercury* firſt, and neareſt to the Sun, then that of *Venus* at a diſtance, ſomewhat greater than that of *Mercury*; then thoſe of *Mars*, *Jupiter* and *Saturn*, the fartheſt of all. So that the Circle of *Mars* cuts that of the Sun into five Points, which is the cauſe that part of the Circle of *Mars* is nearer the Earth than that of the Sun. In fine, from the Earth, as the Center, he deſcribes the Circle of the Revolution of the fix'd Stars, making it paſs above *Saturn*. Thus you have three Circles, that of the Moon, of the Sun, and the Stars, that have the Earth in their Center; and five others, as thoſe of *Mercury*, *Venus*, *Mars*, *Jupiter*, and *Saturn*, which have the Sun for their Center. He deſcribes alſo the Center of *Jupiter* and *Saturn*, the Circles of the Motions of the little Planets that wait on them, as in the *Copernican* Syſtem.

The Compoſite Syſtem.

This Syſtem is only *Ptolemy's* and *Tycho Brahe's* joyn'd together; 'twas invented by *Martianus Capella*, and is call'd alſo the Common Syſtem, becauſe 'tis follow'd by moſt of the Moderns.

In this Syſtem the Earth is in the Center of the World, about which turn the Moon, the Sun, and the fix'd Stars, according to *Tycho* and *Ptolemy*. The three ſuperior Planets, *Saturn*, *Jupiter*, and *Mars*, make their Revolutions eccentrick about the Earth, carrying with them the Center of their Epicicle, about which theſe three Planets turn, as in the Ptolemæan Syſtem. But as to the two inferior Planets, *Venus* and *Mercury*; they turn about the Sun in little eccentrick Circles, according to *Tycho*.

Whatever my Author is pleas'd to ſay of this Syſtem, that 'tis follow'd by the greateſt part of the Moderns, we muſt take the Liberty to adviſe the Reader, That the greater part are not ſo much to be rely'd on, as the beſt Part, and they follow *Copernicus's*, which beſt explains the Phænomena's of the firſt and ſecond Motion of the Stars.

Of Points, Lines, and Circles imagin'd to be in the Sphere of the World.

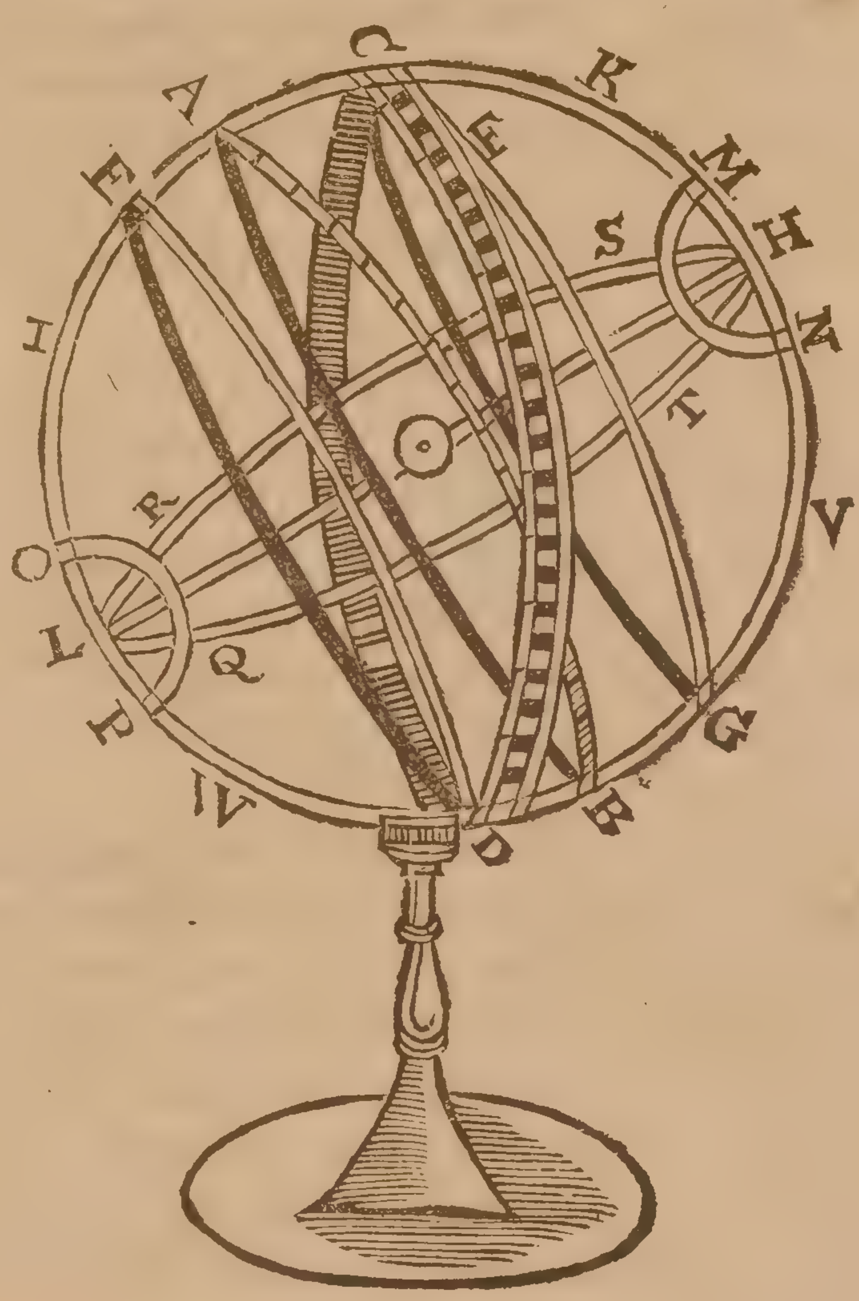
The eight principal Points are the two Poles of the World, the two Poles of the Zodiack, or the Ecliptick, the two Points of Eaſt and Weſt, and of the Zenith and the Nadir.

The two Lines are the Axis of the World, and the Axis of the Zodiack, or the Ecliptick.

The ten Circles are divided into ſix great, and four ſmall; the ſix great are the Equinoctial, or the Equator, the Zodiack, the Colure of the Equinoxes, the Colure of the Solſtices, the Horizon and Meridian; the four leſs, are the Tropick of *Cancer*, the Tropick of *Capricorn*, the Circle of the Artick Pole, and the Circle of the Antartick Pole.

In the middle of the Sphere is plac'd a little Globe, which repreſents the Earth, and within the Circles we have been ſpeaking of, are put two others, thoſe of the Sun and Moon, the nearer to repreſent their Motions and Eclipſes. The Figure of the Sphere will ſhew this more lively.

The ÆQUATOR.



Beſides the Artificial Sphere, you ſhould have the Celeſtial Globe, on the Superficies of which are repreſented; the fix'd Stars, with their different Conſtellations or Aſteriſms, joyntly, with the ten Circles of the Sphere, the Axis, and the two Poles of the World.

There's alſo a Terreſtrial Globe with the ſame Circles, but that relates to Geography, and will be treated of more largely under that Article.

The Poles of the World are the two ſole immovable Points of the Univerſe which terminate the World's Axis, the Northern, is call'd *Artick*; the Southern, *Antartick*. The two Poles of the Zodiack are two other Points at the Extremity of the Axis of the Zodiack. They are 23 Degrees, 29 Minutes from the Poles of the World; they are moveable, and make a Revolution about the Poles of the World. The Points of Eaſt and Weſt are thoſe that mark the Points of the Riſing and Setting of the Sun at the Equinox. The Zenith and Nadir, are thoſe two Points that anſwer each other, the one directly above us, the other directly below us. The Horizon is that great Circle which divides the Heavens and the Earth into two Parts, or Hemiſpheres, diſtinguiſhing the Upper from the Lower. The Axis of the World is an imaginary Line, conceiv'd to run thro' the Center of the Earth from one Pole to another. The Axis of the Zodiack is alſo conceiv'd to paſs thro' the Earth, and to be terminated in the Poles of the Zodiack.

A Deſcription of the Six great Circles of the Sphere.

The Equinoctial in the Heavens, or Equator on the Earth, is a great Circle, whoſe Poles are the Poles of the World; it divides the Globe into two equal Parts, that is, the Northern and Southern Hemiſpheres. It paſſes thro' the Eaſt and Weſt Points of the Horizon, and at the Meridian is rais'd as much above the Horizon as is the Compliment of the Latitude of the Place. When the Sun comes to this Circle, it makes equal Day and Night all round the Globe, becauſe it always riſes due Eaſt and ſets due Weſt, which it does at no other time of the Year. All Stars that are under this Circle, or have no Declination, always riſe due Eaſt, and ſet full Weſt. All People living under it, have their Days and Nights equal; at Noon the Sun is in the Zenith, or directly over their Heads, and caſts no ſhadow. From this Circle on the Globes is the Latitude accounted on the Meridian. 'Tis known in Geography and Navigation by the Name of the Line.

Of the Zodiack.

The Zodiack is a great Circle of the Sphere, dividing it into two equal Parts, cutting the Equator in the Eaſt and Weſt Points of the Horizon; it cuts the Horizon and Equinoctial obliquely, and makes with the former an Angle equal to the Sun's greateſt Meridian Altitude in any Latitude, and with the Equinoctial an Angle of 23 Degrees, 30 Minutes. Thro' the middle of it is drawn a Line call'd the Ecliptick, or *Via Solis*, becauſe the Sun never deviates from it in his Annual Motion, as the Planets do all, more or leſs. 'Tis mark'd in the Globe with the Characters of the Twelve Signs. By this are determin'd the four Quarters of the Year, and accordingly it is divided into four Parts. From this Circle the Latitudes of the Planets and fix'd Stars are accounted from the Ecliptick towards its Poles. Thoſe Poles are 20 Degrees, 30 Minutes diſtant from the Poles of the World, or of the Equinoctial, and by their Motions are the Polar Circles deſcrib'd. The breadth of this Circle is 20 Degrees, for beyond 10 Degrees North, or 10 Degrees South, the Latitude of no Planet ever reaches. 'Tis divided into Twelve Signs, becauſe while the Sun in a Year's Time is running thro' the Zodiack, or Ecliptick, there happens to be Twelve Lunations, or the Moon undergoes all her Changes or Phaſes twelve times. Each Sign is divided into 30 Degrees, ſo that the whole make 360; and they begin to reckon at the Eaſtern Interſection of the Equinoctial and Ecliptick, or at the Vernal Equinox, where they place the firſt Point of Aries ♈, going on thence to Taurus ♉, Gemini ♊, Cancer ♋, Leo ♌, Virgo ♍, Libra ♎, Scorpio ♏, Sagittarius ♐, Capricorn ♑, Aquarius ♒, Piſces ♓; the ſix former are term'd Northern, the ſix latter Southern.

The Colures

Are the two great Circles imagin'd to paſs thro' the Poles of the World, one of them thro' the Equinoctial Points, *Aries* and *Libra*, and the other thro' the Solſtitial Points, *Cancer* and *Capricorn*; theſe are call'd the Equinoctial and Solſtitial Colures, and divide the Ecliptick into four equal Parts or Quarters, which are denominated accordingly. The Points where theſe paſs thro' are call'd the Cardinal Points.

Of the Horizon,

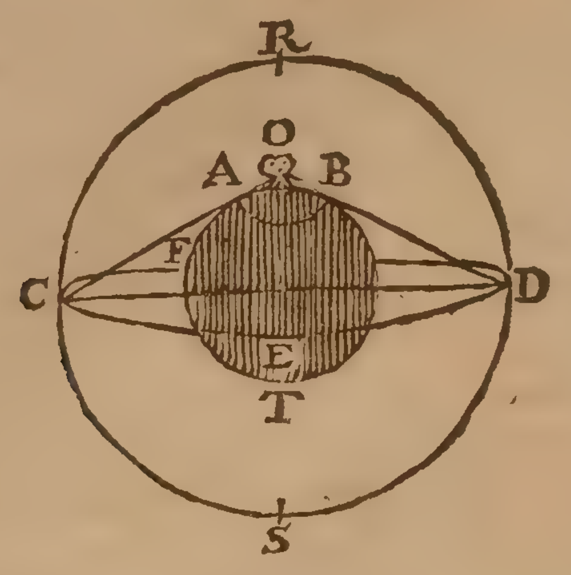
Which is a great Circle ſpoken of before, either Senſible or Apparent, or Rational or True.

The Senſible Horizon is that Circle which limits our Sight, and may be conceiv'd to be made by ſome great Plain, or the Surface of the Sea. It divides the Heaven and Earth into two Parts, the one Light and the other Dark. It determines the Riſing and Setting of the Sun, Moon, or Stars; and from hence their Altitude is accounted, it being their height above the Horizon.

The Rational, or True Horizon, is a Circle which encompaſſes the Earth exactly in the middle, and whoſe Poles are the Zenith and Nadir. The Horizon, on the Globe, is a broad wooden Circle encompaſſing it round, and repreſenting the Rational Horizon. On this Circle ſeveral Circles are drawn, the innermoſt of which is the Number of Degrees of the Twelve Signs of the Zodiack, next to this are the Names of theſe Signs; then the days of the Month, according to the *Julian* Account; and then a Kalendar, according to the *Gregorian*. Without theſe is a Circle divided into 32 equal Parts, which make 32 Rhumbs or Points of the Mariner's Compaſs, with the firſt Letters of their Names annex'd. The Uſe of this Circle on the Globes, is, Firſt, To determine the Riſing and Setting of the Sun, Moon, and Stars, and to ſhew the Time of it by the Hour, Circle, and the Index. Secondly, To limit the Encreaſe and Decreaſe of Day and Night; for when the Sun riſes due Eaſt and ſets Weſt, the Days and Nights are equal; when he Riſes and Sets to the North of the Eaſt and Weſt, the Days are longer than the Nights; when to the Southward of the Eaſt and Weſt, the Nights are longer than the Days. Thirdly, To ſhew the Amplitude and Point of the Compaſs the Sun riſes and ſets upon.

Tho' there's properly but one Horizon, yet thoſe that Travel by Sea or Land, do from time to time change their Horizon, diſcovering ſome part of the Heavens, which before could not be ſeen, becauſe of the roundneſs of the Sea and Land; for tho' a Man changes his Horizon, he does not change it in its kind; for what place ſoever he's in, he will ſee no other Horizon, by reaſon he ſees half of the Heavens.

This Figure further explains it: The *Globe* A B, repreſents the Earth; the Circle C R D S the Heavens; R the Zenith, S the Nadir, C D E F the Rational Horizon, O the Place of the Spectators Eye, T the Antipodes, and O A B the Senſible Horizon, whoſe Semi-Diameter O A, or O B, is not above three Miles, when the Eye is not above ſix Foot from the Surface of the Earth, but increaſes proportionably to the height of the Eye, or thing ſeen.



Of the Meridian.

The Meridian is a great Circle, paſſing thro' the Poles of the World, and both Zenith and Nadir croſſing the Equinoctial at Right Angles, and dividing the Sphere into two equal Parts, one Eaſt and the other Weſt: It has its Poles in the Eaſt and Weſt Points of the Horizon: 'Tis call'd the Meridian, becauſe when the Sun comes to the South Part of this Circle, 'tis then *Meridies*, Mid-day, or High-noon, and then the Sun has his greateſt Altitude for that Day. Theſe Meridians are various, and change according to the Longitude of Places, inſomuch that they may be ſaid to be infinite in Number, for that all Places from Eaſt to Weſt have their ſeveral Meridians; but there is or ſhould be one fix'd, which is call'd the firſt Meridian. The Meridian on the Globe, is repreſented by the Brazen Circle, in which the Globe hangs and turns; 'tis divided into four 90's, or 360 Degrees, beginning at the Equinoctial; on it, each way from the Equinoctial, on the Celeſtial Globes, is counted the South and North Declination of the Sun and Stars; and on the Terreſtrial Globe, the Latitude of Places, North and South. There are two Points of this Circle, call'd the Poles of the World; and a Diameter continu'd from thence, thro' the Center of either Globes, is call'd the Axis of the Earth, or Heavens, on which they are ſuppos'd to turn round; on the Terreſtrial Globe there are uſually 36 Meridians, one thro' every tenth Degree of the Equator, or thro' every tenth Degree of the Longitude. The Uſes of this Circle are, Firſt, To ſet the Globes to any particular Latitude; Secondly, To ſhew the Sun's, or a Star's Declination, Right Aſcenſion, or Greateſt Altitude. Declination in Aſtronomy, is the ſame as Latitude in Geography.

A Deſcription of the Four Little Circles.

The Tropicks have been mention'd already, and are Circles ſuppos'd to be drawn Parallel to the Equinoctial, at 23 Degrees 30 Minutes diſtance from it, one towards the North, term'd *Cancer*, and the other towards the South, term'd *Capricorn*, becauſe they lie under thoſe Signs. The two Tropicks confine the way of the Sun's Motion in the Ecliptick, and are as two Barriers to him, beyond which he never paſſes. 'Tis in theſe Circles the Sun makes the longeſt and ſhorteſt Days in the Year; they mark the Places of the Ecliptick, where the Solſtices are made, at which the Sun has his greateſt Declination, and his greateſt and leaſt Meridian Height. They ſhew in the Horizon his greateſt and leaſt Diſtance from the Zenith, for the Inhabitants of the Oblique Sphere, and have many other Uſes too Numerous to be inſerted here.

Of the Polar Circles.

They are two Circles ſuppos'd to be drawn Parallel to the Equinoctial, tho' 23 Degrees, 30 Minutes diſtance from the Polar Points; that about the North Pole is call'd the Artick Circle, that about the South the Antartick. They ſhew the Revolution the Poles of the Zodiack make about the Poles of the World, which is caus'd by that of the Sphere, as that makes the firſt Motion. They determine all the Places of the Earth into an equal Diſtance from the Poles of the World, and have an Aſtronomical Day, or a Day of 24 Hours for their longeſt, and a Night of the ſame length for their ſhorteſt. They are the Limits of the Frigid and Temperate Zones; the Frigid Zones are thoſe Parts of the Globe, between theſe Circles and the Poles of the World; the Temperate Zones are cut on the North ſide of the Equator, between the Artick Circle and the Tropick of *Cancer*; another on the South ſide, between the Tropick of *Capricorn* and Antartick Circle. There are two Temperate and two Frigid Zones, to which muſt be added the Torrid Zone, containing all that Space of Earth that lies between the two Tropicks.

There are ſeveral other Circles of the Sphere, of which ſomething muſt be ſaid, as

Circles of Longitude, which are great Circles paſſing thro' the Star and the Pole of the Ecliptick, where they determine the Star's Longitude, reckon'd from the beginning of *Aries*. On theſe Circles are accounted the Latitude of the Stars, which is its diſtance from the Ecliptick, being an Arch of a Circle of Longitude, reckon'd from the Ecliptick towards its Poles. The Circle of Oblique Aſcenſion, is that Degree and Minute of the Equinoctial which riſes with the Center of the Sun or Star, or with any Point of the Heavens in an Oblique Sphere. The Circle of the Aſcenſional Difference, is the Difference between the Right and Oblique Aſcenſion or Deſcenſion, or the Space of Time the Sun riſes or ſets before or after Six a Clock. The Circles of Declination are the Meridians on which the Declination or Diſtance from the Equator of any Planet or Star is accounted. A Circle of Perpetual Apparition, is one of the Leſs Circles, Parallel to the Equator, being deſcrib'd by any Point of the Celeſtial Sphere, which makes the Northern Point of the Horizon, and is carry'd about with the Diurnal Motion of the Stars that are included in this Circle, never ſet, but are always viſible above the Horizon. And the Circle of Perpetual Occultation, is another Circle at a like diſtance from the Equator, and contains all thoſe Stars which never appear in our Hemiſphere; but the Stars ſituated between thoſe Circles, inceſſantly riſe and ſet at certain Times. Circles of Poſition are Circles paſſing by the common Interſections of the Horizon and Meridian, and thro' any Degree of the Ecliptick, or the Center of any Star, or other Point in the Heavens, and are us'd for the finding out the Situation or Poſition of any Star.

Of Azimuths and Paralaxes,

Or Verticle Circles, which are great Circles interſecting each other in the Zenith and Nadir, as Hour-Glaſſes do in the Pole, and cutting the Horizon at Right

Angles:

ARITH METICK

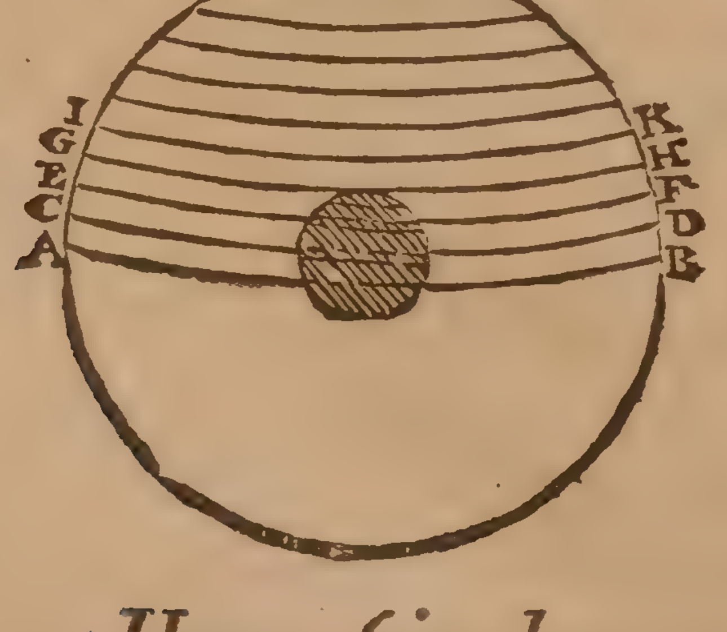
y.e Worſhipfull Gilbert Gerard
oſsine of Brafferton hall in y.e
orth Rideing of Yorkſhire
ſq? ſon & heyr of S.r
ilbert Gerard K.t and
Baronet by Mary
Daughter to y.e R.t
Reverend father
in God Iohn Coſsin
late L.d Biſhop
of Durham.
This plate is
humbly D.D:
by Ric. Blome

Arithmetick hath two ~ parts
1 the Character of number which hath
10 Characters Called Cyphers
1. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. .
2. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29.
3. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39.
4. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49.
5. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59.
6 60. 61. 62. 63. 64. 65. 66. 67. 68. 69.
7 70. 71. 72. 73. 74. 75. 76. 77. 78. 79.
8 80. 81. 82. 83. 84. 85. 86. 87. 88. 89.
9 90. 91. 92. 93. 94. 95. 96. 97. 98. 99.
100. 101. 102. 103. 104. 105. 106. 107. 108. 109.
100. 200. 300. 400. 500. 600. 700. 800. 900
1000. 10000. 100000. 1000000
And 3 degrees of Amplification repeated Successively by Periods
Vnites
Tens
Hundreds
1 | 12 | 234 | 45 | 400
1 | 12 | 111 | 55 | 30
2 | 24 | 345 | 100 | 2
432
2 Numera=tion
where is to be Considered
Simple
1
Addition
Subſtraction
1 | 11 | 111 | 87 | 766
2 | 24 | 345 | 432 | 1567
1 | 13 | 234 | 345 | 801
Conjoyned
Multiplycation
4 | 456 | 2070
2 | 4 | 204
8 | 1824 | 8280
0000
4140
422280
Diviſion
6 | 12 | 123
(2 | (3 | 7476 (1246
3 | 4 | 6666
2246
23
from hence proceeds the difference of number
1
odd or Vnequall
Equall, or Euen.
Equality
Inequality
2
First
Composed
First
Between these
Compo-sed
of Parts
The Parts of Number before they are numbred, require
Notation
and Parcells
and Reduction
Termes
Entire
or Fraction
Compared in
Quantity
Equall
Vnequall
Difference
Reaſon of
more
less
First
Simple
Querparticular
Superparticular
Multiplyed
Conjoynd
as Multi: plyed
Superpartient
Superparticular
Quality, called Proportion
Arithmetick
Disjoyned
Simple
Direct or y.e Golden Rule
Reciprocall
Multiplyed in
Composition
1 as
Addition, or y.e Rule of fellow=ſhip.
1
2
3
Allegation, or Deduction
2
Multiplication, alone, or y.e double Rule.
Multiplycation, and Adition.
Continuation, as
Invention of leſs numbers
Equation
Orderly
Confuſed
Geometry
Continued
Simple
Multiplyed as
Inventions of Terms
y.e ſume of Geometricall Progreſion
Chi ſemina virtu fama raccoglie
CAROLVS
IACOBVS II D G M B R
XI S
X S
REX IACOBVS
IR 2.d
XXII S
VSVI
V S
IIII D
VS. VI. D
A G
XX S
REX CAROLVS
V S

Angles: Theſe Circles are not drawn on the Globe but are repreſented by the Quadrant of Altitude, when 'tis ſcrew'd in the Zenith. On theſe Azimuths, is the Sun's Altitude, when he is not on the Meridian. The Parallax is that Arch of a great Circle, paſſing thro' the Zenith and True Place of the Sun or Stars, and intercepted between the True and Apparent Place. Tho' there be no Paralax of the fix'd Stars, in reſpect of the Earth's Semi-Diameter, the whole Body of the Earth being but a Point in reference to the diſtance between us and the fix'd Stars; yet in reſpect of the Annual Orbit of the Earth, it has juſtly been expected by Aſtronomers that ſome Parallax ſhould be found. And this would be a Diſcovery of great Moment if it could be made, becauſe it would be an undoubted Demonſtration of the Annual Motion of the Earth round the Sun. Mr. *Flamſtead* is ſaid to have obſerv'd it, but whether his Reaſons will prevail on Aſtronomers to admit his Diſcoveries for Demonſtration, we ſhall not enquire after in this Place. The Paralax of Latitude is an Arch of a great Circle paſſing by the Poles of the Zodiack to the Apparent Place of the Star, and intercepted between two Circles of the Ecliptick equally diſtant; of which, the one paſſes by the True Place of the Star, and the other by the Apparent Place. The Parallax of Longitude is an Arch of the Ecliptick, (or Parallel to it) intercepted between two great Circles; of which, the one paſſes from the Poles of the Ecliptick and the True Place, and the other from the ſaid Poles by the Apparent Place. So that the Paralax of Longitude is only the Difference of the True and Apparent Place, according to the Longitude of the Ecliptick. The nearer the Star is to the Horizon and Center of the Earth, the greater is the Paralax; whence it is that the Orbit of the Moon being near us to the Earth, her Paralax is greater and moſt perceptible.

Of Almacanters.

The Name is *Arabick*, and ſignifies the ſame as Parallels of Altitudes, which are Circles Parallel to the Horizon, imagin'd to paſs thro' any Degree and Minute of the Meridian, between the Horizon and Zenith, having their Poles in the Zenith. On the Globes theſe are deſcrib'd by the Diviſions on the Quadrant of Altitude, in its Motion about the Body of the Globe, when 'tis ſcrew'd to the Zenith of any Place. See the Figure; A B is the Horizon, C D, E F, G H, I K, and the other Circles Parallel to the Horizon are Almancanters.



Hour Circles.

The ſame with Meridians, are great Circles meeting in the Poles of the World, and croſſing the Equinoctial at Right Angles. They are ſuppos'd to be drawn thro' every fifteenth Degree of the Equinoctial and Equator, and on both Globes are ſupply'd by the Meridian, Hour-Circle, and Index. The Planes of the Hour-Circle are Perpendicular to the Equinoctial, which they divide into Twenty-four Equal Parts, which make the Twenty-four Hours of the Aſtronomial Day.

Of Day-Circles.

They are Parallel to the Equator, paſſing by each Degree of the Eclipticк, which the Sun goes thro' very near in a day by his particular Motion. They are not exactly Parallel to the Equator, becauſe the Sun does not ſtay always in the ſame Degree of the Ecliptick. The inequality of the Civil Day proceeds from the inequality of the Motion of the Sun in the Ecliptick, caus'd by the eccentricity of the Circle of his proper Motion. Reaſon might be given for the variety of Days; and we might enlarge on the Circles which we enter'd upon, but 'twould take up too much of our Room.

The Crepuſculum,

Is that dubious half Light which we perceive before the riſing of the Sun, and after Sun ſetting; 'tis term'd *Twilight*, and is occaſion'd by the Earth's Atmoſphere, and the Splendor of the Æther, which environs the Sun. The Ethereal accended Atmoſphere of the Sun not ſetting ſo ſoon as, and riſing before the Sun, and the Sun's Rays alſo illuminating the Earth's Atmoſphere before the Body of the Sun it ſelf can appear, cauſes a Light always preceding the Riſe, and ſubſequent to the Setting of that Planet.

Of Conſtellations of fix'd Stars.

Which are Companies of fix'd Stars imagin'd to repreſent the Image of ſomething, and commonly by the Name of that Thing, the Ancients gave them the Name of Aſteriſms, and plac'd them under 48 Conſtellations, of which 12 are in the Zodiack, 21 Northern, and 15 Southern; but there are two more now reckon'd in the North, which make 23 there, and 50 in all. Beſides which is the Galaxy, or Milky Way, a broad white Track encompaſſing the whole Heavens, and extending it ſelf in ſome places with a double Path, but for the moſt part with a ſingle one. Some of the Ancients, as *Ariſtotle*, &c. imagin'd that this Path conſiſted only of a certain Exhalation, hanging in the Air; but by the Obſervation made of late Years with the Teleſcope, it has been diſcover'd to conſiſt of an innumerable quantity of fix'd Stars, different in Situation and Magnitude, from the confus'd Mixture of whoſe Light its white Colour is ſuppos'd to be occaſion'd. As the Galaxy is compos'd of an Infinity of ſmall Stars, ſo it has uſually been the Region in which new Stars have appear'd; as that in *Caſſiopeia*, A. D. 1572. &c. which were ſeen a while, and then became inviſible again. What follows will doubtleſs entertain the curious Reader, becauſe it gives him a ſurprizing Idea of the Creator's infinite Power in the Creation of the Univerſe; we ſhall follow a late Author of good Authority, who is known to be a Maſter of theſe Things. *Fix'd Stars* are ſuch as do not, like the Planets, change their Poſitions in reſpect of another, becauſe they have no ſenſible Parallax ariſing from the Annual Motion of the Earth. They are eſteem'd to be at ſuch an immenſe diſtance as to have no ſenſible Effect on our Earth. Since *Copernicus* reviv'd the *Pythagorean* Syſtem (now follow'd by all Mathematicians whatever our *French* Author may inſinuate to the contrary) there ſeem'd ground to imagine that the Diameter of the Earth's Annual Courſe (which is 40000 times bigger than our Earth's) might give a ſenſible Parallax to the fix'd Stars, tho' the other could not, and thereby determine their diſtance more preciſely. Which as good a Foundation as 'tis for us to build on, has not yet produc'd any Diſcoveries of that kind; and there are ſome Conſiderations that make us doubt whether we ſhall be able to go farther with our Helps than we have already gone. Mr. *Huygens* tells us he could never diſcover any viſible Magnitude in the fix'd Stars, tho' he us'd Glaſſes, that magnify the Apparent Diameter above a hundred times. Now ſince in all likelihood the fix'd Stars are Suns, perhaps of different Magnitude, we may on a reaſonable Medium preſume they are about the bigneſs of our Sun. Let us then, for Example, ſuppoſe the Dog-ſtar to be ſo, the diſtance from us to the Sun being about a hundred times the Sun's Diameter. 'Tis evident that the Angle under which the Dog-ſtar is ſeen in Mr. *Huygens*'s Teleſcope, muſt be near the ſame with the Angle of its Parallax to the Sun's diſtance, or Semi-Diameter of the Earth's Annual Courſe; ſo that the Parallax to the whole Diameter, can be but double ſuch a Quantity, as even to Mr. *Huygens*'s nice Obſervation, is altogether Inſenſible. The diſtance therefore of the Stars ſeem hardly within reach of any of our Methods to determine; but from what has been laid down we may draw ſome Concluſions that will much illuſtrate the prodigious Vaſtneſs of it: Firſt, That the Diameter of the Earth's Annual Orb, which contains at leaſt 160 Millions of Miles, is but a Point in compariſon to it, at leaſt it muſt be above 6000 times the diſtance of the Sun; for if a Star ſhould appear thro' ſuch a Teleſcope half a Minute broad (which is a pretty ſenſible Magnitude) the true Apparent Diameter would not exceed 18 Third Minutes, which is leſs than the 6000th part of the Apparent Diameter of the Sun, and conſequently the Sun's diſtance not the 6000th part of the diſtance of the Stars. Secondly, That could we advance towards the Stars 99 parts of the whole diſtance, the Stars would appear little bigger to us than they do here; for they would ſhew no otherwiſe than they do thro' a Teleſcope, which magnifies a hundred-fold. Thirdly, That between 9 parts in 10 of the ſpace between us and the fix'd Stars, can receive no greater Light from the Sun, or any of the Stars, than what we have from the Stars in a clear Night. Fourthly, That Light takes up more Time in travelling from the Stars to us than we in making a *Weſt-India* Voyage, which is commonly perform'd in ſix Weeks; that a Sound would not arrive to us from thence in 50000 Years, nor a common Bullet in a much longer Time. This is eaſily computed by allowing (according to Sir *Iſaac Newton*) 10 Minutes for the Journey of Light from the Sun hither, and that a Sound moves but 1300 Foot in a Second; but Sir *Iſaac* does not allow above 968 Foot for the Motion of Sound in a Second of Time. What immenſe Idea's are here? How can Imagination ſoar to ſuch a height, which is almoſt too boundleſs for Numbers. The next Thing to be treated of are

The Planets,

Or Erratick Stars, which are not like the Fix'd Ones, always in the ſame Poſition to one another. We Number the Earth among the Primary Planets, becauſe we know it moves round the Sun, as *Saturn*, *Jupiter*, *Mars*, *Venus*, and *Mercury* do, and that in a Circle between *Mars* and *Venus*. The Moon is accounted among the Secondary Planets, or Satellites of the Primary, ſince ſhe moves round the Earth, as *Jupiter*'s four Moons, or Satellites move round him, and *Saturn*'s five round him, if *Caſſini*'s Eyes be to be truſted; for 'tis certain, they have not been viſible to all Aſtronomers. All the Planets have their Motion round the Sun, which makes their Year, and a Motion round their own Axis, which makes their Day, as the Earth's revolving ſo makes ours. 'Tis more than probable, that the Diameters of all the Planets are longer than their Axes, as 'tis known to be in our Earth, and Mr. *Flamſtead* and *Caſſini* have found it to be in *Jupiter*. Sir *Iſaac Newton* aſſerts our Earth's Equinoctial Diameter to exceed the other about 34 Miles. If Sir *Iſaac* has been able to meaſure the Globe to ſuch a Nicety, he muſt be endow'd with Qualities, which with more Helps would enable him to meaſure the Univerſe. We ſhall now ſay a word or two of each Planet in particular, and begin with

Saturn.

The Proportion of the Body of *Saturn* to our Earth is about 30 to 1. The Periodical Time of his Revolution about the Sun is in the Space of 30 Years, or 10950 days. The Semi-Diameter of *Saturn*'s Orbit is 946969690. His greateſt diſtance from the Earth 244330, and his leaſt 175670 Semi-Diameters of the Earth. The diſtance of *Saturn* from the Sun is about 10 times as great as that of our Earth from him; wherefore that Planet cannot have above a 100th part of the Influence of the Sun which we have, and conſequently cannot be habitable by ſuch Creatures as live on our Globe, unleſs there be ſome unknown way of communicating Heat to him. If an Eye were plac'd in *Saturn*, the Diameter of the Sun would appear almoſt 10 times leſs than it does to us, and conſequently his Disks, Light, and Heat, will be there 90 times leſs. *Saturn*'s Year is almoſt 30 of ours, but the length of his Day is yet uncertain; he is ſaid to have 5 Satellites attending him, of which we have met with this Account, In *March*, 1684. Mr. *Caſſini* (of the Academy of Sciences at *Paris*) by the help of excellent Teleſcopes of 70, 90, 100, 136, 155, and of 220 Feet, diſcover'd the two innermoſt, that is, the firſt and ſecond; the firſt he obſerv'd to be never diſtant from *Saturn*'s Ring above $\frac{2}{5}$ of the Apparent Length of that Ring, and 'twas found to make one Revolution about *Saturn* in 1 Day, 21 Hours, and 19 Minutes, making two Conjunctions with him in leſs than 2 Days. 'Tis diſtant from him $4\frac{3}{8}$ of *Saturn*'s Semi-Diameters.

The Second Satellite was obſerv'd by $\frac{3}{4}$ of the Length of his Ring diſtant from it, making his Revolution about him in 2 Days 17 Hours, and 48 Minutes; this is diſtant from his Center $5\frac{3}{7}$ Semi-Diameters of that Planet. The Third is diſtant from *Saturn* 8 of his Semi-Diameters, and revolves round him in almoſt $4\frac{3}{4}$ Days. The Fourth or *Huygenian* Satellite as 'tis call'd, becauſe firſt diſcover'd by Mr. *Huygens*, revolves round *Saturn* in about 16 Days, is diſtant about 18 of his Semi-Diameters. The Fifth is diſtant from his Center 54 Semi-Diameters, and revolves round him in $79\frac{1}{3}$ Days. The *Huygenian* Satellite is beſt known. Monſieur *Caſſini* is ſo great an Aſtronomer, and has had ſuch

Encouragement from the *French* King for carrying on his Study ſucceſsfully, that few or none have had the like Advantages; and 'tis no wonder he has ſeen more. Where ſhall we find an Engliſhman who has had the Advantage of a Teleſcope 220 Foot long?

Jupiter.

The proportion of *Jupiter* to our Earth is about 60 to 1. The Periodical Time of his Revolution about the Sun 12 Years. He revolves round his Axis in 10 Hours. His greateſt diſtance from the Earth according to *Caſſini* is 142919 Semi-Diameters of the Earth, and his leaſt 87081. The Diameter of *Jupiter* is equal to 27 and $\frac{1}{2}$ Semi-Diameters of the Earth; wherefore the Globe of *Jupiter* muſt be greater than that of the Earth by 2460 times. In the Year 1664, *Campani* (by the help of an excellent Teleſcope) obſerv'd ſome Protuberations and Irregularities in the Surface of this Planet. He ſaw alſo in his Body the Shadows of his Satellites, and follow'd them with his Eye till he ſaw them go off the Diſk; ſuch an Advantage gain'd by the Moderns in Aſtronomy over the Ancients, that if what they knew is admirable to us, what we know wou'd have been miraculous to them. In the ſame Year Mr. *Hook* with a Teleſcope of 12 Foot, obſerv'd a ſmall Spot in the biggeſt of the Three obſcurer Belts of *Jupiter*, and within Two Hours after he found that the ſame Spot had mov'd from *Eaſt* to *Weſt* about half the Length of the Diameter of *Jupiter*. Monſ. *Caſſini* obſerv'd alſo near the ſame time a permanent Spot in the Diſk of *Jupiter*, by whoſe help he not only found that *Jupiter* turns about upon his own Axis; but alſo that he does it in 9 Hours and 36 Minutes. The Sun's Heat in *Jupiter* is almoſt not above one twenty fifth Part of what it is with us. His diſtance from the Sun being five times as great as ours. Day and Night (each 5 Hours) is of the ſame Length in *Jupiter* all over his Surface. His Four Satellites were diſcover'd by *Galilæo*, and being as ſo many Moons to him his Night of 5 Hours muſt be very luminous, and as good as a cloudy Day in our Climate. The diſtance of theſe Satellites are according to *Caſſini*

1st	2d	3d	4th	
5	8	13	23	Semi-Diameters of *Jupiter*.

The Periodical Times according to Sir *Iſaac Newton*, in his *Princip.* p. 40. 3.

	Days.	Hours.	Minutes.	
Firſt,	1.	18.	28	$\frac{3}{5}$
Second,	3.	13	17	$\frac{9}{10}$
Third,	7.	3	59	$\frac{3}{5}$
Fourth,	16.	18:	5	$\frac{1}{5}$

Mars.

There requires a good Teleſcope to view this Planet; it muſt have ſmall Apertures on the object Glaſs, or his Light glares ſo that his Appearance is very confus'd. He borrows his Light from the Sun, and has increaſe and decreaſe of it like the Moon. *March* 10. 1665. Dr. *Hook* obſerv'd this Planet with a 36 Foot Tube, and ſaw his Body at large very near as the Moon at full: He obſerv'd ſeveral Spots in it, and particularly a Triangular one; which having a Motion, he concluded the Planet had a turbinated Motion round its Center. In *Feb.* 9. 1666. Monſ. *Caſſini*, with a 16 Foot Teleſcope obſerv'd Two dark Spots in the firſt Face of *Mars*, moving from 11 at Night till break of Day: He ſaw afterwards other Spots in the other Face of this Planet like thoſe of the Firſt, but much bigger; and continuing his Obſervations, he found the Spots of thoſe Two Faces to turn by little and little from *Eaſt* to *Weſt*, and to return at the ſpace of 24 Hours 40 Minutes to the ſame Situation. Whence he concluded that this Planet revolves round its Axis in 24 Hours 40 Minutes, *Mars* is diſtant from the Sun half as far again as the Earth. His Light and Heat but half what it is here. His Year twice as long as ours. His Natural Day a little greater than ours. His Artificial, or the Time in which the Sun appears above the Horizon, is almoſt every where equal to his Night, and conſequently in one and the ſame Place. On his Surface there can be but little Variety of Seaſons as to Winter and Summer, *&c.* His greateſt diſtance from us 58978 Semi-Diameters of the Earth. His leaſt 21616. His Globe is ſix times as big as the Earth.

The Sun.

Sir *Iſaac Newton* in his *Principia* ſays, The Denſity of the *Sun*'s Light, which is proportional to Heat, is ſeven times as great in *Mercury* as with us; and therefore our Water there wou'd be all carry'd off and boyl away. For he found by Experiments of the *Thermometer*, that an Heat but ſeven times as great as that of the *Sun* Beams in the Summer, will ſerve to make Water boyl. He proves alſo, that the Matter of the *Sun*, to that of *Jupiter*, is nearly as 1100 to 1, and that the diſtance of that Planet from the *Sun* is in the ſame *Ratio* to the *Sun*'s Semi-Diameter. And conſequently, that the common Center of Gravity of the *Sun* and *Jupiter*, is nearly in the Superficies of the Sun; of *Saturn* and the *Sun* a little within it. And by the ſame manner of Calculation it will be found that the common Center of Gravity of all the Planets cannot be more than the Length of the Solar-Diameter diſtant from the Center of the Sun. This common Gravity he proves to be at reſt, and therefore tho' the Sun by reaſon of the various Poſition of the Planets may be mov'd every way, yet it cannot recede far from the common Center of Gravity; and this he thinks ought to be accounted the Center of the World. The Opinion of ſuch a Maſter is of ſuch conſequence to a Learner, that we ought not to loſe a Word of what he ſays. By means of the ſolar Spots, it has been diſcover'd that the *Sun* revolves round his own Axis without moving (conſiderably) out of his Place in about 25 Days; and that the Action of his Motion is inclin'd to the Ecliptick in an Angle of 87 Degrees 30 Minutes. The *Sun*'s apparent Diameter being ſenſibly ſhorter in *December* than in *June* as is plain, and agreed from Obſervations. The *Sun* muſt be proportionably nearer to the Earth in Winter than in Summer. According to Monſ. *Caſſini*, the *Sun*'s greateſt diſtance from the Earth is 22374 Semi-Diameters of the Earth. His mean diſtance 22000, and his leaſt diſtance 8022. The *Sun*'s Diameter is equal to 100 Diameters of the Earth, and therefore the Body of the *Sun* muſt be 1000000 times greater than that of the Earth.

Venus.

The Time of the Periodical Revolution of this Planet round the *Sun*, is 2243 Days and $\frac{2}{3}$ of a Day, or $7\frac{1}{2}$ of our Months. According to Monſ. *Caſſini*, the greateſt diſtance of *Venus* from the Earth is 38415 Semi-Diameters of the Earth; its leaſt 5585. Its Diameter contains 7 of the ſame Semi-Diameters, and its Globe is 43 times as big as the Earth. Dr. *Gregory* ſays, That to an Eye plac'd in *Venus*, the *Sun*'s Diameter wou'd appear one and $\frac{1}{2}$ as big again as it does to us, and therefore his Disk will be more than double of what it appears to us; and the Light and Heat in this Planet, and its Gravity towards the *Sun*, will be in the ſame Proportion in reſpect of ours. The Length of the Day in *Venus* is but 23 Hours. In *October 1666*, *Caſſini* obſerv'd ſeveral Spots in the Body of this Planet, by whoſe Motion he judg'd that ſhe mov'd either by a Circulation or a kind of Libration round her Axis in the Time above-mention'd. The ſame Aſtronomer in 1672 and 1684, with a Teleſcope of 34 Foot, believes he ſaw a Satellite moving round this Planet, and diſtant from it about $\frac{3}{5}$ of *Venus*'s Diameter. It had the ſame Phaſis with *Venus*; but had no well deſign'd Form.

Mercury

Is according to Monſ. *Caſſini* diſtant from the Earth 32704 Semi-Diameters of the Earth at its greateſt diſtance, and 11296 at its leaſt; the Mean being 22000 Semi-Diameters, or about 88000000 *Engliſh* Miles. The Diameter of this Planet is $\frac{3}{4}$ of the Diameter of the Earth, and his Globe $\frac{2}{5}$ of that of the Earth. Sir *Iſaac Newton* makes the Heat of *Mercury* ſo great as to be ſeven times as much as the Heat of our Summer *Sun*; which he found, by Experiments deſignedly made by *Thermoſcopes*, is as has been hinted enough to make Water boyl, therefore undoubtedly this fiery Planet is uninhabitable by ſuch Creatures as live on our Earth.

The Moon.

The Periodical Revolution of the *Moon*, in reference to the fix'd Stars, is 27 Days 7 Hours 43 Minutes. And in the ſame ſpace of Time by a ſtrange Correſpondence and Harmony of the Two Motions, it revolves the ſame way about its own Axis, by which means (one Motion converting it to, as the other turns it from the Earth) the ſame Side is always expos'd to our Sight. The mean Horary Motion of the *Moon* in reſpect of the fix'd Stars is 32 Minutes, 56 Seconds, 27 Thirds, 12 Fourths and a Half. This Planet is diſtant from the Earth, according to moſt Aſtronomers, 61 Semi-Diameters of the Earth at its greateſt diſtance, and 51 at its leaſt; but if the Earth and *Moon* move both round the *Sun*, that excellent Aſtronomer, Sir *Iſaac Newton*, demonſtrates that the diſtance between the Centers of the Earth and *Moon* will be 60 and $\frac{1}{2}$ of the Earths Semi-Diameters. As to the Inequality of the *Moon*'s Motion (which proceeds from the Action of the *Sun*'s diſturbing the Motion of the Secondary Planets) ſhe moves ſwifter, and deſcribes (by a Radius drawn from it to the Earth) a greater Area in proportion to the Time, has an Orbit leſs curv'd, and by that means comes nearer to the Earth in her Conjunctions than in her Quadratures, unleſs the Motion of her Eccentricity hinders it, which Eccentricity is greateſt when the Apogæum of the *Moon* happens in the Conjunctions; and is leaſt when the Apogæum happens in the Quadratures. The *Moon* perpetually changes the Figure of her Orbit. There are alſo ſome other Inequalities in the Motion of this Planet which can hardly be reduc'd to any certain Rule.

The Cauſe that the obſcure Part of the *Moon* appears like kindled Fire juſt before and after the Change or New *Moon*, is the *Sun*'s Rays reflected from the bright Hemiſphere of the Earth to thoſe dark Parts of the *Moon*, and thence again reflected to the Earth deſtitute of the *Sun*'s Light. Sir *Iſaac Newton* ſuppoſes the Moon at its firſt Original to have been a Flood like to our Sea, and then Calculates that the Attraction of our Earth wou'd raiſe the Water there to near 90 Foot high, as the Attraction of the Moon raiſes the Water of our Earth to 12 Foot, whence the Figure of the Moon muſt be a Spheroid, whoſe greateſt Diameter extended will paſs thro' the Center of our Earth, and will be longer than the other Diameter perpendicular to it by 180 Feet. And from hence it comes to paſs that we ſee always the ſame Face of the *Moon*; for ſhe cannot reſt in any other Poſition but continually endeavours to conform her ſelf to this Situation. The *Moon* has properly no Atmoſphere; ſuch as our Earth has abounding with Clouds, Winds, Thunder or Lightning, becauſe her Face always (when our Air is clear) appears diſtinct and clear. And by Teleſcopes the *Sun*'s Light may be ſeen to paſs regularly and uniformly from one mountainous Place to another. The Denſity of the *Moon* according to Sir *Iſaac Newton*'s Concluſion, and we can have no better, is to that of the Earth as 9 to 5 nearly. The Maſs or Quantity of Matter in the *Moon*, to that of the Earth, is as 1 to 26 nearly; and her Globe $\frac{1}{55}$ of the bigneſs of the Earth. The Reaſon why the *Moon* appears to our common Sight ſo much bigger when near the Horizon than ſhe does when near the Meridian, tho' ſhe be then almoſt one Semi-Diameter of the Earth nigher to us than when ſhe is near the Horizon is, that the Horizontal Moon is capable of being compar'd with many intervening Objects, interpos'd Hills, *&c.* but the Meridional *Moon* has nothing to be compar'd withal, and therefore the diſtance between us and her is judg'd to be vaſtly greater than when ſhe is in the Horizon. Dr. *Wallis* ſays, This cannot be from the Refraction of Vapours near the Horizon; becauſe that can only encreaſe the Altitude of her, but not her Breadth: For the Horizon in the whole will always be but a Circle. By means of the Spots in the *Moon* the Lunar Ecclipſes are more accurately obſerv'd than formerly, to the great Advancement of Geography and Navigation, in ſettling the Longitudes of Places; for the Immerſions and Emerſions of theſe Spots from the Shadow of the Earth are moſt nicely determin'd. Tho' the *Moon*'s Period round the Earth be 27 Days, 5 Hours, $\frac{3}{4}$ of an Hour (which is the Periodical Month) yet becauſe, in that ſpace, the Earth alſo with its Satellite the *Moon* is mov'd on almoſt an entire Sign, therefore the Point of the *Moon*'s Orbit, in the laſt Conjunction or New *Moon*, will be gotten too far to the Weſtward. And the *Moon* cannot come yet to a New Conjunction with the *Sun*, but wants of it 2 Days and 5 Hours; which being added to the Periodical makes a Synodical Month. The other Secondary Planets move ſwifter round their Axis than the Moon. Tho' the *Moon* as well as the Earth, *&c.* be of a Figure oblately Spheroidical, that is having its Diameter at the Equator larger than its Axis, yet the exceſs of the Equatorial Diameter in her is ſo inconſiderable that ſhe may well enough paſs for a Globe; and, perhaps, her Figure's being ſo nearly Spherical may be the reſult of her ſlow Motion round her Axis. For *Jupiter*, which moves the ſwifteſt of any round its Axis, is of a Figure more oblate than any other Planet. The Lunar Day wou'd appear to a Lunar Spectator to be near equally divided into Light and Darkneſs; becauſe the Axis of the *Moon*'s Revolution is nearly at Right Angles with the Plane of her Orbit round the *Sun*, ſo that ſhe enjoys a Perpetual Equinox. And there can be no Twilight becauſe this Planet has no Atmoſphere. In one half of the *Moon*'s Surface (except juſt near the Edge of the other Hemiſphere) the Earth cannot be ſeen by a Spectator in the *Moon*; whereas, in the other half, it will be always viſible, and ſeem fix'd in the Heavens like a Star. We regret very much we cannot preſent the Reader with Sir *Iſaac Newton*'s Theory of the *Moon*; but he by this time knows the Reaſons that hinder us; that Theory being ſo ſhort and perfect 'tis not capable of an Abridgment, and yet too long for our Limits.

Of Comets,

Comets or Blazing Stars, as the Vulgar call them, have been from the beginning look'd upon as terrible things portending Wars, Plagues and Famine. But not to enter into God's ways of declaring his Anger to Guilty Man, let us ſee what the Learn'd write of theſe Appearances, and whenever we can find that Sir *Iſaac Newton* has ſaid any thing on theſe Comets we ſhall make uſe of no other Guide; but we cannot do Juſtice to that Great Man for want of Room to give the Reader all he ſays, for a Word of his cannot well be ſpar'd. He proves [*Princip. Hiſt. Nat.* p. 473.] Comets are above the Moon, and in the Region of Planets, becauſe they have no Diurnal Parallax to find its Diſtance. From the Light of the Apparent Star at the Head of the Comet, he concludes its Vicinity to the Sun and Earth; and from the thick Vapour with which its Head is always encompaſs'd, that it muſt often deſcend below the Sphere of *Saturn*, as he had before found by its Parallax, which he concludes alſo by examining into the Cauſe of the *Cauda*, or Tail: He then draws theſe Corollaries; 1. That Comets ſhine by the Light of the Sun's Beams reflected from them. 2. That the Heavens are devoid of all Reſiſtance, ſuch as our Air and other Mediums have: for theſe Comets move every way with all the Freedom that can be, obliquely, directly, and often againſt the Courſe of the Planets, and yet continue their Motion for a very long while. He proves that Comets move round the Sun in Conick Sections, having their *Umbelici* in the Center of the Sun: He proceeds to conſider more particularly what the Bodies of Comets are, and concludes, they are Solid, Compact and Durable, like thoſe of the other Planets: He refutes *Ariſtotle* and his Followers Opinion of their being Meteors or Exhalations from this, That in their Tranſits ſo near the Sun, as 'tis found they go, they would be perfectly diſſipated, diſpers'd and deſtroy'd.

The Heat of the Sun he had before ſhewn to be as the Denſity of the Rays, or reciprocally as the Squares of the Diſtance of the Comet which appear'd in the Year 1680, being in its Perihelion, or the Point neareſt to the Sun, *December* the 8th, was then to the Diſtance of the Earth from the Sun, as 6 to 1000; the Sun's Heat in the Comet at that Time was to his Heat at *Midſummer*, as 28000 to 1, whereas the Heat of Boyling Water as he try'd, was but very little more than triple the Heat of our Dry Earth expos'd to the Midſummer Sun; and the Heat of red-hot Iron he conjectures to be about three or four times as great as that of Boyling Water; wherefore the Heat of the Dry'd Earth of the Comet in its Perihelion was near 2000 times as great as that of red-hot Iron; and conſequently, if the Comet had been an Exhalation the Sun wou'd have render'd it Inviſible. We ſee *Ariſtotle* is not able to ſtand againſt our own Philoſopher in theſe wonderful Inquiries. He goes on; The Comet there acquir'd ſo immenſe a Degree of Heat in its Perihelion, that it muſt needs be a long time before it could be cold again; for he computes that a Globe of red-hot Iron of the Dimenſions of our Earth wou'd ſcarce be cool in 50000 Years. If therefore we ſuppoſe the Comet to cool 100 times as faſt as a red-hot Iron, yet ſince his Heat was 2000 times greater than that of red-hot Iron, ſuppoſing his Body to be of the ſame Bigneſs of our Earth, he will not be cool in a Million of Years. He obſerves that the Tails of all Comets are longeſt and largeſt after their paſſing from the Sun, which ſhews that the Sun's Heat contributed to their Tail, when 'tis more than probable that the Tail of a Comet is only a long and very thin Smoak or Train of Vapours, which the fiery Head of the Comet emits from it: This he proves by many ſtrong and convincing Arguments, refuting all thoſe that were made uſe of to confirm other Opinions. *Caſſini* obſerv'd of the Comet which appear'd in 1680, that 'twas but 22 or 23 Degrees from the Sun. He thinks it too raſh in the Modern Philoſophers, to condemn as ridiculous, the Notion of Comets being bad Preſages; but then he does not go to Work like our Enthuſiaſts, and impute all to ſupernatural Judgments: For he ſays, If the Tail of a Comet ſhould be intermingled with our Atmoſphere; or if the Matter of it ſhould by its Gravity fall down upon our Earth, it may induce Changes in our Air that may be very ſenſible among Animal and Vegetable Bodies. He ſhews [*Aſtron.* p. 408.] how to determine the Way and apparent Place of a Comet; How to find the Poſition of the Bodies of a Comet's Orbit, and when the Comet will be in them; and treats largely of them, to which the Reader muſt be referr'd. *James Bernoulli*, in his *Syſtema Cometarum*, [*An.* 1682.] ſuppoſes there is ſome Primary Planet revolving round the Sun in the Space of 4 Years and 157 Days; and at the diſtance from him of 2583 Semi-Diameters of the *Magnus Orbis*. This Primary Planet he ſuppoſes either from his vaſt Diſtance or Smallneſs not to be viſible to us, but however to have at various Diſtances from him ſeveral *Satellites* moving round him, tho' none deſcending ſo low as the Orbit of *Saturn*; and that theſe becoming viſible to us when they are in their *Perigæum*, the neareſt Point to the Earth, are what we call Comets. He has in ſome of his Works pretended to foretel when a Comet will appear again, but therein is left by moſt Aſtronomers.

Of Eclipſes.

An *Eclipſe* is a Deprivation of Light of one of the Luminaries, when by its Conjunction in the Orbit of the Sun, or in the Ecliptick, his Face, by the Interpoſition of the Moon's Body is hidden from our Sight; or when by its Oppoſition in the ſame Orbit, the Moon by the Shadow of the intervening Earth is obſcur'd. So that in a Lunar Eclipſe ſhe really loſes her Light, and is obſcur'd by wanting the Illumination of the Sun, either Totally or Partially. But in an Eclipſe of the Sun he loſes not his Light, but only we are depriv'd of it in Part by the Interpoſition of the Moon's Body between us and the Sun, and therefore it ought rather to be call'd an Eclipſe of the Earth; for 'tis the Earth that's depriv'd of its Light, and not the Sun. A Central Eclipſe of the Moon is, when not only the entire Body of the Moon is cover'd by the Shadow (which is a Total One, as when 'tis cover'd by it in Part 'tis call'd a Partial One) but alſo the Center of the Moon paſſes thro' the Center of that Circle, which is made by a Plane cutting the Cone of the Earth's Shadow at Right Angles with the Axis, or with the Line that joins the Centers of the Sun and the Earth. Becauſe the Earth always moves in the Ecliptick, the Moon can never be Eclips'd but when the *Plenilunium* happens in or near her Nodes (that is, in the Interſection of the Plane of the Orbit with that of the Ecliptick.) The Shadow of the Earth obſcuring the Moon, tho' projected into a Cone of a vaſt Length, yet reaches not ſo far as the Planet *Mars*, for he is never Eclips'd by it tho' he be in the Plane of the Ecliptick, and at Oppoſition to the Sun. If the Moon be ſo near the *Node*, that the Aggregate of the Apparent Semi-diameters of the Moon, and of the Earth's Shadow, be greater than the Moon's Latitude, ſhe will be Eclips'd, otherwiſe not: And becauſe the Sum of the Semi-Diameter of the Moon, and of the Earth's Shadow, is always greater than that of the Semi-Diameters of the Sun and Moon; for the former is never leſs than 53', and the latter never greater than 35'. 'Tis plain that Lunar Eclipſes may happen in a Greater Latitude of the Moon, or when ſhe is farther from the Node than the Solar Ones; and in this Reſpect of one and the ſame Place upon Earth will more often become Viſible there, tho' in regard to the View of the whole Earth the Solar Eclipſes will happen more frequently. Aſtronomers Calculate the Motions of the Planets ſo exactly, That they foretel Eclipſes with the exact Time of their Beginning and End, their Total Duration, their Bigneſs, and generally all the Circumſtances, with reſpect to the Surface of the Earth from whence they may be perceiv'd. For this Method of Calculating ſuch Eclipſes, See Dr. *Gregory's Aſtronomy.* Mr. *Flamſtead's Doctrine of the Sphere,* Sir *Jonas More's Mathematicks.*

We have treated of Time in Natural Philoſophy, which being meaſur'd by the Courſe of the Stars, has alſo ſome Relation to *Aſtronomy*; ſo we ſhall add here the Rapid Motion of the Earth about the Sun, determining that Part of Time which we call *Day*, divided into Natural and Civil. The former is determin'd by the Earth or Sun's Motion in 24 Hours; the latter is the Time between the Sun's Riſing and Setting, including alſo the more Luminous Part of the *Crepuſculum.* To this Day Night is oppos'd, which is the Time that the Sun is under the Horizon. Month, properly ſpeaking, is the Time in which the Moon runs through the Zodiack. The Lunar Month is either Periodical, the Time of the Moon's Motion from any one Point of the Zodiack to the ſame again, and is ſomething leſs than 27 Days 8 Hours. Or elſe Synodical; the Time between New Moon and New Moon ſomething more than Twenty-nine Days and half. There's alſo a Solar Month, the Time the Sun takes in running thro' one of the Signs of the Zodiack, almoſt 30 Days and half. The Common Month is one of thoſe of which the Solar Year is Compos'd. The Year is the Time the Sun takes to go through the Twelve Signs of the Zodiack. This is the Tropical or Natural Year of 365 Days 5 Hours and 12 Minutes. The Syderical Year is that Time in which the Sun departing from any Fix'd Star, comes to it again; and this is as Sir *Iſaac Newton* ſays, in 365 Days, 6 Hours, 9' 14". The Tropical he makes 365 Days 5 Hours, 48', 57". The Civil Year, which is commonly us'd by all Nations, is very various, both as to its Beginning and alſo as to its Length, according as they follow the Courſe of the Sun, Moon, or both. The Year we uſe in *England* (for we cannot enter into the Regulation of others, Ancients and Moderns) is the *Julian Year*, ſo call'd from *Julius Cæſar*, who diſcovering there were 10 Days more than in *Numa Pompilius*'s Year, made the Year 365 Days 6 Hours, and reſerving the 6 Hours for every Fourth Year, made another Day, which was added before the 6th of *Kal.* of *March*, ſo that in this 4th Year, the 6th of the *Kal.* of *March* was accounted twice *Bis-ſexto-calendas*, whence came the Word *Biſſextile* or *Leap-Year*, as we call it, which was 366 Days. But becauſe there was ſtill found an Error in this Calculation, and that the Equinoxes did plainly, tho' inſenſibly recede from the Points where *Cæſar* had fix'd 'em; as alſo that the Year was diſcover'd to want 11 Minutes of 365 and 6 Hours, which 11 Minutes will in 131 Years make the Equinoxes go back a Day. Pope *Gregory* XIII. pretending to reform this Error, order'd 10 Days to be taken from the Year, to bring the Equinoxes that Year (1582) to *March* 21. and *Sept.* 22, 23. This is the *Gregorian Year* or *New Style*, us'd by moſt of the Popiſh Nations, but not by all, as an Eminent Mathematician aſſerts in a Late Piece of his. The Great Year, or the *Annus Magnus*, is about 25 or 26000 Years, in which Time the Fix'd Stars will appear to come to the ſame Point again exactly after one entire Revolution. This *Annus Magnus* may do well in *China*, where the Hiſtories come up to Thirties and Forties of Thouſands of Years; but 'tis very probable 'twill be of no Service to any other People, and if the *Chineſe* follow'd it, they wou'd never have Occaſion for a *New-Years-Day.*

Of the Earth.

We ſhall here only Treat of it as a Planet, and have touch'd upon't laſt becauſe we wou'd ſay a little the more of it. Mr. *Keil* makes the Surface of it 170981012 *Italian* Miles, which are little leſs than *Engliſh* Miles; the Circumference of the Earth is $24649\frac{46}{50}$ *Engliſh* Miles; the Mean Semi-Diameter of the Earth 3933 Miles or 5000 Feet; its Radius 200000000 Feet; the Solid Content of the Globe of the whole Earth is 3000000000000000000000000 Cubick Feet. The Diſtance of the Earth from the Sun has been mention'd already. On the Suppoſition that the Sun's Parallax be 32 Seconds, the Earth's mean Diſtance from the Sun will be 54000000 Miles, this is according to Mr. *Whiſton.* Sir *Iſaac Newton*, and Mr. *Flamſtead* make it much Greater. The Earth's Figure is moſt probably that of an Oval Spheroid, ſwelling out towards the Equatorial Parts, where 'tis 17 Miles higher than at the

Poles, it being flatted there ſo, that the Diameter of it at the Equator is longer than the Axis by about 34 Miles, as Sir *Iſaac Newton* has calculated it. If the Earth was ever in a Fluid State, its Revolution round its Axis muſt neceſſarily make it put on ſuch a Figure, becauſe near the Equatorial Parts the greateſt Centrifugal Force muſt needs be, and conſequently the Fluid wou'd there riſe and ſwell moſt. It ſeems neceſſary that it ſhould be ſo now to keep the Sea from overflowing the Earth in the Equinoctial Regions. Experiments alſo made on Pendulums, which require different Lengths to ſwing Seconds here, and at the Equator prove the ſame thing aſſerted alſo by *Caſſini* and Dr. *Gregory.* The Earth's mean Revolution, in reſpect of the Fix'd Stars, is 23 Hours 56 Minutes, according to Capt. *Halley*, the Annual Motion of the Earth is ſo exceeding ſwift as for to exceed that of a Bullet ſhot out of a Cannon, and to be after the rate of 3 *Engliſh* Miles and an half in a Second, which is 210 Miles in a Minute. Oh the wondrous Infatuation of Mankind to fly to Chance or any other Cauſe than God to be the Author of ſuch a Motion or Body of near 25000 Miles in Circumference, to whirl about 210 Miles in a Minute. Who but the Great Creator, of whom we conceive by our Religion ſo Infinite an Idea, cou'd give ſuch a Motion. That the Earth is nearer to the Sun in *December* than it is in *June*, and conſequently that its Perihelion is in the Month of *December* is moſt plain, becauſe the Sun's Apparent Diameter is then greater than at *Midſummer*; hence it is there are about 8 Days more in the Summer Half-Year from *March* to *September*, than in the Winter from *September* to *March*. Mr. *Whiſton* proves very eaſily, That the Annual Motion belongs to the Earth about the Sun, and not to the Sun about the Earth. For from the Moon's Orbit, and the Planets Orbits and Periodical Times, 'tis certain that the Law of Gravitation towards the Earth and towards the Sun is the ſame, and by Conſequence all the Periodical Times of Bodies revolving about them are in the ſame Proportion to one another, compar'd with their ſeveral Diſtances from each of 'em; on which Hypotheſis this Proportion ſuits the Phænomena of Nature, the ſame muſt be the true one, and to be fully acquieſc'd in. Now 'tis known that on the Hypotheſis of the Earth's Annual Motion, her Periodical Time exactly ſuits, and 'tis ſo between that of *Mars* and *Venus*, on the Proportion obſerv'd thro' the whole Syſtem, but in the other Hypotheſis 'tis enormouſly different; for when the Moon undoubtedly, and on this Hypotheſis the Sun alſo revolves about our Earth; and when the Diſtance of the Sun is to that of the Moon as about 10000 to 46, and the Moon's Periodical Time leſs than 28 Days, the Periodical Time of the Sun wou'd be 242 Years, which all Experience atteſts to be one. To theſe ſome further Obſervations muſt be added: If the Earth's Motion of 210 Miles in a Minute is ſo vaſt, what wou'd the Motion be of the Stars on a Suppoſition that they mov'd and not the Earth: For ſince they are almoſt at an Infinite Diſtance from the Earth, and run thro' ſuch a vaſt Orbit, they muſt in a Minute's Time be whirl'd 100000 Miles, which reaches ſo near Infinity that it borders on Impoſſibility. If this Motion be aſcrib'd to the Earth, it continues ſtill in its Place: Nor is there any thing to be apprehended from its Swiftneſs becauſe 'tis carry'd round its own Axis. This Argument appears yet more ſtrong, if we compare the Vaſtneſs of the Cœleſtial Bodies with that of the Earth; for ſince the Sun is at leaſt 200 times bigger than the Earth, and the Fix'd Stars above 1000 times bigger, it ſeems much more probable that the Earth ſhou'd turn round its Axis with a Natural Motion, than that ſuch huge Bodies ſhou'd be mov'd from Place to Place with ſuch Incredible Swiftneſs: All the Cœleſtial Appearances, the Riſing and Setting of the Stars, and the Lengthning of the Days may be eaſily explain'd, if we allow the Earth to move, which cannot be done any other way ſo probably and reaſonably, many more Reaſons may be given for the Motion of the Earth; but it being a Syſtem generally receiv'd, we ſhall ſay no more to it.

Of the Heavenly Bodies.

Each Planet ſwims, as one may ſay, in a Tourbillon or Vortex of a Fluid Matter, like a ſort of Air which environs it, according to *Des Cartes*, which Opinion was greedily ſwallow'd by his Diſciples. This Vortex is ſuppos'd to have no void Interſtices or Vacuities between the Particles, and moving thus round, occaſions any Bodies that ſwim in its Subſtance, to move round as that do's, and that ſwifter or ſlower as they are farther off or nearer to the Center. By ſuch Vortices he endeavour'd to ſolve the Motion of the Heavenly Bodies round the Sun in the Center of the Vortex. But Sir *Iſaac Newton*, who ſeems deſtin'd to Triumph over all the Errors of the Ancient and Modern Philoſophers, has demonſtrated that the Planets cannot be carry'd round the Center by the Motion of any Corporeal Vortex, becauſe if they were, the Vortices themſelves muſt be carry'd round after the ſame manner as Aſtronomers have diſcover'd that the Planets perform their Revolutions. Dr. *Gregory* has at large confuted theſe pretended Vortices. Mr. *Keil* has done the ſame, and *Des Cartes*'s Authority will weigh nothing againſt Three Philoſophers, who were ſuch ſevere Followers of Reaſon and Obſervation.

For Tides we ſhall refer the Reader to what is ſaid in Natural Philoſophy by Captain *Halley* from Sir *Iſaac Newton*, which this *Admirable Mathematician* illuſtrates by Examples, and that for which an Ancient Philoſopher is ſaid to have been ſo puzzled about that he flung himſelf into the Sea, is brought very near Demonſtration by an *Engliſh* Philoſopher, who has ſearcht farther into the Wonders of Nature than any, if not all, of the Ancients ſo much boaſted.

Of Meteors,

Which, according to the *Carteſians*, are certain various Impreſſions made on the Elements, exhibiting them in different Forms. They are call'd Meteors from their Elevation, becauſe for the moſt part they appear to be high in the Air, and are either Fiery, Watry, or Airy. Fiery Meteors are ſuch as conſiſt of a Fat, Sulphurous, Kindled Smoak, of which there are ſeveral Kinds, as *Ignis Fatuus*, *Trabs*, *Ignis Pyramidalis*, *Draco Volans*, *Capra Saltans*, Thunder and Lightning. Airy Meteors are ſuch as conſiſt of Flatuous and Spirituous Exhalations, as Winds, *&c.* Watry Meteors conſiſt of Vapours or Watry Particles, by the Action of Heat ſeparated from each other, and variouſly modify'd, as Rain, Dew, *&c.*

Of

Of Wind.

Wind is defin'd to be the Stream or Current of the Air; and where ſuch Current is fix'd and perpetual in its Courſe, 'tis neceſſary that it proceed from a permanent and unintermitting Cauſe, wherefore ſome have been inclin'd to propoſe the Diurnal Rotation of the Earth upon its Axis; by which as the Globe turns Eaſtward, the loſe and fluid Particles of the Air being ſo very light as they be, are left behind; ſo that in reſpect of the Earth's Surface, they move Weſtwards, and become a conſtant Eaſterly Wind. This Opinion ſeems doubtful, for that theſe Winds are found only near the Equinoctial, in thoſe Parallels of Latitude where the Diurnal Motion is ſwifteſt; and the conſtant Calms in the Atlantick Sea near the Equator, *&c.* declare the inſufficiency of ſuch an Hypotheſis; inſtead of this Cauſe, another is ſubſtituted, as the Action of the Sun Beams on the Air and Water, as he paſſes every day over the Oceans, conſider'd together, with the Nature of the Soil, and Situation of the adjoyning Continents, which is back'd by many and weighty Arguments, too long to be inſerted here. And as to our Dew, Miſts, Milldews, Froſt, Ice, Clouds, Rain, Snow, Hail, *&c.* we ſhall not touch upon 'em here, as not being entirely Parts of the Subject in hand, as alſo Rainbows, *&c.* We have treated of thoſe Parts of Aſtronomy which Gentlemen will be moſt entertain'd with, and not enlarg'd on the Uſe of the Celeſtial Globes, nor put them on Aſtronomical Experiments, knowing we could but guide them very imperfectly in an Eſſay of this length, in which we have with all our Brevity, run out beyond the Bounds preſcrib'd.

ASTROLOGY.

THIS Noble Science, which has been in Vogue, as well as others, ſeems now to be in the hands of the Rabble: For who is there that has as much Learning as will let him know the difference between Geometrical and Aſtrological, but preſently abandons downright Mechanicks to caſt Figures and tell Fortunes? The unaccountable Curioſity of People to know Futurity, which if known would make 'em more miſerable than Mortality; the eaſineſs of acquiring the *Jargon*, and maſtering the Secret of this pretended Art; the Money got by it; the whole Crowd of Fools coming to the Market, and but a thin Company being fond of the Great Sciences has kept it up againſt common Senſe and Experience; and we ſhould have omitted it, had we not found it in the firſt Undertaking of this Kind.

Aſtrology is an Art which pretends to foretel future Things from the Motion of the heavenly Bodies, and their Aſpects to one another, as alſo from ſome imaginary Qualities, *Which*, ſays Dr. *Harris, the fooliſh Admirers of this Cheat will have to be in the Stars, as the Cauſes of great ſublunary Effects, tho' they have no tolerable grounds to prove there are any ſuch Things.* And where-ever a Philoſopher of this Rank ſets up for Mercenary Prediction, all the World may be ſure he's an Impoſtor, and ſo far from being able to gueſs well, which is a great help in the Trade of Fortune-telling, that if thoſe who apply to him are not greater Fools, they'll ſoon find all the Secret lies in a Nack of making them betray themſelves in ſome things got by Cuſtom and Impudence, and a few groundleſs Schemes of the heavenly Bodies: However, if any one has a mind to be as much a Conjurer as *Saffold, Gadbury,* &c. and perhaps *Lilly,* he need only get a little Aſtronomy, and ſome of the following Precepts among others.

We have already nam'd the Planets and Signs of the Zodiack, ſo there's no need of repeating them: But ſay the Aſtrologers

Aries ♈, Leo ♌, Sagittary ♐, are fiery, hot and dry, and therefore call'd the fiery Triplicity.

Taurus ♉, Virgo ♍, Capricorn ♑, are cold and dry, and call'd the earthly Triplicity.

Gemini ♊, Libra ♎, Aquarius ♒, are airy, hot and moiſt, and term'd the airy Triplicity.

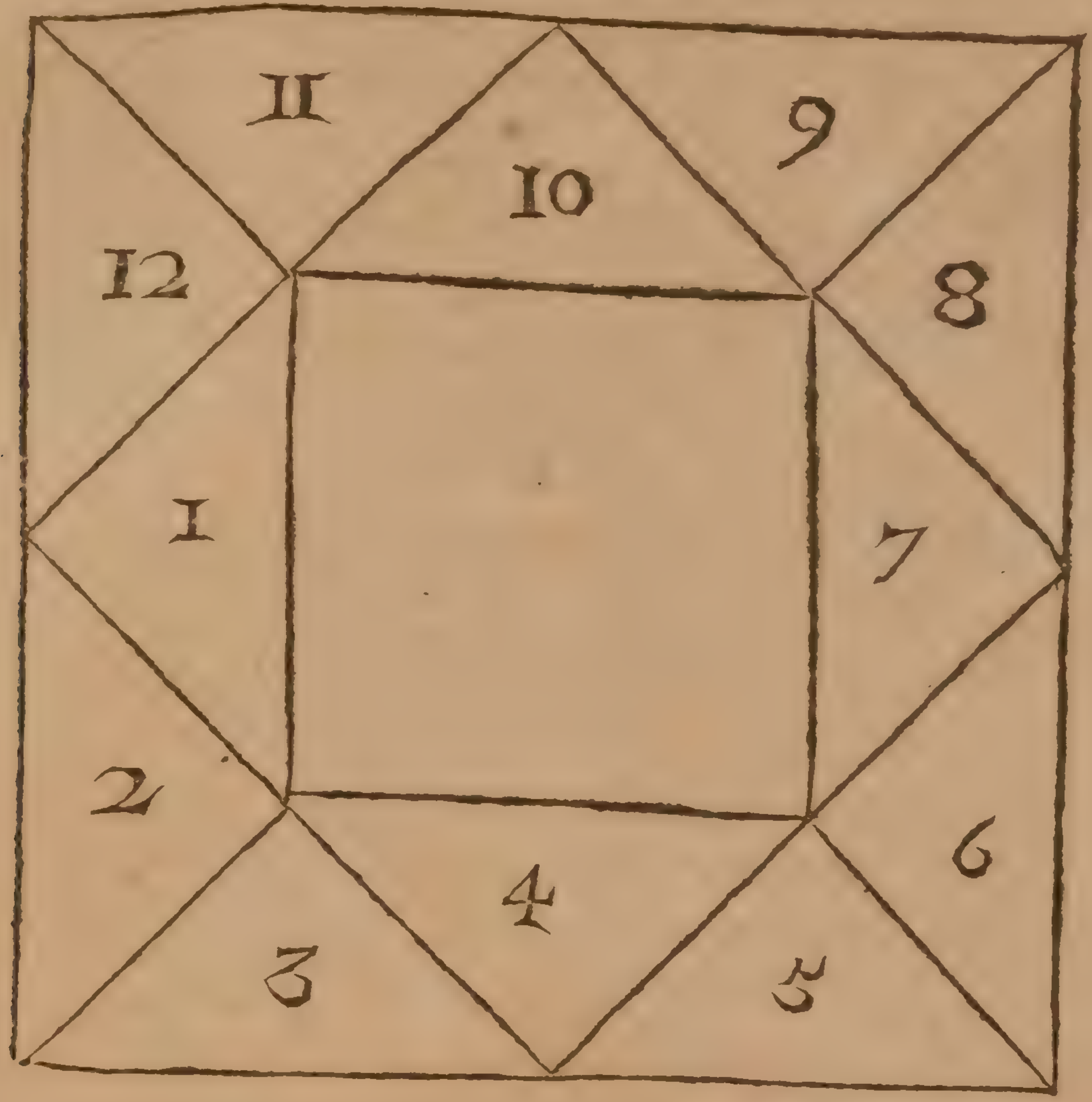
Cancer ♋, Scorpio ♏, Piſces ♓, are cold, moiſt and watry, and therefore nam'd the watry Triplicity. Signs are alſo Moveable, Fix'd, and Common.

The moveable Signs are ♈, ♋, ♎, ♑. The Fix'd, ♉, ♌, ♏, ♒. The Common, ♊, ♍, ♐, ♓. When the Sun enters the moveable Signs, the Weather changes. 'Tis fix'd when he's in the Fix'd, and various when in the Common. All the Stars and Planets have ſeveral Aſpects, with reſpect to one another. In Aſtronomy 5 only are reckon'd; 1. Sextile, when two Stars or Planets are 60 Degrees from one another; 2. Quartile, when 90 Degrees; 3. Trine, when 120 Degrees; 4. Oppoſition, when they are 180 Degrees; 5. Conjunction, when they are both in the ſame Degree. To which are added, for the uſe of Aſtrologers, Semi-Sextile, when Planets are diſtant 30 Degrees; Decile, 36 Degrees; Octile, 45 Degrees; Quintile, 72 Degrees; Terdecile, 108 Degrees; Seſquartile, 135 Degrees; Biquintile, 144 Degrees, and Quincieux, 150 Degrees. The laſt Aſpects were added by *Kepler.*

The whole Sphere of Heaven is divided by Aſtrologers into four equal Parts, or Quadrants, by the Meridian and Horizon. Theſe Quadrants are ſubdivided into three Parts, call'd Houſes. The firſt Quadrant extends, from the Angle of the Eaſt to Mid-Heaven, and contains the 12th, 11th, and 10th Houſes; 'tis call'd the *Oriental, Vernal, Aſcending, Maſculine, Sanguine, Infant Quarter.* The ſecond Quadrant, from the Cuſp of the Mid-Heaven, to the Cuſp of the 7th Houſe, contains the 9th, 8th, and 7th Houſes, and is call'd the *Meridian, Eſtival, Feminine, Youthful, Cholerick Quarter.* The third Quadrant, from the Cuſp of the 7th Houſe, to the Cuſp of the 4th Houſe, contains the 6th, 5th, and 4th Houſes, and is call'd the *Occidental, Autumnal, Maſculine, Melancholick, Manhood, Cold* and *Dry.* The fourth Quadrant, from the Cuſp of the 4th Houſe, or *Imum Cœli*, to the Cuſp of the 1ſt Houſe, contains the 3d, 2d, and 1ſt Houſes, and is call'd *Northern, Feminine, Old Age,* and *Phlegmatick.* The 1ſt, 7th, 10th, 4th Houſes are Powerful, the 11th, 5th, 2d, 8th next in Power, the 9th, 3d, 12th, 6th Weak. The 1ſt Houſe is preferable to the 10th, and the 10th to the 7th.

How to Erect a Figure.

Draw the following Figure; the 12 empty places are the 12 Houſes; the vacant place in the middle for the Earth, ſurrounded with the Heavens, in which write the *Year, Month, Day,* and *Hour,* when the Figure was made. Figure 1 is the Cuſp of the firſt Houſe, 2 the Cuſp of the ſecond, &c.



Your Figure drawn, ſeek the place in the **Ephemeris*; having found it, enter the Table of Houſes, and in the Column of the 10th Houſe find the Sign and Degree the Sun is in; if you don't find the juſt place of the Sun, take the neareſt to it; if the odd Minute be above 30, take the next whole Degree; if under 30, take the even Degree, and right againſt it, in the Column towards the left-hand, entitul'd, *Time from Noon*, you have the Time in Hours and Minutes of the Sun's Right Aſcenſion to be added to the Time of the Hour and Minute you make your Figure for. The Hours and Minutes thus added (if under 24 Hours) ſeek out in the Column of *Time from Noon*; but if they exceed 24 Hours, then caſt away 24 Hours, and ſeek out the Remainder in that Column right againſt it, in the ſame Line you have the *Signs*, *Degrees*, and *Minutes*, to be plac'd on the 10th, 11th, 12th, 1ſt, 2d, and 3d Houſes, ſo you have 6 of the Houſes, the other 6 are eaſily found by placing the ſame Degree and Minute of the oppoſite Sign on the oppoſite Houſe. If you cannot tell what Signs are oppoſite to each other, look at the beginning of the Tract, and you may ſee that *Aries* is oppoſite to *Libra*, &c. Take Example by that Figure at the beginning of the Ephemeris, when *Sol* enters *Aries*. Next learn to place the Planets right in the Figure, as you may ſee in the ſame Figure. Thus *Saturn* being more Degrees than the Cuſp of the 4th, is plac'd in the 4th; *Jupiter* being in fewer Degrees than the Cuſp of the Aſcendant, is plac'd above the Aſcendant. The like Rule obſerve in all the reſt. The next Thing we ſhould treat of, is, *How to reduce the Ephemeris and Sun's Declination*, and *Aſpect, to any Meridian*; but whoever has the Curioſity to go ſo far, muſt have recourſe to Authors who are greater Conjurers, and have more Paper to ſpare. For the Direction of ſuch as read Schemes, it muſt be noted, That Aſtronomers begin their Day at Noon, ſo that One a Clock in the Afternoon is their firſt Hour, Two the ſecond, &c. Six a Clock the next Morning the eighteenth, Eleven a Clock the twenty-third. We muſt now explain ſome Aſtrological Terms.

* *Books containing the daily Motion of the Planets.*

Application is when two Planets draw towards each other by *Body* or *Aſpects*.

By *Body* is Conjunction, by *Aſpect* is meant Beholding each other from ſeveral Signs.

Separation is when two Planets are departed 6 Minutes diſtance or farther.

Prohibition is when two Planets, ſignifying the effecting of any thing demanded, are apply'd by Conjunction or Aſpect, and before they can come to a true Aſpect, another Planet interpoſes his Body, by which the Matter propos'd is hinder'd.

Refranation is, when applying a Planet to another by Conjunction or Aſpect, before he comes to the other, he grows Retrograde, and refrains coming to a former Conjunction; if ſo, nothing ſignify'd by the former Sign, will, if the Aſtrologers can hinder it, be effected.

Tranſlation of Light and Nature, is when a Planet ſeparates from one more weighty, and applies to another more heavy, either by *Aſpect* or *Conjunction*.

Reception is when two Planets are in each others Dignities. Now, pray Reader, mind the *Jargon*: the uſe of it is much, for when the effecting the Matter is deny'd by the Aſpects, or when the Significators have no Aſpect to each other, &c. yet if mutual Reception happen between the Significators, the thing is brought to paſs without any great Trouble, to the Content of both Parties. Oh the ſweet Effects of the Stars!

Fruſtration is when a lighter Planet would come to Conjunction with another more weighty; and before they come to Conjunction, the more weighty Planet is joyn'd to another, and ſo the Conjunction of the firſt is Fruſtrate. The Conſequence of this, in a Queſtion, would be, If *Damon* and *Strephon* quarrel about *Cloe*, *Coridon* carries her away.

Perigrination is when a Planet has no eſſential Dignity in the Sign in which he is. 'Tis very material, ſays the Aſtrologer, with a grave Face, to know the Perigrine Planets, eſpecially in queſtions of Theft, as on the loſs of *Spoon* or *Bodkin*; for if you'll believe him, the Significator of the Thief is known by the Perigrine Planet, poſted in an Angle, or ſecond Houſe.

Cumbuſtion is when a Planet is not 8 Degrees, 30 Minutes diſtance from the Sun; and mighty is the Power of a Planet *Combuſt*, it ſhews the Quereſt is in great fear of *Loſing a Sweet-heart*, or over power'd by ſome great Man, as a Tenant by his Landlord. In change of Air it ſhews nothing if it does not ſhew high Winds and Storms.

Under the Sun-Beams, a Planet is ſaid to be ſo 'till 17 Degrees diſtant from the Sun.

Cazami is when a Planet is within 17 Degrees diſtance from the Sun.

Void of Courſe is when a Planet is ſeparated from another, and does not, while he is in that Sign, apply to any other. Aſtrologers keep a ſharp Eye on the Moon on this account; for if ſhe be *Void of Courſe*, ſays one of 'em, *You ſeldom ſee a Buſineſs go handſomly forward.* If a Planet is not within 12 Degrees of ſome Aſpect, he or ſhe is in thoſe whimſical Circumſtances.

Beſieging is when a Planet is between the Bodies of two Malevolents. This foretels ſuch things as, *Menin*, *Liſle*, Writs, Bailiffs, &c. for the Planets are ſo obliging, that they will anſwer for a *Pin-Cuſhion* as much as for an *Empire*.

Almuten is an Imperial Planet that bears chief Rule of any Sign in any Figure. He's a meer *Attila*.

Almuten of a Figure is that Planet which has moſt Dignities, or is moſt Powerful in the Scheme of Heaven. Thus it may be ſaid, that *Lewis* XIV. by ſeveral pretty ways of his, was 1684. the *Almuten* of Europe.

Haiz is when a Maſculine and Diurnal Planet is in the Day-time above the Earth, or a Feminine Nocturnal Planet in the Night-time under the Earth, and in a Feminine Sign. This, ſay the Learned, betokens Content.

Oriental is when a Planet riſes before the Sun.

Occidental when a Planet ſets after the Sun.

Direction is when a Planet moves forward in the Sign, as from 13 to 14 Degrees, *&c.*

Retrogradation, when he goes backward, as out of 14 into 13, *&c.*

Stationary is when a Planet moves not as the *Sun*, *Saturn*, *Jupiter*, and *Mars*, do not 3 or 4 days before they turn Retrograde.

Longitude of a Planet or Star is their diſtance from the beginning of *Aries*, number'd according to the Succeſſion of Signs.

Latitude of a Planet or Star is their diſtance from the Ecliptick.

Declination is their diſtance from the Equator.

Now we come to the diſtinguiſhing Signs and Tokens of the Stars and Planets, which, if Men could entirely truſt to, would be of great uſe in Humane Affairs; but alas, People are Incredulous, and having been deceiv'd 2 or 3000 Years, do not care to rely abſolutely

On the Faces of the Signs.

The firſt Face of Aries is the Face of Mars; and if it ſignifies any thing, 'tis *Boldneſs*, *Fortitude*, *Preferment*; and what ſeems very odd, *Impudence*. The Military Men are in the firſt Face of Aries.

The ſecond Face is the Face of the Sun, and ſignifies many excellent Things, as Places at Court, Commiſſions in the Peace, or Militia; or in more magnificent Terms, Nobility, Advancement, Rule, and Dominion.

The third Face is the Face of *Venus*. Its ſignification is Women, their Skill in *Sowing*, *Stitching*, *Starching*, &c. Trades belonging to the Sex, ſays my Author; as alſo Opera's, Farces, Dancing, and Merriment.

The firſt Face of *Taurus* is *Mercury's*, and a notable Face it is, if my Author does not abuſe it; for 'tis *Compleat in its Nature*, and good to *Plow*, *Sow*, and *Build*, to *Meaſure*, and divide *Land* by way of Purchaſe or Inheritance, I hope, to practice Geometry, to conſult the *Lawyer* or *Aſtrologer*.

The ſecond Face is belonging to the Moon, and betokens a Favourite's Fortune, *Power*, *Nobility*, and *Honour*; but unluckily, according to my Author, it ſignifies alſo *to ſpoil Towns and diſpeople them, and bring great Neceſſity on the People.*

The third Face is the Face of *Saturn*, an ugly Face with a witneſs, prognoſticating the preſent Fate of the French *Miſery*, *Bondage*, *Slavery*, *Neceſſity*, *Want*, and *Vileneſs*; and ſuch certainly is their Old *Saturn's* Face to them.

The firſt Face of *Gemini* is *Jupiter's*, and is *Compleat in its Nature*, as I am told, and it ſignifies *Writing*, *Caſting Accompt*, *receiving and paying Money*, as alſo *delivering Petitions*, *and exerciſing ſuch Feats of Wit, by which little Money is gotten.*

The ſecond is the Face of *Mars*, ſignifying *Oppreſſion*, *Labour*, *Care*, and *Difficulty*; and ſays my Guide very gravely, *If it ſignifies any at all, 'tis knaviſh Wit.* The firſt time that I ever believ'd an Aſtrologer.

The third is the Face of the Sun; and this may very properly be call'd the Gameſter's Face, becauſe it ſignifies *Forgetfulneſs*. The Gameſter forgets he wore a Livery, Diſdain; he ſcorns his Fellow-Footman, *Jeſting*; he drols with his *Grace* and *Playing*; he rides in his Coach and Six by it.

The firſt Face of *Cancer* is the Face of *Venus*; I'm afraid of this Face, and believe it as miſchievous as the ſecond Face of *Mars*, yet I'm aſſur'd 'tis *Compleat in its Nature*; and to uſe my Author's own Words, he being much more a Conjurer, it ſignifies *Strength* and *Senſibility*, *Community*, *Subtlety*, *and Favour of the Men they deſire.*

The ſecond is the Face of *Mercury*. This is indeed a pretty Face, if I can truſt my Teacher, for it ſignifies *Mirth*, *Jeſting*, *Playing with Women*, *Riches*, *and Fruitfulneſs*, which can hardly be ſaid of any Face beſides. My Aſtrologer not being willing to ſhew me any more of his Art, I ſhall leave it, and only tell the Reader what he told me, and ſo proportionably of the reſt, by which he will be as much enlighten'd as I am. But enough of this Unreaſonable, and conſequently Ungentleman-like *Recreation.*

GEOGRAPHY.

BEFORE we enter upon that Part of Geography, which is generally underſtood to be this Science, we mean the bare Deſcription of the Earth, we muſt premiſe, that the Maſters of this Art treat always firſt of the *Sphere*, which we have done in Coſmography, as alſo of the *Figure of the Earth*; Of its *Dimenſions and Magnitude*; *Of its Motion*; Of its *Situation*, *with reſpect to the Stars*; *Of Tides*; *Of Winds*, &c. as relating more to the General Syſtem, than the Particular Deſcription of the Globe, which is underſtood by Geography. Several other Authors have introduc'd Dew, Miſts, *&c.* as Monſieur *Bion* among others; but thoſe Things, as alſo Winds, Tides, *&c.* relate to *Phyſicks*, and we cannot but think 'tis to jumble Phyſicks, Coſmography, and Geography together, to handle the latter in that manner, at leaſt for us, who are confin'd in Room, it would be almoſt Impertinent, when the Reader expects an Account of the Globe on which he Treads and Travels, to carry him into the Air and Clouds to ſhew him Meteors, *&c.* ſo we ſhall come as faſt as we can to the Principal Matter.

The Terreſtrial Globe is compos'd of Earth and Water; the Art which concerns the Earth is call'd Geography, or a Deſcription of the Earth; and that which has relation to the Water, Hydrography, or a Deſcription of Water; both are comprehended in the general Term of Geography, for that Earth and Water are united in one Globe, of which the Earth is the moſt conſiderable Part. Geography conſider'd only with reſpect to the Earth, is divided into two Parts; Chorography, or the Deſcription of a particular Country, as *Great-Britain*, *Germany*, &c. and Topography, or the Deſcription of a particular Place, as a City, Caſtle, Village, &c. 'Tis very neceſſary that Learners ſhould be acquainted with the Celeſtial Globe, for the Terreſtrial makes uſe of its Circles, Lines, *&c.* and explains them before it deſcribes the Surface of the Earth and Waters. Before we proceed farther, 'twill not be improper to obſerve the *Meaſures* made uſe of in Geography by the moſt knowing People of the Modern World. The *Foot* is the moſt famous Meaſure, and *Snellius's* now us'd by Mathematicians, which he ſays is equal to

GEOGRAPHY.

To the Rt. Honble George Berkeley
Ld. Berkeley, Mawbray, Segrave, &
Bruce, Baron of Berkeley Caſtle, &
Earle of Berkeley, & one of the
Lords of his Majeſtyes moſt
Honble Privi Councell &c.
Anno Dom 1678.

This Plate is humbly
Dedicated
By
Ricd. Blome.

The Earth is divided into Realmes
Realmes into Provinces
Provinces into Regions
Regions into Countreys
Countreys into Territories
Territories into Lands
Lands into Acres
Acres into Rodds
Rodds into Paces
Paces into Feet
Feet into Inches
Inches into Barly-corns
VIRTUTE NON VI
GEOGRAPHY is either
Univerſall in which is conteyned the Superficies of the Globe of the Earth.
The Limits are
Mountains
Rivers
Armes of the Sea.
Acceſsible of which ſome are
More Comodious as
Ports
Leſs Comodious as
Havens
Gulphs
Inacceſsible and very dangerous as
Precipices, Rocks High mountains
Diſcovered, of which
The Diviſion is in the
Continent
Old
Eaſtern as Aſia
Minor
Major
Weſtern
Northern as Europe
Southern as Affrica
New
Northern
The Weſt Indies
Southern or Magelanick
Iſles
Circulus Arcticus
Tropicus Cancri
Linia Æquinoctialis
Tropicus Capricorni
Circulus Antarcticus
AMERICA
MAR DEL NORT
MAR DEL ZUR
MARE PACIFICUM
EUROPA
ASIA
AFRICA
OCEANUS ÆTHIOPICUS
MAR DI INDIA
The manner to know the
Latitude is by the Elevation
Of the Pole
Meridian of the Sun
Longitude by
The motion of the Stars
The Aſtrolabe
Special
Chorography
Topography
Flowing
Little as
Fountaines Rivelets Rivers
Great as
Floods Torrents
Under Water
Standing
Sweet and Freſh
Naturally in low places as
Lakes
Marſhes
Artificially as
Ciſterns Wells Pools
Salt as the Sea
In land or Mediterraneas
Externall, or the Ocean

to the Ancient *Roman* Foot. The Rod is 10 Feet. The Rod and Mile ariſe from the Multiplication of Feet. A Geometrical Pace is 5 Foot; a Fathom is 6 Foot; a Cubit 1 Foot. The *German* Mile contains $14000\frac{4}{13}$ Feet, or 4000 Paces. The *Italian* Mile is 1000 Paces. The *Engliſh* have two ſorts of Miles computed, and meaſur'd; of the firſt 50 make a Degree, of the laſt 60. 'Tis a common Opinion that 5 of our *Engliſh* Feet make a Geometrical Pace; 60000 of 'em in any great Circle, on the Spherical Surface of the Earth or Sea, a Degree. 'Tis generally allow'd that 60 *Italian* Miles, 20 *French* or *Dutch*, 15 *German* Leagues, $17\frac{1}{2}$ *Spaniſh* Leagues, and $56\frac{1}{2}$ *Engliſh* Miles make a Degree. But there is a great difference in Calculations; which for our uſual Reaſons we muſt not enlarge on here. The *Turkiſh* Miles are the ſame as the *Italian*. The *Indian* Miles are 100 to a Degree. The *Daniſh* and *Swediſh* Mile is to the *Italian* as 19 to 10. *Ruſſian* as 19 to 80; which is as much as can be allow'd us to ſay on this Head.

The Longitude of a Place is an Arch of the Equator intercepted between the Meridian of that Place, and the Firſt Meridian; or more truly the difference either *Eaſt* or *Weſt*, between the Meridians of any Two Places, counted on the Equator. As to the Firſt Meridian, Authors are not agreed about it. The *French* are oblig'd by an Edict to place the Firſt Meridian in the *Iſland* of *Fez*, the moſt Weſterly of all the *Canaries*; and the *French Geographers* have impos'd this Longitude on moſt of their Brethren. The *Dutch* make it the Pick of *Teneriffe*, Two Degrees more to the *Eaſt*, which is follow'd moſt univerſally.

The Latitude of a Place is an Arch of the Meridian of that Place intercepted between its Zenith and the Equator, or between the Pole and the Horizon; wherefore 'tis called the *Pole's Height*, &c. 'Tis known on the Globe thus; turn it about till the Place whoſe Latitude you want touch the Right Side of the Meridian. Obſerve the Figure upon the Meridian which the Place given touches, and you have its Degree of Latitude; one Half of the Meridian is above the Horizon, and the other Half below, which ſhews the ſame thing in that Hemiſphere.

Climate is a Space on the Terreſtrial Globe comprehended between Two Circles Parallel to the Equator, ſo that from the Beginning of the *Climate* to that of another next to it, there is Half an Hours difference in the longeſt Summers Day. Each *Climate* is divided into Half *Climates* by a Parallel Circle, which Half *Climate* is term'd a Parallel; wherefore theſe Parallels muſt differ from one another $\frac{1}{4}$ of our Hour. The *Climates* are reckon'd from the Equator to the Poles. *Geographers* have made 24 *Climates* between the Equator, and each of the Polar Circles; becauſe there are 24 Half Hours of difference between the Length of the Day under the Equator, and the longeſt Day under the Polar Circles. The Firſt *Climate* begins at the Equator. The Second where the longeſt Day is 12 Hours and a Half, and ſo on. We cannot particularize every *Climate* but only this,

That we in *England* are in the Ninth *Climate*; in which we find *London*, *Prague*, *Cracow*, *Roan*, *Franckfort*, &c. As there are 24 *Climates* in the Northern, ſo there are in the Southern Hemiſphere.

We ſhall now ſay ſomething of the Diverſity of Shadows with regard to the Points; of which when the Sun is in the Meridian, the Inhabitants of the Earth are thus diſtinguiſh'd. The *Aſcii* are thoſe who live between the Equator and the Tropicks; who ſome Days in the Year, when the Sun is in the Meridian, have no Shadow at all. Thoſe under the Equator, the Two Days of the Equinox, have no Shadow at Noon: No more have thoſe under the Tropick of *Cancer* when the Sun is under the Firſt Degree of that Sign. The Tropick of *Capricorn* the like. At other times under the Tropick of *Cancer*, the Shadow at Noon points to the North, under that of *Capricorn* to the South; whence they are call'd *Heteroſcii*. The *Periſcii* are thoſe whoſe Shadow in 24 Hours is carry'd round all the Points of the Compaſs: 'Tis thus with the Inhabitants of the *Frigid Zone*. The *Amphiſcii* have their Shadow at Noon; ſometimes towards the North, and ſometimes towards the South.

The People of the Earth, in reſpect to their Situation, are *Periæci*, *Antiæci* and *Antipodes*. The *Periæci* are thoſe who dwell in the ſame Parallel Circle of Latitude; but in oppoſite Points of the ſame, *viz.* in oppoſite Meridians. The *Antiæci* are thoſe who live under the ſame Meridian, but in oppoſite Parallel Circles of Latitude; and they are equally diſtant from the Equator. The *Antipodes* are the People who are diametrically oppoſite to one another, and different as to Days, Nights, Seaſons, &c. We ſhall now haſten to our particular Conſiderations of the Earth, having firſt treated a little of its Subſtance and Conſtitution.

Varenius holds that the Earth conſiſts of *Water, Oil of Sulphur, Salt, Earth, and a certain Spirit call'd Acid*; which he makes the firſt Five Simple Bodies. 'Tis divided into Dry and Liquid; and ſome add the Atmoſphere. The Dry Parts are Earth, Sand, Loam, Clay, Stones, Metals, Sulphur, Salts, Nitre, Herbs, &c. The Liquid are Ocean, and the Seas, Rivers, and freſh Water Lakes, and Marſhes, Mineral Waters, &c. The Atmoſphere has been ſpoken of in the former Chapter. The Height of the Atmoſphere is not aſcertain'd; ſome make it 7, ſome 8, ſome 50, and ſome many more Miles high. The Water being one of the Diviſions of the Earth, we ſhall treat of it Firſt.

Of the Diviſion of the Earth by the Ocean.

The Terraqueous Globe is divided into Earth cover'd by Water, into Earth ſtanding out of the Water, and Water itſelf. The Surface of the Earth, ſtanding out of the Sea, is divided into theſe four Parts by the Interflux of the Water.

I. Into great Continents, or great Iſlands; of which are reckon'd Four.

1. The Old World; whoſe Parts are *Europe*, *Aſia*, *Africa*. Bounded by
On the *North*, the *Northern*, *Frozen*, and *Tartarian Sea*.
On the *Eaſt*, the *Pacifick* and *Indian Sea*.
On the *South*, the *South Sea*.
On the *Weſt*, the *Atlantick*.

2. The New World, or *America*; whoſe Parts are *Northern*, *Southern*. Bounded by
   - On the *North*, *Davis's Streights.*
   - On the *Eaſt*, the *Atlantick Sea.*
   - On the *South*, the *Magellanick Streights.*
   - On the *Weſt*, the *Pacifick Sea.*
3. The Land of the *North Pole* or *Greenland*, is every where encompaſs'd by the *Sea* and *Streights.*
4. The *South* Land, or Land of *Magellan* not yet diſcover'd.

II. The Second Diviſion is *Peninſulas* or *Cherſoneſes*, which are Parts of theſe Continents join'd to them by narrow Necks of Land. They are divided into Round, Oblong, and into ſuch as have an affinity to *Peninſulas.*

The round ones; whoſe Latitude and Longitude are almoſt equal, are,
- *Africa.*
- The *Morea.* The *Cherſoneſus* of *Greece.*
- *Cherſoneſus Taurica.*
- *Cambaja.*

The Oblong are many in Number.
- 1. *Malacca*, adjoining to *India.*
- 2. *Jutland*, joining to *Holſtein.*
- 3. *Corea*, joining to *Tartary.*
- 4. 5. *North* and *South America.*
- 6. 7. 8. *California*, *Jucatan*, the *Cherſoneſus* of *Thrace.*
- 9. 10. New *France*, *Ionia.*

Thoſe which have an Affinity to *Peninſulas.* *Italy*, *Greece*, *Spain*, *Aſia minor*, *Arabia*, *Norway* with *Sweſden*, and *Lapland*; and *Beach* a Country of *Magellan*, *New Guiney*, *Indoſtan*, *Cochinchina*, *New England*, *Monomotapa* and *Cambaia.*

III. Diviſion, is Iſlands; of which there are,

Nine great ones. *Great Britain*, *Japan*, *Iceland*, *Canada*, *Sumatra*, *Madagaſcar*, *Borneo*, *Nova Zembla*, *California.*

Thirteen midling ones. *Ireland*, *Sicily*, *Hiſpaniola*, *Cuba*, *Java Major*, *Celebes*, *Crete*, *Euconia*, *Sardinia*, *Frieſland*, *Terra Nova*, *New France*, *Mindanao* and *Ceilan.*

Nine little ones. *Gilolo*, *Amboina*, *Timor Corſica*, *Majorca*, *Cyprus*, *Negropont*, in the *Mediterranean.* *Daniſh Zealand* and *Jamaica*, which lies in the Bay of *Mexico.*

Very ſmall ones.
- 1. Thoſe of moſt Note, which lye alone, as *Rhodes*, *Malta*, *Lemnos*, St. *Helens*, St. *Thomas*, *Madera*, &c.
- 2. Thoſe which lye together in great Numbers, very near one another, as the *Canary Iſlands*, the *Caribbe*, the *Heſperides*; thoſe in the Bay of *Mexico.* The *Maldive Iſlands*; thoſe about *Madagaſcar.* The *Mollucoes* and *Iſles* of *Banda*, the *Philippine Iſlands*; thoſe of *Japan.* The *Iſles* of *Thieves*; thoſe of the *Ægean Sea*; thoſe about *Great Britain*, and the *Iſlands* of *Solomon.*

IV. The Fourth Diviſion is *Iſthmus's*, or narrow Necks of Land; which are thoſe between *Ægypt* and *Arabia.* The *Corinthian Iſthmus.* The *Iſthmus* of *Darien*, that between *Jutland* and *Holſtein*, that between *Malacca* and *India.*

'Twill not be amiſs here to inſert a Word or Two

Of Maps, and the Uſe of 'em,

They being principal Parts of *Geography*, and Guides to all who inquire into the particular Branches of it. A Map is a Deſcription of the Earth, or ſome particular Part of it projected on a plain Superficies deſcribing the Form of Countries, Rivers, Situation of Cities, Hills, Woods, &c. Their Poſition as to *North*, *South*, *Eaſt* and *Weſt*, and their diſtance from other Places. The Advantage of Maps is this: They lay the Globe of the Earth before us at once. In all Maps the Places on the Right Hand lie *Eaſt*; thoſe on the Left *Weſt*. The Top of the Map is the *North*; and the Bottom the *South.* The Terreſtrial Globe moſt naturally ſhews the Situation of Places; the Motion of the Sun; the Difference of Climates; the Inequality of Days, &c. The difference between a Map and a Globe is much the ſame with that between a Picture and a Figure, in *Baſſo Relievo.* Maps are either General or Particular: The General Map ſhews us the whole Surface of the Earth; a Particular Map is that of a Particular Country. 'Tis difficult to find out the exact Longitude of a Place on a Map, becauſe of the Curvity of the Meridians and Parallels, unleſs the Place be under the Equator or ſome Meridian. 'Tis the ſame with the Latitude, unleſs it be under one of the Parallels, or under the firſt, and 180th Meridian. Before you ſearch the Latitude and Longitude on common Maps, it muſt be obſerv'd that the Lines divided by Degrees, and ſometimes by Minutes, at the two Sides of thoſe Maps, repreſent two Meridians, or at leaſt their Diviſion into Degrees, which are thoſe of Latitude, conſiſting of 20 Leagues. Further the Lines divided thus above and below repreſent the Degrees of Longitude, which are never 20 Leagues, unleſs when they repreſent the Equator.

To find the Longitude and Latitude of a Place on a Map

When the Equator is not on a Map, if you wou'd find the Longitude and Latitude of a Town, *&c.* you muſt draw a ſtreight Line from the Place propos'd to the Number of Degrees, equal to it above and below, which are the Longitude. If the Equator is on the Chart, you muſt make uſe of it inſtead of one of thoſe Lines, according to the Place where the Town ſhall be either above or below. If you deſire to know its Latitude, carry the ſame ſtreight Line fix'd on the Town in Parallel with the Lines above or below, and it will ſhew the Latitude on the Sides. By this means 'tis eaſie to comprehend how a Town may be found on a Map when you know the Longitude and Latitude; for by putting, as I have ſaid, two Lines, one on the Longitude, the other on the Latitude, the Interſection of them will point to the Town ſought after.

To find the Diſtance between Two Places.

'Tis as difficult to find the Diſtance of Two Places given on a Map where the Meridians and Parallels are repreſented by curv'd Lines, as to know the Longitude and Latitude, unleſs they are ſituated as I have already mention'd; but on the common Maps you may find it by the help of the Scale following this Method. If the Diſtance of the Places given is longer than the Scale, open your Compaſs to the Length of it, then put one of the Points in one of the Places, and carry it forwards in a ſtraight Line, as many times as is neceſſary, till you come to the Place you wanted. If the farther Point of your Compaſs does not fall directly upon it, cloſe your Compaſs till it does, and then meaſure the laſt Opening by the Scale, to know how many Leagues it contains; which you muſt add to the Number of the Lengths of the Scale you took before in a ſtreight Line. If the Diſtance is leſs than the Scale, meaſure it by your Compaſs, carry that meaſure to the Scale, and ſee how many Leagues or Miles it makes. If there's no Scale, you muſt meaſure the Diſtance by the Degrees on the Sides of the Map, reckoning 20 Leagues to a Degree. We ſhould be very well pleas'd to enlarge on the Uſe of the Terreſtrial Globe, or the Natural Hiſtory of the Earth, as Seas, Rivers, Mountains, *&c.* on the Ancient or Antediluvian World; on the ſeveral Diviſions of it by the Four Great Monarchies; but we do not think that has relation to *Geography*, ſo much as *Hiſtory* and *Phyſicks*. And for the ſame Reaſon we ſhall ſay nothing of the *Origin of Mankind*, *and Peopling of the World*; becauſe, however uſeful ſuch things may be in Works of great Length, they cannot be of any Uſe in ſuch an Eſſay where we cou'd ſay ſo little of any of 'em, and ſhou'd keep cloſe to *Geography*.

Of the ſeveral Parts of the Earth and Water.

Tho' we have already divided the Earth by the vaſt Ocean, we muſt again ſpeak of both the Dry and Liquid World, and bring both to Particulars. The Parts of the Earth or Land are *Continents, Empires, Kingdoms, Iſlands, Peninſula's, Iſthmus's, Coaſts, Capes, Mountains, Plains*, &c. Thoſe of the Water are the *Ocean, Seas, Guls, Streights, Rivers, Lakes*, &c. *The Continent* is a great Part of the Globe; which contains ſeveral Empires, Kingdoms and States together, as *Europe*, *Aſia* and *Africa*. An *Empire* or *Kingdom* is an extent of Country, containing ſeveral Provinces ſubject to an Emperor or King. An *Iſland* is a Part of the Earth ſurrounded entirely by Water. A *Peninſula* is a Part of the Land which is almoſt but not quite ſurrounded by Water. An *Iſthmus* is that Part or Neck of Land, which joins a *Peninſula* to the Continent. *Coaſts* are the Land that borders on the Sea. *A Cape* or *Promontory* is a Part of Land which runs out into the Sea, and is alſo call'd a Head or Point, *&c.* *Mountains* are high Parts of the Earth, diſtinguiſh'd from Hills only by being higher. A *Plain* is a great Extent of Land without Mountain or Hill. The *Ocean* is the Water which ſurrounds the Earth. It goes by ſeveral Names according to the ſeveral Countries it borders on, or other Accidents which has given 'em to it. *Seas* are great *Concourſes* of Water; of which the greateſt Part fall into the *Ocean*, for they do not all, ſome being like *Lakes*, as the *Caſpian* particularly. The Term *Sea* is more general than that of *Ocean*; for the *Ocean* can any where be call'd *Sea*, and a *Sea* no where be term'd *Ocean*. A *Sea* is ſaid to be bottomleſs when there's above 200 Fathom Water. A *Gulph* is a great Part of the *Sea* running into the Land; 'tis call'd a *Bay*. A *Port* or *Harbour* is a little *Gulph*. A *Road* is leſs than a *Port*; and only a Part of a *Coaſt* where Ships can ride ſhelter'd from the Wind. A *Streight* is an Arm of the *Sea* between Two Points of Land, but far diſtant from each other, by which Two *Seas* often join: 'Tis alſo call'd *Boſphorus*, *Channel, Faro*, &c. *Rivers* are diſtinguiſh'd by the *French* into *Fleuves* or great *Rivers*; and *Rivers* properly ſo call'd by us. A *Fleuve* is a Current of Water; which keeps its Name from its Source to the *Sea*. A *River* is a Current of Water which loſes its Name in ſome other *River* before it reaches the *Sea*. A *Lake* is a Maſs of Water leſs than a *Sea*; which ſometimes falls into it by a *River* or *Streight*. *Lakes* differ from *Marſhes*, in that the latter are not always full of Water. There are in the *Sea* Shelves, which are Rocks, above Water or under Water, and Banks of Sand, on which Ships are caſt away; Whirl-Pools, in which Ships are ſometimes ſwallow'd up. All theſe Parts are generally mark'd on the *Maps* only by the firſt Letter of their Names. Theſe Things as common as they ſeem will find ſome Readers that cou'd not have rightly diſtinguiſh'd them, and in mentioning them we follow *Bion, Robbè*, and others that have gone before us.

Of the general Diviſion of the Earth.

The Earth is divided into Three Principal Parts; The Old World; The New; and the *Terra Incognita*. The Firſt, which is the Continent of *Europe*, *Aſia* and *Africa*, is the Superior Hemiſphere; Superior with reſpect to us. The Second, which is *America*, is in the Inferior Hemiſphere; and the Third comprehending the Artick and Antartick Lands, is in both Hemiſpheres. The *Iſlands* are reckon'd appertaining to ſome Continent or other. We ſhall now proceed to the Particulars of this general Diviſion. And Firſt,

Of Europe.

As to the Ancient Geography of the World in General, or *Europe* in Particular, being ſo much confin'd as we are, it will not be look'd for from us that we ſhou'd enter on Diſſertations of that kind, ſo we ſhall come immediately to what we are more nearly concern'd in, Modern *Europe*. Tho' 'tis the leaſt it is the moſt valuable Part of the World; if we conſider it as to its Temperance, Fruitfulneſs, and the Number of its Inhabitants. 'Tis ſituate almoſt in the Temperate *Zone*, which gives it a great Advantage over any other Quarter of the Globe.

It retains its old Name from *Europa*; whoſe Fable with *Jupiter* is ſo well known. The *Aſiaticks* and *Africans* call us *Europeans* by ſeveral Names, as *Francks*, *Romæi* or *Cauri*, Infidels; which Compliment we do not fail to return to them. The *Æthiopians* term us *Alfrangues*, and others *Dzinzis*, *Pagans*. For tho' we have reaſon to believe they are Pagans and Infidels, ſo ſtrong is the Deluſion of Education, they fanſie we are ſo, and think they have Reaſon on their ſide.

Europe is bounded on the *North* by the *Frozen* or *Hyperborean Ocean*; on the *Weſt* by the *Atlantick*; on the *South* by the *Mediterranean*; on the *Eaſt* by 1. The *Archipelago*; 2. The *Helleſpont*; 3. The *Propontis*; 4. The *Thracian Boſphorus*; 5. The *Euxine*; 6. The *Cimmerian Boſphorus*; 7. The *Palus Mœotis*; 8. The *Tanais*; 9. A Line drawn from the Eaſterly turnings of that River to the *Obi*; 10. A Line from the *Obi* to the Northern *Ocean*, between the *Streights* of *Weigatz*, and the Mouth of that River. *Geographers* are divided as to the Length and Breadth of *Europe*. The Length is generally reckon'd from Cape St. *Vincent*, to the Mouth of the *Obi*; which according to *Sanſon* is 55 Degrees, or 3300 *Italian* Miles. The Breadth is by ſome computed from Cape *Matopan* in the *Morea*, to the North Cape in *Norway* 2200 *Italian* Miles. *Sanſon* makes the Breadth 2280 Miles.

As to its Quality. The Air is by its Situation Mild and Temperate. The Earth abounds in all ſorts of Grain, Wine, Fruit and Cattle. There are few Mines of Silver and Gold; its Commerce more than makes amends for that want. For whom are the Bowels of *America* torn up but for the *Europeans*? For whom do the *African* Rivers roll down their Golden Sands? For whom do the *Indian* Groves bear their Fragrant Spices but for the *Europeans*? Who has more than once been Miſtreſs of the other Parts of the Old World, and is now Empreſs of the New? The *Aſſyrian* and *Perſian* Monarchies were confin'd to *Aſia*, and not to all *Aſia*, with a ſmall Part of *Africk*. But the *Macedonian* and *Roman* Monarchies extended their Dominion to the *Indies*. We ſhall ſay ſomething further of its Fertility, when we come to ſpeak of the particular Countries.

The moſt remarkable Rivers in *Europe* are, The *Danube* in *Turkey*; The *Volga* and *Don* in *Muſcovy*; The *Nieper*, and the *Viſtula* in *Poland*; The *Oder*, the *Elbe*, and the *Rhine* in *Germany*; The *Loyre* in *France*; and, The *Thames* in *Great Britain*; to which may be added, The *Tagus* in *Spain*.

We now come to the manners of the Inhabitants, which differ according to the difference of the Countries. Their Valour, as has been hinted, twice ſubjected the whole World, at leaſt as much as was worth ſubjecting. *Brietius* tells us, The *Saracens* own Four remarkable Qualities in *Europe*; 1. That 'tis very Fruitful; 2. That it breeds Warlike Inhabitants; 3. That they are very Religious; 4. That they are fit to govern the reſt of the World; which coming from the Mouth of our Enemies will be a ſufficient Character.

Europe is lamented for the Diviſions in Religion among the Inhabitants, and true it is ſince the greateſt Part profeſs the Chriſtian which was preach'd by God Himſelf: 'Tis great pity they have not hit on one Standard. But are not all the other Parts of the World not only to be lamented for their Ignorance of this true Religion, but alſo for the Diviſions among them? And who will pretend to affirm that the Religions in *Aſia*, *Africa* and *America* are not infinitely more different from each other than the ſeveral Sects of Chriſtianity, who agree in the main Point, the Worſhip of one Holy Trinity. According to the preſent Diviſions, *Popery* and *Proteſtantiſm* are the chief. We ſhall not here attempt to make a Compariſon between the one and the other as to Strength or Riches, tho' 'tis not ſo eaſie as ſome imagine to prove the Papiſts have the Advantage in both of the Proteſtants; but we'll give Popery the Precedence out of civility to her Elderſhip as ſhe calls it, tho' indeed 'tis a Modern Religion; and the Reform'd as old as Chriſtianity itſelf. The Popiſh Religion prevails in *Italy*, *France*, *Spain*, *Portugal*, thoſe Parts of *Germany* belonging to the Houſe of *Auſtria*, the Electorate of *Bavaria*, the Three Eccleſiaſtical Electorates, and the *Spaniſh Netherland*, *Poland* and Part of *Hungary*; let the Papiſts make the moſt of them there's their Strength. The Reform'd Religion is profeſs'd in *Great Britain* and *Ireland*, which are firſt nam'd as being the Defenders of the Faith; in Part of the Imperial free Cities, the Electorates of *Brandenburgh*, *Saxony*, *Hanover*, the *Palatinate*, the *United Provinces*, *Swiſſerland*, the *Vallies* of *Piedmont*, in the Kingdoms of *Denmark*, *Norway* and *Sweden*; there's the moſt of it, let any one undertake the Parallel. The *Greek* Church is continu'd but with many Corruptions in *Greece*, Part of the neighbouring Iſlands, *Muſcovy*, and ſome Deſpoties in the *Eaſt*.

The *Mahometan* Religion is only profeſs'd in *Europe*, where the *Turks* are Maſters. The *Jewiſh* is a Vagabond Religion, and hated where ſuffer'd; which are not in many Parts of *Europe*, at leaſt not by Authority.

Europe, as to Government, is divided into Empires, Kingdoms, Republicks, and Principalities. The Empires are Three; *Germany*, *Muſcovy* and *Turkey*. The Kingdoms 10; *Great Britain* and *Ireland*, *Spain*, *France*, *Portugal*, *Hungary*, *Bohemia*, *Poland*, *Sweden*, *Denmark* and *Norway*, *Pruſſia*; which laſt ought to be added, that Monarch being much more powerful than ſome of thoſe who precede by Antiquity. The Common-Wealths are the *United Provinces*, *Swiſs Cantons*, *Venice*, *Genoa*, *Lucca* and the Diminutive *Republicks* of *Raguſa* and *San Marino*. The Principalities are what the Pope has uſurp'd by the Name of St. *Peter's* Patrimony. The Dukedoms of *Savoy*, *Tuſcany*, *Modena*, *Parma*, *Mantua*, *Mirandola*, *Moldavia*, *Wallachia*, *Malta*, *Lorain*, *Courland* and *Leſſer Tartary*. The Electorates ſome add, which are Nine; *Mentz*, *Cologne*, *Triers*, *Bohemia*, *Bavaria*, *Saxony*, *Brandenburgh*, *Palatine* of the *Rhine*, *Hanover*.

The chief Languages ſpoken in *Europe*, are the *Italian*, *Spaniſh*, *French*, *Engliſh*, *High Dutch*, *Low Dutch*, *Daniſh*, *Sclavonic*, *Modern Greek*, *Tartarian*, *Albanian*, *Finnick*, *Hungarian*, *Iriſh*, *Britiſh*, *Biſcaian* and *Arabic*, in Part of *Spain*. The Names of theſe Languages will ſhew where they are ſpoken.

The Geographical Diviſion of *Europe* is into 13 principal Parts; Five which run from Weſt to Eaſt, as *Spain*, *France*, *Germany*, *Poland* and *Moſcovy*; Four to the *South*, as *Italy*, *Hungary*, *Turkey* in *Europe* and *Greece*; Four to the *North*, the *Britannick Iſles*, *Denmark*, *Norway* and *Sweden*; of all which a few Words in their order, as taken from Monſ. *Bion*, which ſeems to be Natural enough.

Spain

Is the moſt Weſtern Kingdom of *Europe*, call'd *Iberia* by the *Romans*, and, ſays my Author, *Spaina Rare* by the *Chaldees*, *à cauſe qu il n'eſt querepeuple*, becauſe 'tis thin of People. 'Tis 660 Leagues long from Cape *Finis terra* in *Galicia* to Cape *Creuz* in *Catalonia*, and 510 broad from the *Straights* Mouth to Cape *Pennas* in *Eſturia*.

'Tis bounded on the Eaſt by the *Mediterranean Sea*, on the South by the ſame Sea and the *Straights* of *Gibraltar*, on the Weſt by the Ocean, on the North by the Ocean and the *Pyrænean* Hills.

The Air is hot, the Ground generally dry, and little Corn grows there, but Wine, Fruit and Olives in Abundance. Horſes call'd Gennets are numerous here, and famous all over the World for their Swiftneſs.

The Rivers are the *Ebro*, the *Guadalquavir*, the *Guadiana*, the *Tagus*, the *Douro*, the *Minho*, and the *Arga*, which gives Name to *Aragon*.

Its Government is Monarchical. The King do's what he pleaſes if the Grandees may do what they pleaſe. The Cortez or States have little more Power than the Parliament of *Paris*. The People are Proud and Lazy, they are Sober and the moſt Superſtitious of Mortals. The Country is ſo little Inhabited that 'tis ſaid, There never was an Army of 8000 Native *Spaniards*, of *Spaniſh* Origin, in the Field together. 'Tis divided into the following Kingdoms.

The Kingdom of *New Caſtile*, of which *Madrid* is the Capital, and of the *Spaniſh* Monarchy.

The Kingdom of *Old Caſtile*, of which *Burgos* is the Capital.

The Kingdom of *Leon*, the Capital *Leon*.

The Kingdom of *Galicia*, *Compoſtella* the Capital.

The Kingdom of *Navarre*, of which *Pampelona* is Capital.

The Kingdom of *Arragon*, of which *Saragoſſa* is Capital.

The Kingdom of *Valencia*, of which *Valencia* is Capital.

The Kingdom of *Granada*, of which *Granada* is Capital.

The Kingdom of *Murcia*, of which *Murcia* is Capital.

And the following Provinces *and* Iſlands.

The Provinces of *Eſtramadura* in *Caſtile*, the Capital *Badajox*.

The Province of *Aſturias*, the Capital *Oviedo*.

The Province of *Biſcay*, the Capital *Bilbao*.

The Province of *Alava*, the Capital *Vittoria*.

The Province of *Guipuſcoa*, the Capital St. *Sebaſtian*.

The Province of *Catalonia*, the Capital *Barcelona*.

The Province of *Andalouſia*, the Capital *Seville*.

Iſles,		
Majorca,	The Capitals	*Majorca*,
Minorca,		*Citadella*,
Ivica,		*Ivica*.

Of Portugal,

Reckon'd part of *Spain* in antient Times; 'twas by the *Romans* call'd *Luſitania*: It lies on the Weſtern Part of *Hiſpania*; 'tis 330 Miles long, and 150 broad, bounded on the *North* by *Galicia*; on the *Eaſt* by the Kingdom of *Leon*, the Two *Caſtiles* and *Andalouſia*, on the *South* and *Weſt* by the *Ocean*. The Air is not ſo hot as in *Spain*; the Country mountainous and barren of every thing but Wine and Fruit; its principal Rivers are the *Tagus*, *Guadiana*, *Douro*, *Minho*, *Lima*, *Mondego* and *Cadovo*. 'Tis divided into ſix Parts.

Eſtramadura the Capital; of which is *Lisbon* the Capital of the Kingdom.

Traloſmontes,	The Capital	*Bragantia*,
Entra Douro, and *Minho*,		*Braga*,
Beira,		*Coimbra*,
Alentejo,		*Evora*,
The Kingdom of *Algrava*,		*Silves*.

Of France.

It is a difficult Matter to give a tolerable Deſcription of ſo large a Country in the Compaſs of all this Eſſay; beſides, to deſcribe it as the *French* Geographers did 20 Years ago, we muſt make its Territories much larger than they now are, and probably they will be leſſen'd before theſe Sheets have paſt the Preſs.

'Twas anciently call'd *Gaul*, and receiv'd its preſent Name from the *Franks*, a *German* Nation, who overran it much about the Time that the *Saxons* invaded *England*; 'tis 540 Miles from the *Pyrenean* to *Calais* South and North, and 600 Miles from *Point Coquet* in *Britain*, to *Seralbe* in *Lorrain*. 'Tis bounded on the North by the *Britiſh Channel* and the *Low Countries*; on the Eaſt by *Germany*, *Swiſſerland*, *Savoy* and *Piemont*, from which 'tis divided by the *Alps*; on the South by the *Mediterranean Sea*, and the *Pyrenean* Hills which divide it from *Spain*; and on the Weſt by the *Ocean*. The Air is good, the Country Fruitful, and the People eſtimable for many good Qualities, did not their Vanity and Levity over-balance all of 'em; at leaſt, in much the major Part of the People of all Qualities. Its principal Rivers are the *Loyre*, the *Seine*, the *Garonne*, and the *Rhoſne*. Its Government is Monarchical. The preſent *French* King and his Father entirely deſtroy'd the Remains of the People's Liberty. There has been no Aſſembly of the States for near 100 Years, and none is there like to be. *France* was formerly divided into

Twelve Great Governments or Provinces.

Picardy,	Capital	*Amiens*,
Normandy,		*Roan*,
Iſle of France,		*Paris*, the Capital of the Kingdom.
Champagne,		*Troyes*,
Bretagne,		*Rennes*,
Orleannois,		*Orleans*,
Burgundy,		*Dijon*,

Lyonnois,

	Capital
Lyonnis,	*Lyons,*
Guyenne,	*Bourdeaux,*
Languedoc,	*Toulouſe,*
Dauphine,	*Grenoble,*
Provence,	*Aix,*

What follows, the preſent *French* King contrary to the moſt ſacred and ſolemn Oaths, ſeiz'd and added to *France*; they belong to *Spain* and *Germany*, and *Burgundy* is diſputable.

The *Franche Comté,*	*Dole,*
Flanders,	*Tournay,*
Luxemburgh,	*Luxemburgh,*
Hainault,	*Valenciences,*
Cambreſis,	*Cambray,*

Part of *Flanders* and *Alſace*, with all *Lorrain*; which is put in ſome late Accounts of *France*, he has loſt, and being ſtill loſing, 'tis to be hop'd a leſs Map will ſerve for him in a little time than ſerv'd for his Grand-father. There Great Governments are divided into Leſs; but we cannot particularize 'em.

Germany.

The difference amongſt Authors concerning the Etymology of the Name, hinders us from meddling with it all. 'Tis 720 Miles from Eaſt to Weſt, that is, from the Source of the *Viſtula* to *Beaurains* in *Artois*, and 600 Miles from South to North, from the *Lake de Locarn*, near the *Milaneſe* to the *Baltick Sea.* It is bounded on the North by the *Ocean*, *Denmark*, and the *Baltick*; on the Eaſt by *Poland* and *Hungary*; on the South by *Italy*; and, on the Weſt by *Savoy*, the *French* County and *Lorrain* which ſeparate it from *France*. The Soil is very fruitful, eſpecially in the South, about the *Danube*, where the Air is very temperate. In the North 'tis cold, and the Soil not ſo fertile; 'tis full of Great Cities, and the whole Country very populous. Many are the Rivers with which 'tis water'd; ſome of 'em very famous, as the *Danube*, the *Rhine*, the *Meuſe*, the *Weſer*, the *Elbe*, the *Oder*, the *Drave*, the *Save*, the *Inn*, the *Mein*, &c. Its Government is various; but the whole Empire owe a Homage to the Emperor, as well the Free Cities as the Soveraign Electorates, Dutchies, Principalities, &c. The People are Brave, Honeſt, Sincere, and want nothing but Politeneſs, which they rather deſpiſe than neglect. 'Tis divided into Ten Circles, as *Franconia*, *Bavaria*, *Auſtria*, *Suabia*, the *Upper Rhine*, the *Lower Rhine*, *Weſtphalia*, *Upper Saxony*, *Lower Saxony*, *Burgundy*.

The Latter Circle is not much concern'd in the Affairs of the Empire being almoſt entirely Subject to other Princes: But why may it not be again annex'd to it, at leaſt as much of it as is not under a better Government, that of the *States General.* This is the Old Diviſion of *Germany*; a more Modern and Natural One is as follows into

19 Principal Parts.

Towards the South.	*Auſtria*, and its Dependances, as	*Tyrol,* *Carinthia,* *Stiria,* *Carniola,* *Windiſmark.*
	Bavaria,	
	Suabia.	
In the Middle.	*Franconia,*	
	Heſſe,	
	Bohemia, with its Dependances, as	*Moravia,* *Sileſia.*
	Upper Saxony.	
On the North	*Brandenburgh,*	
	Pomerania,	
	Lower Saxony,	
	Weſtphalia.	
On the Weſt.	*Mentz,*	
	Triers,	
	Cologne,	
	Lower Palatinate,	
	Alſace,	
	Swiſſerland,	
	Cleves and *Juliers,*	
	Liege.	

There are in the Empire theſe following Sovereignties.

In *Bavaria*, Electorate of *Bavaria*, Capital *Munich*.

Dutchies,	Principalities,	Imp. Cities.	Forreſt Towns.
Newburgh.	*Saltsburgh,* *Augsburgh,* *Salsbach,* *Lutchlemburgh,* 3 Counts, 1 Provoſt Bertogaden.	*Ratisbonne,*	

In *Suabia*,

Wirtemburgh.	*Hohenzolleren,* *Furſtembergh,* *Burgaw,* Biſhop of *Dilling* or *Augsburgh,* Biſhop of *Conſtance,* 16 Abbots, 5 Abbeſſes, 8 Counts, 5 Barons, Grand Prior of *Maltha,* Provoſt of *Vetenhauſen.*	*Ausburgh,* *Ulm,* *Donawert,* *Weiſſemburgh,* *Nordlingen,* *Guemund,* *Hall,* *Rotweil,* *Retling,* *Hailbron,* *Eſling,* *Lindaw,* And 22 other Towns of leſs Note.	*Rheinfeldt,* *Sekingen,* *Sanfemburgh,* *Waldſhut.*

In *Franconia*.

Dutchies,	Principalities,	Imp. Towns.
Coburgh.	*Wurtzburgh*, Bp.	*Schwinfurt*,
	Cullembach,	*Nuremburgh*,
	Bambergh,	*Rotemburgh*,
	Onſpach,	*Winſheim*,
	Erpach,	
	6 Counts, &c.	

In *Heſſe* and *Weteravia*,

Caſſel Landgrave,	*Frankfort*,
Darmſtad Landgrave,	*Wetzlar*,
Waldeck,	*Fridbergh*,
Marpurgh Landgrave,	*Gelnhauſen*.
Hadamar,	
Solms,	
Hanaw,	
Fuld Abbot,	
Friſlar Baron.	
Naſſau,	
Dillenburgh,	
Siegen,	
Wisbaden,	
Weilburgh,	
2 Counts more.	

Bohemia is an Electorate Subject to the Emperor, Its Capital *Prague*.

In *Upper Saxony*.

Electorate of *Saxony*, Capital *Dreſden*.

Altemburgh,	*Snebergh*,	*Mulhauſen*,
Weimar,	*Plawen* Barony,	*Northauſen*,
Gotha,	*Mansfeld*,	
Eiſnach.	*Stolbergh*,	

Brandenburgh,

Now Erected into the Kingdom of *Pruſſia*.

This Kingdom conſiſts of ſeveral Large Countries in *Germany*, for *Pruſſia* was formerly reckon'd Part of the Empire, and ſome Territories without, the Chief of which is the

Marquiſate of *Brandenburgh* Electorate, Capital *Berlin*. Divided into

The Middle	Marquiſate, Capitals	*Berlin*,
The Old		*Stendel*,
The New		*Kuſtrin*,

Ducal *Pruſſia*,	Capital	*Koningsberg*,
Minden in *Weſtphalia*,		*Minden*,
Cleves	Dutchy	*Cleves*,
Meurs	County	*Meurs*,
Mark	County	*Dortmund*, *Hanſeatick*,
Ravenſpurg	County	*Ravenſpurg*.

In *Lower Saxony*,

Magdeburgh	*Magdeburgh*,
Halberſtadt	*Halberſtadt*,
Dutchy of *Lower Pomerania*	*Cammin*.

In *Swiſſerland*,

Neufchattell	*Neufchattell*.

The Succeſſion to *Orange*, and the Eſtate of the Late King of *Great-Britain*, to which this Prince has Pretences, and is in Poſſeſſion of *Meurs* and other Places, Parts of it, is not yet adjuſted. This King's Territories are Larger than that of any Prince of the Empire, except the Emperors. His Provinces are Populous and Rich, all but ſome Parts of *Brandenburgh*. His Subjects are Brave, Sober and Induſtrious: He can bring 80000 Men into the Field, and is more Powerful than either of the Two Northern Crowns. To proceed with the other Parts of *Germany*.

In *Pomerania*,

Dutchy	Principality	Imp.	Hans Towns
Stetin	*Gutzkow*	*Stralſund*	*Colnow*,
			Stargard.

In *Lower Saxony*,

Hanover Electorate, Capital *Hanover*.

Lunenburgh,	*Hildesheim* Bp.	*Goſlar*,
Zell,	*Roſtock*,	*Eimbeck*,
Brunſwick.	*Ratzeburgh*,	*Hamburgh*,
Wolfembuttel,	*Swerin*,	*Lubeck*,
Lawenburg,	*Guſtraw*,	*Hamelen*,
Grubenhagen,	*Plawen*,	*Staden*,
Gottinghen,	*Stargard*,	*Boxtehude*,
Ferden,		*Wiſmar*,
Meckkelburg,		

In *Weſtphalia*.

	Imp.	
Munſter, Bp.	*Herwoden*,	*Coesfeld*,
Bentheim,	*Bileweldt*,	*Hans*,
Lingen,	*Braczel*,	*Unna*,
Oſnaburgh, Bp.	*Warpurg*.	*Dortmund*,
Embden,		*Zoeſt*.
Teklemburgh,		
Lippa,		
Diepholt,		
Oldemburgh,		
Hoye,		
Schaumberg,		
Delmenshort,		
Paderborn, Bp.		
Corvey, Ab.		
Arensberg.		

In the Three Eccleſiaſtical Electorates,

Mentz,	Capitals of the ſame Name.
Treves,	
Cologne,	

Manderſchiet,	*Friedberg*,
Prum, Ab.	*Spire*,
	Phillipsburg,
	Worms,
	Briſac,
	Friburgh.

In the *Lower Palatinate*,

Electorate, Capital *Duſſeldorp*.

Deux Ponts,	*Baden Baden*,
Simmeren,	*Baden Dourlach*,
Birkenfeld,	

	In *Aſace,*	*Strasburgh,* and
	In *Cleves,*	*Duysburgh,*
	Werden, Ab.	*Eſſen,*
Berg.	In *Juliers,*	*Aix la Chapelle.*

Thus there are 21 Dukes, 57 Princes Sovereign, beſides many more not worth naming, 37 Imperial Cities of Note, and almoſt as many leſs ones, 17 Large Hans Towns, beſides the Electors in the Empire, which is ſufficient to give the Reader an Idea of its Strength; *Livonia* was formerly reckon'd Part of *Germany* as it is now.

The Dioceſs of *Liege*, the Capital of which goes by the ſame Name.

Of the Netherlands.

This Part of *Europe* was by the *Romans* call'd *Belgium*, or rather the Inhabitants *Belgium*, and was under ſeveral Soveraigns for many Ages after the Diſſolution of the *Roman* Empire. The Dukes of *Burgundy* poſſeſs'd the whole

Seventeen Provinces, which are divided into
10 *Spaniſh*, and
7 *Dutch*, the *States-General* having been Sovereigns about 130 Years.

The 10 *Spaniſh* are,

Brabant Dutchy,	Capital	*Bruſſels,*
Luxemburgh Dutchy,		*Luxemburgh,*
Limburgh Dutchy,		*Limburgh,*
Marq. of *Antwerp,*		*Antwerp,*
Flanders County,		*Ghent,*
Namur County,		*Namur,*
Hainault County,		*Mons,*
Artois County,		*Arras,* Seiz'd by *Fr.*
Mecklin Lordſhip,		*Mecklin,*
Cambray, Arch-Bp.		*Cambray,*Seiz'd by *Fr.*

Some add *Cambray* to *Hainault*, and put *Liege* in the Place of it; ſome add *Gelderland* and leave out both *Liege* and *Cambray*; but we have taken the latter becauſe *Liege* is more generally reckon'd in *Germany*, and *Gelderland* in the *Dutch* Territories, to which it belong'd moſt before this War; and 'tis probable may remain entire in their Poſſeſſions as it is now as long as the Living Geographers ſhall write, if not as long as Geography ſhall be written.

The 7 *Dutch*, or *United Provinces*,

Holland,	Capital	*Amſterdam,*
Zealand,		*Middleburg,*
Friſeland,		*Lewarden,*
Groeningen,		*Groeningen,*
Overiſſell,		*Daventer,*
Gelderland,		*Gelder,*
Utrecht,		*Utrecht.*

Of Swiſſerland.

The *Swiſs Cantons* and their Allies have been Soveraigns of the Country that goes by this Name about 300 Years. We have not mention'd any Part of the Hiſtory, nor the Extent, nor the Boundaries of theſe Particular States, becauſe they are in our Diviſion of *Europe* included all in *Germany*, of which they were a Part long ſince *Charlemagne's* Time; and this we were oblig'd to omit for the ſame Reaſons that made us omit other Things. The *Swiſs* are a hardy Nation, War is a Trade with 'em, they having more Mouths than Bread, and more Men than Money; *France* and *Holland* buy the Latter with almoſt as mean a Traffick, with Reſpect to the *Swiſs*, as the *African* Kings deal with our *Weſt India* Merchants. The Latter Sell their Subjects to work for others, the *Swiſs* Sell theirs to Murder for others: Proteſtant Cantons Sell Soldiers to the *French* King to fight againſt Proteſtants; Popiſh Cantons are a little more reſerv'd, and ſeldom Sell their Men to any but Papiſts; 'tis a Poor Mountainous Country, having no Trade, no Manufactures, and almoſt no Corn. They live hard, and having little, little do's. There's many a Farmer in *England* that keeps a better Table than a *Swiſs Conſul*, and many a Town in *Holland* that cou'd buy a Canton; If ſuch Men cou'd not fight they muſt ſtarve; and their Bravery therefore is rather Neceſſity than Courage. Enough of them. The *Bernois* are the moſt Rich, Generous, Populous and Valuable State. *Swiſſerland* is divided into

13 Cantons.

Zurich,	Proteſtants. Their Capitals of the ſame Name.
Bern,	
Baſil,	
Schaffouſen,	

Theſe 4 are much ſtronger than all the reſt, *Bern* itſelf being a Match for the others.

Lucern,	Popiſh, Capital	*Lucern,*
Friburgh,		*Friburgh,*
Soleurre,		*Soleurre,*
Uri,		*Altorf,*
Schwitz, which gives Name to the reſt.		*Schwitz,*
Underwald,		*Stantz,*
Zug,		*Zug,*

Glaris,	Proteſtants and Papiſts, Capitals of the ſame Name.
Appenzell,	

The Swiſs Allies.

The *Griſons,*
The 10 *Communities,*
The *Vallteline,*
The Republick and Abbot of St. *Gall,*
The Biſhopricks of *Conſtance,*
of *Baſle,*
of *Coire,*
The Towns of *Mulhauſen,* Imp.
of *Rotwell,*
of *Neufchattel,*
of *Vallingen,*
Republick of *Biel,*
of *Geneva,*
The Valleys of *Sion,*

Subjects to the Swiſs.

The County of *Baden,*
The Provinces of *Mejemberg, Richeuzee, Ergow, Raperſwil, Turgow, Rhemthal,* and theſe Governments in *Italy,*
Lugan,
Lucerne,
Mendriſt,
Val Madie,
Bellinzone.

Thus we may ſee if they were United by Affection as well as Leagues, they wou'd be a Formidable Power.

Of

Of Poland.

This Kingdom was the *Sarmatia* of the Ancients. 'Tis in Length from the Frontiers of *Brandenburgh*, to the Frontiers of *Little Tartary*, 710 Miles without including *Courland*; which wou'd lengthen it to near 800 Miles. In Breadth from the Mountains of *Tranſilvania*, to the Dutchy of *Courland*, 600 Miles. 'Tis border'd on the North by the *Baltick*, *Livonia* and *Muſcovy*; on the Eaſt by *Muſcovy* and *Little Tartary*; on the South by *Moldavia*, *Tranſilvania* and *Hungary*; on the Weſt by *Germany*. The Air is different as muſt neceſſarily be in ſuch an Extent. The Country, eſpecially towards the North, abounds with Corn, which ſupplies great Part of *Europe*, from *Dantzick* in ſcarce Years; *Lithuania* is reckon'd unhealthy.

The principal Rivers are, the *Viſtula*, the *Wurt*, the *Bug*, the *Niemen*, the *Dune*, the *Nieper*, the *Nieſter* and the *Bog*.

'Tis divided into theſe *Palatinates* and *Provinces*.

The *Palatinate* of *Upper Poland*. The Capital *Cracow*.

Sendomir,
Lublin,
In *Royal Pruſſia* {*Mariemburgh*, *Dantzick*,
Elbing,
Culm,
Seradia,
Lamcici,
Kaliſh,
Poſnia,
Rava,
Wladiſlaw,
Bizeſtye,
Ploskow,
Dobrizin,

In *Lithuania*, the *Palatinates* of *Wilna*,
Troko,
Novogrodeck,
Minski,
Zluckz,
Braſlaw,
Poloczk,
Witepsk,
Mſciſlaw,
In *Volhinia*, the *Palatinate* of *Luzuck*.
In *Podolia*, the *Palatinate* of *Kaminieck*.
In the *Ukraine*, the *Palatinate* of *Braclaw*.
In *Poliſh Ruſſia*, the *Palatinate* of {*Bialogrodko*, *Lwow*, *Biel*, *Chelm*,
In *Mazovia*, the *Palatinate* of *Warſovia*.
In *Polachia*, the *Palatinate* of *Belsk*.
In *Poleſia*, the *Palatinate* of *Breſſici*.

Theſe *Palatinates* either take their Names from their Capitals, or they are ſuch Towns as Geographers have not thought fit to mention.

Samogitia is a Dependant of *Poland*. Its Capital *Medniki*.

The Dutchy of *Courland*, which includes *Semigallia*, tho' govern'd by a Sovereign Duke, is one of its Dependancies alſo.

The Capital of {*Courland*, *Semigallia*,} is {*Golding*, *Mittau*.

Of Muſcovy.

The *Sarmatiæ* inhabited this Country as well as *Lapland*. 'Tis honour'd with the Title of *Empire*, and the *Czar*, the Sovereign of it, looks on himſelf as Succeſſor to the Eaſtern Emperors, and with as much Reaſon as the Emperor of *Germany* calls himſelf the *Roman* or Weſtern Emperor; for after a Chaſm of 350 Years, in the Empire of the Weſt, it may very well be look'd upon as diſſolv'd, and the Pope's crowning *Charlemagne*, King of the *Franks*, gave him no more Title to the Empire of the *Romans*, than the pretended Donation of *Conſtantine* to *Silveſter*, gives the Pope to *Rome*, and the Territories of the Church. This is the moſt Eaſterly and moſt extenſive Part of *Europe*, and the *Czar* is Maſter alſo of ſome Kingdoms in *Aſia*, which we will mention here that the Reader may have a glance of his Dominions at once. The Empire of *Muſcovy*, including the *Czar's Aſiatick* Territories, is 3600 Miles long, and 1200 in breadth. 'Tis bounded on the North by the *Frozen Sea*; on the Eaſt by *Great Tartary*; on the South by the River *Don*, and *Little Tartary*; on the Weſt by *Poland*, *Sweden* and *Norway*. The Weſtern Parts are populous and fruitful; the Northern frozen and barren; the Eaſtern wild and woody; the Southern pretty populous and not unfruitful. The greateſt Rivers in *Europe*, if not in the World, flow thro' this Empire. The *Volga* runs 1800 Miles at leaſt; the *Don* is a very large River, as are the *Dwina*, the *Obi* and *Jeneſci*. 'Twou'd be endleſs if we ſhou'd pretend to mention all the ſmall Rivers. The People are much refin'd under the Government of the preſent *Czar*, who has taught 'em Military Diſcipline, and built Ships of War. In the Northern Parts his Subjects are brutal to horror, and Worſhip no God; but ſome Idol ſet up by their Fears. 'Tis divided into three Kingdoms and 36 Principalities.

Principalities, In Europe, In Lapland.

Moskow,
Roſchow,
Twere,
Roſtow,
Jaroſlaw,
Suſdal,
Niſi Novogrod,
Wolodimir,
Rezan,

Worotin,
Bielski,
Smolensko,
Sevier, *Novogrodeck*, Cap.
Kiow Part of
Novogrod Wel.
Pleskow,
Bieloſero,
Wologda,

Uſtioug,
Wiatka,
Perma,
Petzora,
Julera,
Condora,
Duina Archangel, Cap.
Kargapol.

In Lapland.		
Mouremanskoi,	Capital	*Kola*,
Terſhoi,		*Jokena*,
Bellamoreskoi,		*Kandalas*,

The Capitals are mention'd where of different Names.

Kingdoms and Principalities in *Aſia*.

Kingdoms.

Aſtracan,
Cazan,
Bulgar,
Capitals of the ſame Name.

Principalities.	Capital
Nagaiski,	*Karmanian*,
Vachines,	*Cameni*,
Zavolba Horda,	*Weleki Pernica*,
Pega Horda,	*Paſcorti*,
Siberia,	*Tobolsk*,
Obdora,	*Pohem*,
Lucomoica,	*Comgoſcoia*,
Loppia,	*Boſonia*.

Beſides which there are Nations call'd *Peoples*, *viz.* *Samoyedes*, *Tingoeſes*, *Scibanski*, *Giuſtiuski*, *Calaſmi*, *Hugritski*, *Vooulici*.

Having gone thro' the Eaſtern Diviſion of *Europe*, we come now to the Southern, where firſt we meet with

Italy.

'Tis ſo well known that this was the Seat of the *Roman* Empire, and the ancient Inhabitants the *Romans*; that there's no King in all this Part of *Europe*; that the *Italians* are divided into ſeveral Dukedoms and Principalities; that the Pope is Maſter of *Rome*, and ſeveral Provinces; that the *Italians* are all Papiſts except a few Poor People Subjects to the *Swiſs*, and the Duke of *Savoy*; that they are Poor and Slaves, and tho' in poſſeſſion of the fineſt Spot of Ground upon Earth, the moſt Miſerable Nation. That they have nothing to boaſt of but the Ruins of old *Rome*; their Painting, Muſick and Architecture. In ſhort, that there's no Country in Chriſtendom ſo much travell'd thro' on the Account of the Latter, nor more particularly deſcrib'd, ſo we ſhall ſay nothing of all thoſe things but proceed.

Italy is in Length from *Lauſet*, in the Principalities of *Barcelonetta* to *Otranto*, in *Calabria*, 720 Miles; its Breadth is ſo irregular that 'tis not to be determin'd. 'Tis bounded on the Weſt and South by the *Mediterranean*; on the North by the *Alps*, dividing it from the Territories of the Houſe of *Auſtria* in *Germany*, and on the Weſt by the ſame Mountains, and the River *Var* which ſeparate it from *France* and *Savoy*.

Its principal Rivers are the *Po*, the *Adige*, the *Adda*, the *Teſin*, the *Arno*, and the *Tiber*. It is full of Lakes and Rivulets; Wine and Fruit are plenty beyond belief. 'Tis divided as follows.

The Capital *Rome*.

The State of the Church.	
Dukedom of *Tuſcany*.	*Florence*.
Kingdom of *Naples*.	*Naples*, ſubject to *Spain*.
Republick of *Venice*.	*Venice*.
Biſhoprick of *Trent*.	*Trent*.
Dutchy of *Milan*.	*Milan*, ſubject to *Spain* and *Savoy*.
Dukedom of *Savoy*.	*Chambery*, ſubject to the Duke of *Savoy*.
Principality of *Piemont*.	*Turin*,
Dukedom of *Montferrat*.	*Cazall*,
Dukedom of *Mantua*.	*Mantua*.
Dukedom of *Modena*.	*Modena*.
Dukedom of *Parma*.	*Parma*.
Republick of *Genoa*.	*Genoa*.
Republick of *Lucca*.	*Lucca*.
Republick of St. *Marino*.	St. *Marino*.

To which may be added ſome ſmall Principalities depending on the Emperor, King of *Spain*, or the Pope.

In *Modena*, Dukedom of *Mirandola*, *Nogara*.
In *Mantua*, Dukedom of *Guaſtalla*, Principalities of *Caſtiglione delle Stevero*, *Sabionetta*, *Bozzolo*.
In *Parma*, Dukedom of *Maſſa*, Principalities of *Carrara*, *Fordinouvo*,
Principalities of *Monaco*, *Piombino*.
Principality of *Meſſaran* in *Piedmont*.
Marquiſates of *Maleſpine*, *Torriglia*.
Porto Hercole, *Porto Longono*, on the Coaſts of *Tuſcany*, ſubject to *Spain*.

To *Italy* is generally annex'd the Iſland of

Sicily;

Which by ſome is imagin'd to have been divided from the Continent by a natural Irruption. It is 210 Miles in Length, and 150 in Breadth. 'Tis a fruitful pleaſant Iſland, ſubject to Earthquakes and Vulcano's. Its chief Rivers are the *Salſo*, *Dataino*, *Terinſeri*, *Betice*, *Platani*, *Traina* and *Catara*. 'Tis ſubject to the King of *Spain*, and divided into three Parts.

Val Di Mazara,	Capital	*Palermo,*
Val Di Demona,		*Meſſina,*
Val Di Noto,		*Syracuſa,*

There are ſome other Iſlands which lying off the Coaſts of *Italy*, are properly mention'd after that Part of the Continent; as,

Sardinia,

Subject to *Spain*. 'Tis 168 Miles long, and 90 broad. There are few Rivers in this Iſle; thoſe that are are ſmall, and the Water bad. The moſt remarkable are the *Thyrſo* and *Coquino's*. The Air is reckon'd unhealthy; but the Soil produces great Quantities of Corn, excellent White Wine and Oyl. The Corn is tranſported to thoſe Parts of *Spain*, where 'tis ſcarce and dear. 'Tis divided into two Parts, *Capo di Cagliari*, the Capital of that Diviſion, and the whole Iſland *Cagliari*, and *Capo di Logudori*; the Capital *Saſſari*.

Corſica

Is an Iſland belonging to the *Genoeſe*, to the North of *Sardinia*, from which 'tis ſeparated by a ſmall Paſſage of an Hour over. 'Tis 114 Miles from South to North, and 51 from Eaſt to Weſt. The Air is bad, and the Iſle very thin of People. The chief Rivers are the *Liamon*, the *Tavignian* and the *Golo*; the Capital is *Baſtia* a Biſhoprick. There are three or four other Epiſcopal Sees; but the Cities are in Ruins.

Maltha

Belongs to the Knights, from it term'd Knights of *Maltha*. The Ancients call'd it *Ogygia*, and it lies ſo near *Africa*, that it ſhou'd have been plac'd in that Diviſion of the World; but we were willing to rank it among Chriſtian Countries, as Geographers have taught us. 'Tis 21 Miles long, and 7 broad. The Air tho' hot is not unhealthy. It abounds moſt in Cotton and Honey. The Capital is divided into four Parts, which has each its particular Name, but it generally goes by that of *Valetta* the Chief of 'em; which Name it owes to the Houſe of *Valette* in *France*, One of which was great Maſter of this Iſle, and defended it reſolutely againſt the *Turks*.

Beſides theſe are the Iſles of *Lipari*; the Capital of which is a Biſhoprick of the ſame Name. There are ſeveral other ſmall Iſlands, not worth mentioning in ſuch a ſhort Eſſay, on the Coaſts of *Italy*.

Hungary

Is a large Kingdom, ſo call'd from the Ancient *Huns*: It has been ſubject to the Houſe of *Auſtria* ever ſince the Year 1527, when *Louis* the laſt King was ſtifled in a Bog after he had been routed by the *Turks*. And *Ferdinand*, Brother to the Emperor *Charles* V. was elected King; but the Infidels have almoſt ever ſince been at War with the Chriſtians for this Kingdom; of which they have been poſſeſs'd of more or leſs according as their Arms prevail'd or were unſucceſsful. *Hungary* is 300 Miles long, and 240 broad. 'Tis bounded on the Weſt by the Territories of *Auſtria*; on the North by thoſe of *Bohemia*; on the Eaſt by *Tranſylvania*; on the South by *Servia* and *Boſnia*. The Air is unhealthy; but the Soil fruitful. The principal Rivers after the *Danube* are the *Drave*, and *Save*, *Thyeſſe*, the *Mariſch*, the *Raab*, the *Vag*, the *Gran*, &c. 'Tis divided into *Upper Hungary* and *Lower Hungary*, as well as into Chriſtian and Turkiſh. The Capital of *Upper Hungary* is *Presburgh*; of *Lower Hungary Buda*. The *Turks* are now poſſeſs'd of very little of *Hungary*. The Treaty of *Carlowitz*, *Anno* 1698. ſhut 'em up in very narrow Limits on this ſide. Their Capital is *Warraden*, in *Upper Hungary*. As a Part of this Kingdom are by ſome reckon'd,

Eſclavonia,	Capital	*Zagrab,*
Croatia,		*Sigeb,*
Morlachia,		*Zegna.*

The *Turks* divide theſe Provinces with the Chriſtians; ſo we ſhall be oblig'd to ſpeak of 'em again.

Turkey in *Europe*.

The Name ſhews that 'tis that Part of it which is ſubject to the *Ottoman* or *Turkiſh Empire*; and it has been ſo ever ſince the Deſtruction of the *Greek Empire*. 'Tis 870 Miles from South to North without including *Tartary* or the Iſle of *Candia*, and 750 from Eaſt to Weſt. 'Tis bounded on the North by *Poland* and *Hungary*; on the Eaſt by the *Palus Mæotis*, the *Black Sea*, the Sea of *Marmara*, and the *Archipelago*; on the South by the *Mediterranean*; and, on the Weſt by the *Gulph* of *Venice*. The Air is mild and temperate, and the Soil tho' various, generally fruitful in every thing neceſſary for Life. The principal Rivers are thoſe mention'd in *Hungary*; which Water alſo the *Turkiſh European Empire*. The Capital of which is *Conſtantinople* in *Romania*. This *Empire* may be divided into 12 principal Parts.

2. Towards the South	*Romania* and	Capital	*Conſtantinople,*
	Greece,		*Salonike,*
4. In the Middle	*Bulgaria,*	Capital	*Sopia,*
	Servia,		*Semandria*
	Boſnia,		*Boſnia Serayo,*
	Part of *Eſclavonia,* with		*Poſega,*
	Part of *Croatia* and *Dalmatia,*		*Bigion,* *Scardona.*

4. To the North, now reduc'd by the Christians	Part of *Hungary*,	Capital	*Waradin*,
	Tranſylvania,		*Hermanſtadt*,
Deſpots Tributaries only	*Wallachia*,		*Tergowisk*,
	Moldavia,		*Sockzow.*

To theſe are added *Tartary*, and the Iſles of *Candia*, &c.

Tartary the *Leſs* is 744 Miles long, and 360 broad, including the *Krimee*. The *Cham* or *Emperor* is Tributary to the *Turk*. The Capital is *Kerim*, in the *Krimee*. 'Tis ſeparated from *Muſcovy* by the *Nieper* and *Don*, and from *Poland* by the *Nieper* and vaſt Mountains. *Aſoph*, the beſt City in this Dominion is now in the Hands of the *Muſcovites*.

Greece.

Under the *Turk*.

Romania or *Thrace*,	Capital	*Conſtantinople*,
Macedonia,		*Salonike*,
Theſſaly,		*Lariſſa*,
Achaya,		*Atines*,
Albama,		*Aleſſia*,
The Iſle of *Candia*,		*Candia.*

And the Iſles of the *Archipelago*.

Under the *Venetians*.

Epirus,	Capital	*Preveza*,
Poloponneſus, or the *Morea*,		*Modon*,
Iſle of *Negropont*,		*Negropont*,

The Republick of *Venice* poſſeſs alſo the Coaſts of *Dalmatia*, the Capital *Zora*, and ſeveral Iſlands, as *Corfou*, *Ceſalonia*, *Zant*, Capitals of the ſame Name.

The Republick of *Raguſa* on the Coaſt of *Dalmatia* is under the Protection of the *Turks*. We muſt now ſay a Word or Two of the Northern Diviſion of *Europe*. The principal Kingdom of which are,

The Iſle of Great Britain, *and the Iſles ſubject to it.*

England, and *Scotland*, } united in *Great Britain.*

No body will be contented with ſo ſhort an Account of our own Country as we have been oblig'd to give of others; ſo we ſhall refer the Reader to the Geography of it at large, and only take notice that *England* the greateſt of the Iſles, ſubject to the Britiſh Empire, is in Length 386 Miles, in Breadth 279, and is divided into 40 Counties or Shires. *London* is the Capital of this Kingdom and the Britiſh Empire, and for Extent, Beauty and Riches, may very well be eſteem'd the Capital of Chriſtendom. *Wales*, a Principality, annex'd to this Kingdom, is divided into 13 Counties, *Carmarthen* is reckon'd the beſt Town; but the Biſhop's Sees will not ſuffer it to aſſume that Name. *Scotland* is as long as *England*, but not ſo broad: It contains 35 Shires, the Capital *Edinburgh*. *Ireland*, ſubject to the Crown of *Great Britain*, is 300 Miles long, and 150 broad; *Dublin* the Capital. As to the Fertility of *Great Britain*, the Happineſs of the People in their mild Air and Government, their Trade and Wealth, their Learning and Arts, their Glory in War, and their Plenty and Peace; 'tis enough to ſay, They are the Terror and Envy of their Foes, and almoſt the Jealouſie of their Friends. The Rivers of *England* have not room to flow to as great a Length as others; but where is there one ſo well known as the *Thames*, the Queen of all her Streams. Where a finer one than the *Severn*, which Waters ſome of the moſt fruitful Valleys in the World. The *Trent*, the *Avon*, &c. in South *Britain*. The *Tay*, the *Tweed*, the *Spey*, &c. in North *Britain* or *Scotland*. The *Shanon*, the *Boyne*, the *Liffy*, &c. in *Ireland*, are Rivers which viſit as many great and populous Towns, and Water as fertile and pleaſant Countries as thoſe that wander hundreds of Leagues thro' many Parts of the Continent. We cou'd dwell with Pleaſure on ſo inviting a Subject; but muſt wait for a fairer Occaſion. There are ſeveral Iſlands belonging to *Great Britain* in the *Britiſh Channel*, the *Iriſh* and *Northern Seas*; which we wou'd have ſpoken of more particularly had we been leſs confin'd.

Of Denmark.

In this Part of *Europe* the ancient *Cimbres* dwelt, a barbarous People, who more than once made themſelves terrible to the *Romans*. The Kingdom properly call'd *Denmark*, is 270 Miles from South to North, and 150 from Eaſt to Weſt. 'Tis bounded on the North and Eaſt by the Sea, which parts it from *Sweden*, and by the *Baltick*; on the South by *Germany*, and on the Weſt by the *Ocean*. Tho' the Air is extremely cold, the Soil is fruitful, and the Paſturage plentiful and good. There are no Rivers of any note in *Denmark*; and but one ſpacious Lake which is in North *Jutland*. The *Danes* as to their Manners imitate the *Swedes* and *Germans*; but are reckon'd more Proud and Crafty. They are induſtrious and good Husbands. They love the Sciences; but ſays my Author, They love Wine and good Chear much better. The Kingdom is generally divided into South *Jutland*, North *Jutland* and *Zealand*, and the Iſles. *Holſtein* is in South *Jutland*; *Rypen* is the Capital of North *Jutland*, and *Copenhagen* of *Zealand*; which is alſo the Capital of this Monarchy. The leſs Iſles are about 16 in Number, and the principal next to *Zealand* is *Funen*.

Norway

Is a Kingdom ſubject to the King of *Danmark*. 'Tis 700 Miles long where longeſt, and 150 broad where broadeſt. 'Tis bounded on the North, Weſt and South by the *Ocean*, and Eaſt by ſome Lakes and a Ridge of Mountains, which divide it from *Sweden*; to which Kingdom one of the Five Governments into which *Norway* is divided belongs.

The *Norwegians* are a poor honeſt ſimple People. The Soil is barren, and Nature ſeems to have been in no good Humour when ſhe produc'd this Nation and their Neighbour of

Lapland,

The Capital of which is not eaſily determin'd, they having no Cities, and their Chief Towns reſemble rather the Tents at ſome of our Wells than the Habitation of *Europeans*. We cannot call 'em Chriſtians, for a great Part of 'em are Pagans. *Lapland* is partly ſubject to the *Danes*, partly to the *Swedes*, and partly to the *Muſcovites*. *Wardhius*, one of the 5 Governments of *Norway*, includes the *Daniſh Lapland*.

Berghen in the Government of *Bergenhus*, is the Capital of *Norway*; *Drontheim* was formerly.

Sweden

Is call'd *Scandinavia* by *Pliny* and *Solinus*. This Kingdom and *Denmark* are generally call'd the Two Northern Crowns. The Dominions of the King of *Sweden* are reckon'd 840 Miles long, and 480 broad, but therein Geographers are not agreed; and this Extent is very unequal. 'Tis bounded on the North by the *Daniſh* and *Muſcovite Lapland*, on the Eaſt by *Muſcovy*, on the South by *Muſcovy*, *Poland* and the *Baltick*, on the Weſt by the Sea which ſeparates it from *Denmark* and Mountains which divide it from *Norway*. The Air is very Cold but Pure and Healthy; and we are told that 'tis not uncommon for the Inhabitants to live 110 and 120 Years; tho' Ice is to be met with from *October* to *April*, yet the Soil produces good Quantities of Corn. It abounds with Lakes and Rivers, whoſe Names are not worth remembring any more than the Country. The *Swedes* are counted leaſt barbarous of all the Nations of the North: They are Strong and Hardy, but love Wine and Feaſting inordinately; they are great Lovers of Arts and Sciences, and good Proficients in them. My Author tells me they are Lazy, or their Country wou'd not be over-run with Foreſts as it is. His other Reaſons we'll omit, and rather take him at his Word. 'Tis divided into the following Provinces.

In *Sweden*,

Upland, the Capital of which is Capital of the *Swediſh* Monarchy, *Stockholm*.

Sudermania,	Capital	*Nikoping*,
Weſtmania,		*Waſteras*,
Nericia,		*Oerebro*,
Geſtricia,		*Gevalia*,
Dalecarlie,		*Jera*,
Helſingia,		*Dilsbo*,
Medelpadia,		*Judal*,
Angermania,		*Nortmaling*,
Jemptia,		*Reſſund*,
Bothnia,		*Thorn*.

In *Gothland*,

Haland,	Capital	*Helmſtad*,
Smaland,		*Calmar*,
Bleking,		*Chriſtianſtadt*,
Schonen,		*Lunden*,
Weſter-Gothia,		*Gottenburgh*,
Dalia,		*Daleburgh*,
Wermeland.		*Carolſtadt*,
Oſtro-Gothia,		*Nortkoping*.

Lapland,	Capital	
Finland,		*Cajaneburgh*,
Livonia,		*Riga*,
Pomerania,		*Stetin*,
Bremen,		*Bremen*.

Lordſhip of *Wiſmar*. The Iſles, as *Rugen*, &c.

Thus we have gone over *Europe*, according to the Diviſion laid down by us in the foregoing Pages; and ſhall run over the other Parts of the World, but with all poſſible Brevity; and inſtead of Provinces, divide each Part only into Empires and Kingdoms.

Of ASIA.

NOT to enter into the Ancient or Modern Hiſtories of it, we ſhall paſs immediately to the preſent Geography. 'Tis, according to the Lateſt Accounts of it 6450 Miles from Eaſt to Weſt, and 4200 from South to North. It takes up a great Part of the Torrid Zone, all the Northern Temperate Zone, and advances 5 Degrees in the Frozen. The Jeſuits, who made their Obſervations on its Latitude, affirm 'tis not ſo long by 1200 Miles. The *Faiſeurs des Cartes*, as the *French man* is pleas'd to call the Makers of the Maps by way of Contempt, being ſo far miſtaken according to theſe Fathers; we have neither Room nor Inclination to engage in ſuch Diſputes, and leave 'em to the Reader's Diſcretion. 'Tis bounded on the North by the Northern and *Scythian* Ocean, on the Eaſt by the Sea of the *Kaimachites*, and that of *China*, on the South by the *Indian* and *Arabian* Seas, on the Weſt by the *Red Sea*, the *Archipelago*, the *Black Sea*, the Sea of *Marmara*, of *Zabache*, Part of the River *Don*, and the Eaſtern Bounds of *Europe*. 'Tis impoſſible to give any tolerable Account of the Quality of ſuch a Vaſt Extent of the Globe in ſo ſmall a Compaſs. It varies according to the Climates, and the Manners of the Inhabitants are no leſs different: They are Soft and Effeminate, and have very little Reſemblance to the Ancient *Aſiaticks*, who, under the *Aſſyrians* and *Perſians*, were Founders of the Two Firſt Great Monarchies. The Impoſtor *Mahomet* ſettled his Extravagant Religion here, and 'tis under ſeveral Sects ſpread over all *Aſia*; where are alſo to be met with ſome *Chriſtians*, *Jews*, &c. and in the moſt Barbarous Part of it *Pagans* and *Idolaters*. The Chief Rivers are the *Tigris*, *Euphrates*, *Ganges*, and *Indus*. We ſhall follow *Robbe's* Diviſion of

Aſia into 6 Principal Parts.

Turkey in *Aſia*,
Perſia,
India,
China,
Great Tartary, and
The *Iſles*.

We can but juſt mention them.

Turkey in *Aſia*

Is 975 Miles from South to North, and above 1350 Miles from Eaſt to Weſt. 'Tis bounded on the North by the *Black Sea* and *Georgia*, on the Eaſt by *Perſia* and the Gulph of *Ormus*, on the South by *Arabia*, on the Weſt by the *Red Sea*, the *Mediterranean*, the *Archipelago*, &c. 'Tis not eaſy to aſcertain any Capital to this Part of the *Turkiſh*

Empire, ſo many of the Provinces having Great Cities in them, and the Capital being in *Europe.* The Provinces are as follow.

Natolia,	Capital	*Chintaye,*
Caramania,		*Cogni,*
Amaſia,		*Amaſia,*
Aladulia,		*Maraz,*
Syria,		*Aleppo,*
Phœnicia,		*Damaſcus,*
Paleſtine,		*Jeruſalem.*
Turcomania,	Capital	*Erzurin,*
Imirella in *Georgia,*		*Colatis,*
Mingrelia,		*Rucks,*
Guriel,		*Ozurgheti,*
Abcaſſia,		*Danders,*
Circaſſia,		*Temrock.*
Diarbeck,	Capital	*Cara-Emid,*
Curdiſtan,		*Van,*
Chaldee,		*Bagdad,*
Arabia Fœlix,		*Mecha,*
Arabia Deſert,		*Anna,*
Arabia Petræa,		*Aerach.*

The *Iſles,*

Cyprus,	Capital	*Nicoſia,*
Rhodes,		*Rhodes,*
Metelin,		*Metelin,*
Schio, and others in the *Archipelago.*		*Schio,* &c.

Perſia

Is 1500 Miles from Eaſt to Weſt, and 900 from South to North, bounded on the Eaſt by the Territories of the *Great Mogul* and the *Grand Tartary,* on the North by the River *Oxus,* which divides it from *Great Tartary* and the *Caſpian Sea,* on the Weſt by the *Turks* Dominions, and on the South by the Gulph of *Balſora,* the *Perſian* and *Indian Seas.* The Capital of this Monarchy is *Iſpahan,* which paſſes for one of the Largeſt, Faireſt and Richeſt Cities in the World. The Chriſtians exerciſe their Religion publickly in the Suburbs call'd *Zulfa,* and the *Engliſh* have a Factory there with great Privileges. The Chriſtian Kingdom of *Georgia* is now Part of *Perſia*; It has a Patriarch at *Teflis.* The other Provinces of *Perſia* are

Airach,
Farſiſtan,
Siſtan,
Chuſiſtan,
Kheirman,
Sobleſtan,
Candahar,
Aderbejan,
Scirvan,
Mackeran,
Choraſan,
Erwan,
Dagheſtan in *Tartary.*
Mozanderan,
Ghilan,

India

Contains ſeveral Spacious Kingdoms, of which one Word or two muſt be ſaid, for more we have not Space. *India* was formerly reckon'd to be all that Part of *Aſia* on the other Side of the *Ganges*; but ſince the *Indian* Princes have extended their Conqueſts on this Side, Part of that Diviſion of *Aſia* is alſo ſo call'd; and here we firſt meet with

The Empire of the Great Mogul,

Which is 1950 Miles from Eaſt to Weſt, and 1320 from South to North, on which Side 'tis bounded by *Tartary,* on the Eaſt by the Territories of the King of *Ava,* formerly *Brama,* on the South by the River *Guenga,* &c. on the Weſt by *Perſia.* *Agra* is the Chief Province of this Empire, and the City of that Name the Capital of it. There are ſo many Fables told us of the Riches of this Monarch, that 'tis well we are abridg'd in our Relation; for both Hiſtorical and Geographical Accounts are not much to be rely'd on, excepting in what concerns the Coaſts which are very well known by Commerce with *Europeans,* who have ſome Settlements near them, particularly the *Engliſh.* *Surat* is very much frequented by the Merchants of *Europe.* The Empire of the *Great Mogul* is divided into 40 Governments call'd *Raja's,* ſome of whom are rather Tributary than Subject to him. We do not think the Reader will expect ſo many Barbarous Names in ſo ſhort an Eſſay; ſo we proceed to the

Peninſula on this Side the *Ganges,*

Which is 780 Miles from South to North, and 690 from Eaſt to Weſt, containing

The Kingdom of *Golconda,* the Capital *Heider Abad,*
The Kingdom of *Biſnagar,*
The Principality of *Gingi,*
of *Tonjaur,*
of *Kerhatack,*
of *Maduras,*
on the Coaſt of *Coromondel* in the Principality of *Maduras,* is for the Sage the Chief Factory of the *Engliſh* in *India.*

The Kingdom of *Viſapur,*
Principality of *Kirmalack,*
of *Comara.*

The Kingdoms of *Calecut* and *Cochin,* In *Malabar.*

India on the other Side of the *Ganges,*

Which is from Eaſt to Weſt 960 Miles in ſome Places, and 1920 from South to North, containing

The Kingdom of *Ava,* Capital of the ſame Name.

To which are Tributary

The Kingdoms of
Pegu,
Arracan,
Tipra,
Brema,
Camarana, &c.

The Kingdom of *Siam,* the Capital *Odia.*
The Kingdom of *Tonquin,* the Capital *Keccio.*
The Kingdom of *Cochinchina,* the Capital *Caccian.*

China,

Is about 1400 Miles from South to North, and 1650 from Eaſt to Weſt; but neither Longitude nor Latitude is well Settled. 'Tis bounded on the North by the Famous Wall of 1000 Miles long, and 45 Foot high, which ſeparates it from the Kingdom of *Tunquin* and *Niuche* on the Eaſt by the Oriental Ocean or the *Chineſe Sea,* on the South by the ſame Ocean and the Kingdom of *Tunquin,* on the Weſt by the *Damaſian* Mountains, which divide it from the Territories of the King of *Ava.* 'Tis now united under one Prince with *Great Tartary.* The Capital of *China* is *Peking,* ſaid to be of an

Incredible Length, which is not ſo certain as that the Streets are not pav'd nor the Houſes Contiguous. The Chriſtian Religion, if the *Romiſh* deſerves that Sacred Name, is profeſt by great Numbers of *Chineſe*, but mix'd with *Idolatry* and *Mahometaniſm*, which the Popiſh Miſſionaries have allow'd of, and are now under the Diſpleaſure of the Court of *Rome* about it. *China* is divided into the following Provinces.

Peking,
Leaotong,
Iſle and Kingdom of *Coree*,
Zantung,
Nanking,
Chekiang,
Fokien,
Quantung,
Kiangſi,
Quangſi,
Queichu,
Huquang,
Hopan,
Xanſi,
Xenſi,
Suchuen,
Junnan,
The Iſle of *Hainan*.

The Iſles.
Formoſa,
Chewxan,
Changye.

Great Tartary,

The Greateſt Empire in the World; It is 4500 Miles from Eaſt to Weſt, and 2280 from South to North, bounded on the Eaſt by the Sea of the *Kaimachites* and the Straights of *Jeſſo*, on the South by *China*, the *Indies*, and *Perſia*; on the Weſt by the Main Sea and the Territories of the Czar of *Muſcovy*; and on the North by the Northern or Frozen Sea. If we add *China* to this Empire, 'tis very eaſie to Calculate that it muſt contain $\frac{1}{4}$ Part of the Habitable World; 'tis ſubject with *China* to one Emperor, who is call'd the *Khan*, but has ſeveral Kings under him. *Tartary* is divided into 5 Parts.

Kathaye, the Capital of that and all *Tartary*, *Munoncheu*.
Turkeſtan,
Usbeck, and
The Two moſt Northerly *Hordes*, or Parts call'd by the *Arabians*, *Kaimach*, *Mongul*.
The Capitals very little known.

As indeed is all this vaſt Empire, except what borders on *China* on the Eaſt and *Muſcovy* on the Weſt, where the *Muſcovites* poſſeſs *Aſtracan*, and other Kingdoms reckon'd Part of *Great Tartary*.

Of the Iſles of Aſia.

The Iſles of *Japan*, *Niphon*, *Bungo*, *Tonſo*, and 20 more.

The *Philippine* Iſles, *Lucon*, *Manitha*, *Mindanao*, *Paragoia*, *Mindora*, and about 18 more.

The *Molucca* Iſles, *Celebes*, *Papous*, *Gilolo*, *Ceiram*, *Timor*, *Flores*, and ſeveral others.

The Iſles of the *Sound*, *Sumatra*, *Java*, *Borneo*, and others of leſs Note.

The Iſle of *Ceylon* is near 700 Miles in Circumference, the Capital *Candy*.

The *Maldives* Iſles and the Iſles of *Thieves*, with others not worth naming, are in the Number of the Iſles of *Aſia*.

Of AFRICA.

WHether *Aſer* gave Name to *Africa*, and was the Son of *Aſia*, let the Antiquaries decide, 'tis ſufficient for us in this Place to enquire into its Extent, &c. 'Tis 4800 Miles long and 4200 Miles broad, where broadeſt and longeſt; bounded on the North by the *Mediterranean* Sea; on the Eaſt by the *Red* Sea and the Eaſtern Ocean; on the South by the *Ethiopian* Sea, and on the Weſt by the *Atlantick*. Two Thirds of it is in the Torrid Zone, which renders it inſupportably hot in many Places, and eſpecially on the Coaſts of *Guinea*; to make amends for which it has Plenty of Gold, Ivory and Drugs. The Inhabitants are for the moſt part Barbarous and Idolaters, except where by their Commerce with *Europeans*, they are Civiliz'd a little. *Mahometaniſm* is the Religion of the leaſt Barbarous Nations. As to Chriſtianity, whether it has liv'd in *Abyſſenia* ever ſince the Apoſtles Days or not, does not ſeem to be a Geographical Controverſy, ſo we ſhall not inſiſt upon it. The River *Nile*, ſo famous in Story, waters a great Part of it, as do's alſo the *Niger*, whoſe Courſe is much longer, no leſs than 2400 Miles, according to ſome Authors, which is, we fear, too great a Length. *Africa* is divided into Eight Principal Parts,

Egypt,
Barbary,
Biledulgerid,
Zaara,
Nigritia,
Guinea,
Ethiopia,
Nubia,

Egypt

Is 300 Miles from Eaſt to Weſt, and 570 from South to North. 'Tis Part of the *Turkiſh* Empire, the Capital *Grand Cairo*, which we ſeldom hear of but for Plagues. Some pretend it is the biggeſt City in the World, but we don't believe 'em; *Alexandria* was the Capital in the Reign of the *Ptolomies*. 'Tis divided into *Upper* and *Lower Egypt*, and Subdivided into 14 Begles or Governments.

Barbary

Runs along no leſs than 2700 Miles in Length, and is not above 240 Miles over where broadeſt. 'Tis bounded on the Eaſt by *Egypt*, on the North by the *Mediterranean Sea*, on the Weſt by the *Atlantick*, and on the South by *Biledulgerid*. 'Tis the moſt conſiderable Part of *Africa*, the beſt Inhabited and Richeſt, as well as moſt Civiliz'd. The *Romans* were Maſters of the greateſt Part of this *Diviſion* 'till the *Saracens* expell'd 'em. 'Tis now ſubject to ſeveral Princes, the Chiefeſt of whom is the Emperor of *Morocco*, whoſe

Kingdoms of *Fez* and *Morocco*, have Capitals of the ſame Names.

The Kingdoms of *Algiers*, *Tunis*, *Tripoly*, Governments under the Protection of the *Turks*.

The Kingdom of *Barca* and ſeveral Iſles, too many and too inſignificant to name.

Biledulgerid

Is the Ancient *Numidia*; in Length 3000 Miles where longeſt, in ſome Places near 500 Miles broad, in others not a hundred. 'Tis bounded on the Eaſt by *Egypt*, on the North by *Barbary*, on the Weſt by the Ocean, on the South by *Zaara*, or the Deſart; the Air is very hot but healthy; the Soil in moſt Places Sandy, Uncultivated, and the Country thin of People. 'Tis Govern'd partly by ſome Kings or Lords Tributary to the Turks of *Algiers*, *Tunis* and *Tripoly*; partly by ſome little Republicks; and in other Places the People have neither Laws nor Government. It is divided into Eight Principal Provinces, each of which has a Capital; but there is not one appointed to *Biledulgerid* in General.

Zaara,

Or the Deſart, is 2800 Miles in Length, and from 750 to 120 Miles in Breadth, bounded on the North by *Biledulgerid*, on the Eaſt by *Nubia*, on the South by *Nigritia*, and on the Weſt by the Ocean. This Diviſion is ſtill leſs Cultivated and Inhabited than *Biledulgerid*, and may well be call'd the Deſart; for 'tis ſaid one may travel there 300 Miles without finding a drop of Water, in a Country where the Sun darts his burning Rays with the greateſt Violence. 'Tis divided into Seven Provinces, each of which has its Capital, wretched ones without Queſtion. The Inhabitants may well be term'd *African* Monſters, being in many Parts of this Diviſion Strangers to Government and Laws. Some Kings there are call'd *Xeques*; ſome have a ſort of Religion bordering on *Mahometaniſm*, ſome none at all: An Accurs'd Corner of the Earth, from which we are willing to haſten as faſt as we can, though we ſhall hardly meet with any thing better 'till we get out of *Africa*.

Nigritia,

Or the Country of *Negroes*, is 2400 Miles long, and 900 broad where broadeſt, bounded on the North and Eaſt by *Zaara*, on the South by *Guinea*, and on the Weſt by the *Atlantick*. The Air, tho' hot, is healthy, and the Soil fertile, in Compariſon with the other Parts of *Africa*. 'Tis divided into Sixteen Kingdoms.

Geneboa,
Galata,
Tombut,
Agades,
Cano,
Caſſena,
Gangara,
Zenegal,
Gambia,
The *Jecloffes*,
The *Caſanges*,
The *Bijagos*,
The *Biaſares*,
Melli,
Zegzeg,
Lanfara,

Which are Subdivided into other Kingdoms. Indeed Monarchy is no where in ſo mean a Condition as in theſe Parts of *Africa*, where a King is Powerful when his Dominions extend as far as a ſmall Hundred in *England*. There are ſome Towns in this Diviſion. *Tombut* is pretty large, as is alſo *Cano*. The *French* have a Settlement at *Senegal*; the *Negroes* are either *Mahometans* or *Idolaters*.

Guinea

Is 1650 Miles long and 420 broad, where broadeſt; in ſome Parts of it not 200. 'Tis bounded on the Eaſt by the Kingdom of *Biafara*, on the North by the *Negro-Country* or *Nigritia*; on the Weſt by the Kingdom of *Sierra, Leona*; and on the South by the Sea which bears its Name. There's hardly a hotter Climate upon Earth; 'tis a Low Country, and the Air not much wholſomer than that of a Peſt-Houſe; yet hither do *Engliſh*, *Dutch*, *Danes*, *Swedes* and *Portugueſe* reſort; here do they ſettle and build Houſes and Forts; here do they broil for 10 or 20 Years, if by Chance they Survive or lay their Burnt Carcaſſes in theſe Glowing Sands. And why all this Force upon Nature? Why do they leave the former Climes, at leaſt the Cold Mountains of the North for the Burning Regions of *Guinea?* The Reaſon is plain; There's Gold, and what is there Men will not do for Gold. *Guinea* is divided into Three Principal Parts: The Kingdom of *Guinea*, properly ſo call'd, which is in the Middle; the Kingdom of *Benin* to the Eaſt, and the Province of *Malaguetta* to the Weſt. Theſe Kingdoms are ſubdivided into others, ſome of which are Conſiderable, as thoſe of *Sabou*, *Foetu*, *Accara* and *Arda*. The King of the Laſt Kingdom, about 40 Years ago, ſent an Ambaſſador to his Brother of *France*. The Reader muſt know, that under theſe and ſome others, there are Kings of ſuch Conſideration, that a File of Muſqueteers wou'd be as dreadful to their Kingdoms, as the Duke of *Marlborough* and Prince *Eugene*'s Army is to the Kingdom of *France*; and we have heard of a Monarch who has been Enthron'd not far from the River of *Gambia* by the Aſſiſtance of ſuch a Number of *Engliſh* Auxiliaries. *Guinea* is again divided into the Gold Coaſt and Ivory Coaſt, the former of which is the Eaſtern Part, and the latter the Weſtern. The Coaſts on the Province of *Malaguetta* have *European* Settlements as well as the Gold Coaſt. *Sierra Leona* is by ſome plac'd in *Guinea*, we have a Factory there; but theſe Things wou'd require more Sheets than we can allow Lines, ſo we muſt go on to

Ethiopia,

Which includes *Abyſſinia* and *Nubia* in the Common Acceptation; but we ſhall treat firſt of *Abyſſinia*, which is 2100 Miles from North to South, and near 1500 from Eaſt to Weſt. 'Tis bounded on the North by *Nubia*; on the Eaſt by the Coaſts of *Abex*, *Ajan*, and *Zanguebar*; on the South by the Empire of *Mono-emugi*; and on the Weſt by *Congo* and *Biafara*. We are told that the Supream Lord of this Country, which ſome call *Preſter Joha*, as well as his Subjects are Chriſtians; and that they pretend to have been ſo from the Primitive Times, which is no great matter to us whether they were or were not. As to the Capital of this Empire Authors vary; ſome make it, *Dombea*, others *Godigna*, &c. but we believe none of 'em knew much of either the one or the other. There are 12 Kings of Large Kingdoms Tributary to this Emperor.

Nubia

Is 1100 Miles long and 570 broad, where broadeſt and longeſt. 'Tis bounded on the North by the Deſart of *Barka* and *Egypt*; on the Eaſt by the Kingdom of *Barnagey*, and the Iſle *Gueguere*; on the South by the *Abyſſinian* Deſarts; and on the Weſt by the Deſarts of *Borno* and *Gaoga*. The Natives of this Country are very black; they are Stout and Laborious; their King very Powerful; their Religion, if any, has more of Chriſtianity than any other in it. The Capital is *Nuabia*, about the 19 Degr. of Latitude.

Between *Nigritia* and *Congo* are ſeveral Kingdoms, which ſome place together with *Guinea*, in the Country of *Negroes*, as

Biafara,
Gabon,
Bungo,

The King of *Congo* has 6 Princes or Kings under him: To theſe muſt be added,

The Kingdoms of *Medra*,
– of the *Anzicains*,
Anyac,
Angola,
Loango,
and the Republick, or rather Anarchy of *Geaques*,

The Empire of *Monomotapa* is 1050 Miles long, and 450 broad.

The Empire of *Monoemugi* is ſo unknown, that its Extent is not determin'd with any Certitude. Then come

The *Cafres*, the Kingdoms of *Sofala* and *Mataman*, the Kingdoms on the Coaſts of *Zanguebar*, *Ajan*, and *Abex*; the latter is pretended to be the Country from whence the Queen of *Sheba* came to viſit *Salomon*. We wou'd not have it lye upon us to prove it.

Of the Iſlands of Africa.

Madagaſcar lying off the Coaſts of *Zanguebar* and *Cafres*, is one of the largeſt in the World, being 1050 Miles long, and 360 broad. 'Tis ſaid to be divided into Five or Six Kingdoms. The *Europeans* have ſome Settlements on the Coaſts. The other Iſlands are,

Zocotora,
The Iſles of *Comorra*,
St. *Thomas*,
The Iſles of *Cape Verd*,
The *Canary Iſles*,
Madera,
The *Azores*.

All which except *Zocotora* and *Comorra*, are in the Poſſeſſion of the *Spaniards* and *Portugueſe*.

America

Or the New World; it being intirely unknown to the Ancients unleſs out of Complaiſance to Antiquity, you allow *Plato's Atlantick* Iſland to be our *America*; but we are not ſo fond of their Gueſſes as to think it was reveal'd to 'em by Inſpiration, and how they cou'd get thither without the Compaſs, or how get back again, is what we do not comprehend, and therefore believe that the *Biſcain* Fiſhermen were the firſt who diſcover'd the Bank of *Newfoundland*, and, perhaps, that Part of North *America*; and *Columbus* the firſt who landed on the Continent, in the Year 1493. But *Americus Veſpuſius* had the Honour, though a later Diſcoverer, to give Name to this Diviſion of the Globe, which is much bigger than the biggeſt of the other Three, if not as big as all of 'em. It extends from 63 Degrees of North Latitude to 54 of South, from *Hudſon's Streights*, to thoſe of *Magellan*, and from *Agu. be la del Galo* above the Iſle of *California*, under the 240 Degrees of Longitude, to the fartheſt Part of *Braſil* under 348; on the North 'tis bounded by the Sea which divides it from *Greenland* by *Hudſon's Streights*, and the Sea of *Chriſtiana*; on the Eaſt by the *Atlantick Ocean*; on the South by the *Streights* of *Magellan*, which divide it from *Terra del Fuego*; and on the Weſt by the *Pacifick* Sea. It's Situation is in Three different *Zones*, ſo that the Air and Soil muſt conſequently be very different. The greateſt Rivers are that of the *Amazons*, that of *Plata* in South *America*, and that of St. *Laurence* in North. Having mention'd this Diviſion, we ſhall keep to it, and only take notice that *America* is poſſeſt chiefly by the *Spaniards*. The *Engliſh* next to theſe have moſt Poſſeſſions in this Part of the World. Then the *Portugueſe*, *Dutch*, *French*, *Danes* and *Brandenburghers*; for as to the Natives they are all ſubject to the *Europeans* wherever the latter have been pleas'd to ſettle. The *Spaniards* are in Poſſeſſion of the Silver Mines which this New World was ſo much coveted for. The *Engliſh* and *Portugueſe* have the Sugar Trade not much leſs Advantageous. The *Engliſh* alone that of Tobacco, a Traffick which with due Encouragement might be made ſo Advantageous, as to render us above envying the Mines of *Peru* and *Mexico*. The *French* have alſo their Sugar Iſlands; and other Nations other Acquiſitions and Trades which cannot be enlarg'd on here. So we proceed to the Geographical Deſcription, and begin with

South America;

Which forms a great Peninſula of 3990 Miles in Length, 3420 in Breadth, and near 15000 in Circuit. 'Tis bounded on the North and Eaſt by the Northern Sea; on the South by the *Magellanick* Sea; and on the Weſt by the *Pacifick* or South Sea. 'Tis divided into Seven principal Parts.

Peru,
Paraguay,
Tucuman,
Chili,
Terra Firma,
Braſil, and the Country bordering on the River of the *Amazons*.

Peru is about 780 Miles long, and has near 2000 Miles on the Coaſts. Its bounds on the Eaſt are *Paraguay*, and the Country of the *Amazons*; on the North *Terra Firma*; and on the South *Paraguay*, *Tucuman* and *Chili*. The City of *Lima* is the Capital, and the Mines of *Potoſi* make this Province the moſt deſirable Jewel in the *American* Crown. 'Tis ſubject to the *Spaniards*; for the Natives who are not reduc'd are ſo few in Number or Power that the former rather deſpiſe than fear them. The Viceroy of *Peru* has ſeveral Governours under him. *Paraguay* is ſometimes reckon'd a Part of *Braſil*; but Geographers lately make a particular County of it. 'Tis about 1500 Miles long and broad, bounded on the Eaſt by the Northern Ocean; on the North by *Brazil*, and the Country of the *Amazons*; on the Weſt by *Peru*, *Tucuman*, *&c.* and on the South by the Ocean. 'Tis almoſt entirely ſubject to the *Spaniards*, the City of *Aſſumptio* is its Capital and the Reſidence of the Governour, who is under the Viceroy of *Peru*.

Tucuman is ſometimes reckon'd Part of *Peru*, and ſometimes Part of *Paraguay*; but being in a great Meaſure in the Hands of the Natives we place it by itſelf. 'Tis 840 Miles from South to North, and above 600 from Eaſt to Weſt; bounded on the Eaſt by *Paraguay*, on the South by the *Patagons*, on the Weſt by *Chilie* and by *Peru*, on the North. That Part of it ſubject to *Spain*, has the City of *San Jago del Eſtero* for its Capital. The Government is dependant on that of *Paraguay*.

Chili is 1260 Miles long, and 450 broad where broadeſt; bounded on the North by *Peru*, on the Eaſt by *Tucuman*, and the Lands of *Magellan*, and on the South by the *Patagons*. The Government of this Province, whoſe Capital is *San Jago*, depends alſo on the Viceroy of *Peru*; but the Natives under their Caciques are not entirely ſubdu'd. The Lands of *Magellan* are divided into ſeveral *Indian* Kingdoms or Nations. The *Spaniards* not having been at the trouble to conquer them, they built Two Cities on the *Streights* to ſecure their Trade; but they are now in Barns. The Inhabitants are call'd *Patagons*; and the Country being little known, Geographers and Travellers take the liberty to tell us 'tis inhabited by a Race of Gyants, the Men being 10 or 14 Foot high; which we can believe as eaſily as that one of 'em will *eat up a Basket of Bisket, drink up a Pail of Wine at a Draught*, &c. We are aſham'd of ſuch Stories told by grave Authors. *Terra Firma*, or *Caſtille del Or*, advances farther towards the North than any Part of South *America*. 'Tis above 2000 Miles long, and 600 broad, ſubject to the *Spaniards*, who have a Governour reſiding here at St. *Fe de Bogota Panama*, &c. This Country has been moſt viſited by the *Buccaneers* of any Part of *America*, and the Names of its principal Cities *Panama*, *Porto belo*, *Nombre de Dios*, *Rio de la Hacha* are very well known by ſuch as know the *Buccaneer Hiſtory*, and the Adventures of Sir *Henry Morgan*, &c. Thus we ſee that the *Spaniards* are poſſeſt of a prodigious Extent of Ground in South *America*, containing many large Cities, Three *Archbiſhopricks*, and 16 *Biſhopricks*, &c.

Braſil

Is a vaſt Tract of Land in South *America*, diſcover'd by and ſubject to the *Portugueſe*, running along 2400 Miles on the Coaſt. 'Tis bounded on the North and Eaſt by the Northern Ocean; on the South by *Paraguay*; on the Weſt by the ſame Country, and that of the *Amazons*. The *Portugueſe* have ſeveral Cities here, One Archbiſhoprick, and Three Biſhopricks. The Viceroy reſides at *San Salvador* the Capital. However, the *Braſilians* ſtill poſſeſs the far greateſt Part of the Country, and indeed almoſt all the Inland Parts.

North America.

The *Dutch* make it above 6000 Miles long from the *Streight* of *Anian* to the *Iſthmus* of *Panama*, and about 3800 broad; but this and its Bounds are very uncertain. We only know that *Hudſon's Streights*, and the Sea of *Chriſtiana*, divide it from the Artick Regions; that it has the Northern Ocean on the Eaſt, and the South Sea on the South and Weſt. It may be divided into *Spaniſh* and *Engliſh*. For the *French* who have neſted in *Canada*, have no more legal pretence to that Part of *America* than to *Peru* or *Mexico*, Part of which they are now in Poſſeſſion of under pretence of keeping it for the *Spaniards*. It is to be hop'd they will be driven off this Continent in a little time; for there's nothing of more Conſequence to ſecure our Northern Colonies.

To the Spaniards *belong*

Mexico; which extends 1800 Miles from the River of *Chagre*, in the *Iſthmus* of *Panama*, to the River of the North, in the Sea call'd *La Mer Vermeille*, the *Vermillion Sea* by *French* Geographers. The Sea of *Mexico* bounds it on the Eaſt; the *Gulph Florida* and *New Mexico* on the North, and the South Sea on the Weſt and South. *Mexico* is the Capital, the Reſidence of the Viceroy, and the Seat of the Archbiſhop, under whom are 12 Biſhopricks.

Mexico, Archbiſhop.
Mechoacan, Biſhoprick.
Los Angeles,
Antequera,
Menda,
Guadalajara,
Duremgo,

J. de Gualius, Biſhop.
Cuidad Reale,
Vallodolid,
Santa Fe,
Vera Paz,
Leon.

In the Provinces of *New Spain*, *viz. Mexico*, *New Mexico*, *New Galicia*, *New Biſcay*, *Guatamela*, *Honderas*, *Vera Paz*, *Nicaragua*, &c.

To the Engliſh *belong*

From St. *Matheo* in *Florida*, to the River of St. *Laurence* in *New France*, including *Nova Scotia*, which belongs to the *Engliſh* by all the Title and Pretence that one Nation can have to a new diſcover'd Country more than another. Thus the *Engliſh* Acquiſitions run along on the Coaſt 13 or 1400 Miles, and in Breadth is unequal or rather uncertain; for they may extend 'em as far as they pleaſe. They contain the following Governments. That of

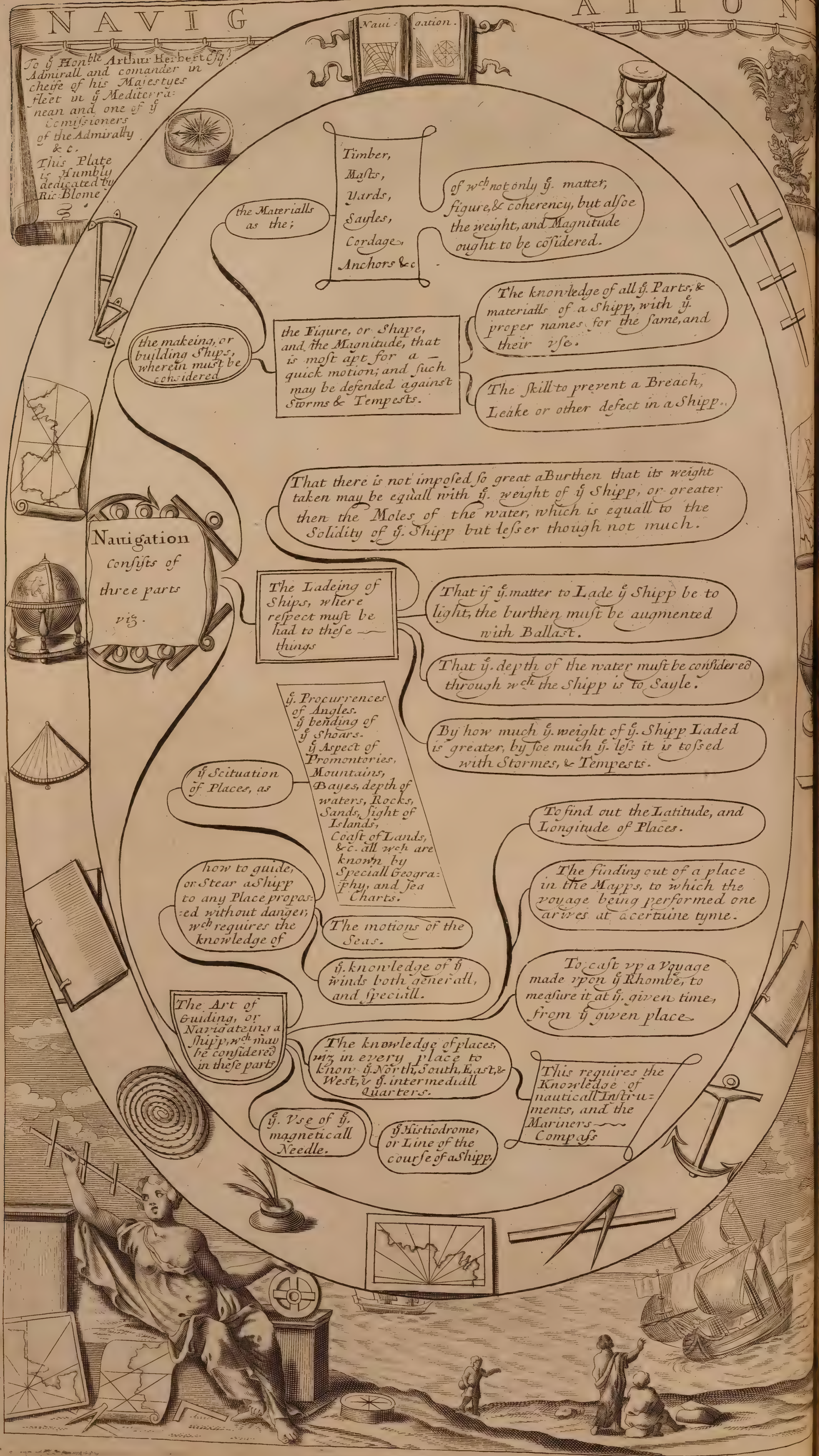
Carolina,	Capital	*Charles*'s Town.
Virginia,		*James*'s City.
Maryland,		St. *Maries*.
Penſylvania,		*Philadelphia*.
The *Jerſeys*,		*Shrewsbury*.
New York,		*New York*.
New England,		*Boſton*.
New Scotland,		*Port Royal*.

In which Extent of Ground are more European Inhabitants than perhaps in any Part of *America* of twice its Length and Breadth. It being computed there are near 300000 *Engliſh* Souls, and 50000 Fighting Men at leaſt, and that they employ 500 Sail of Ships to *Europe*, and other Parts of *America*, &c. The *French*, who are the moſt Inſolent People on the Globe, call all that Country *New France*, which reaches from *Florida* to *Hudſons Streights*, and take in all the Queen of *England*'s Dominions on the Continent of *America*; but we muſt drive 'em up to

Canada,

Where they are ſettled between the Barbarians of *New Scotland*, and *Hudſon's Bay*, and have a Biſhop of *Quebec*, who has been ſeveral Years a Priſoner in *England*. You wou'd think by their

Deſcription

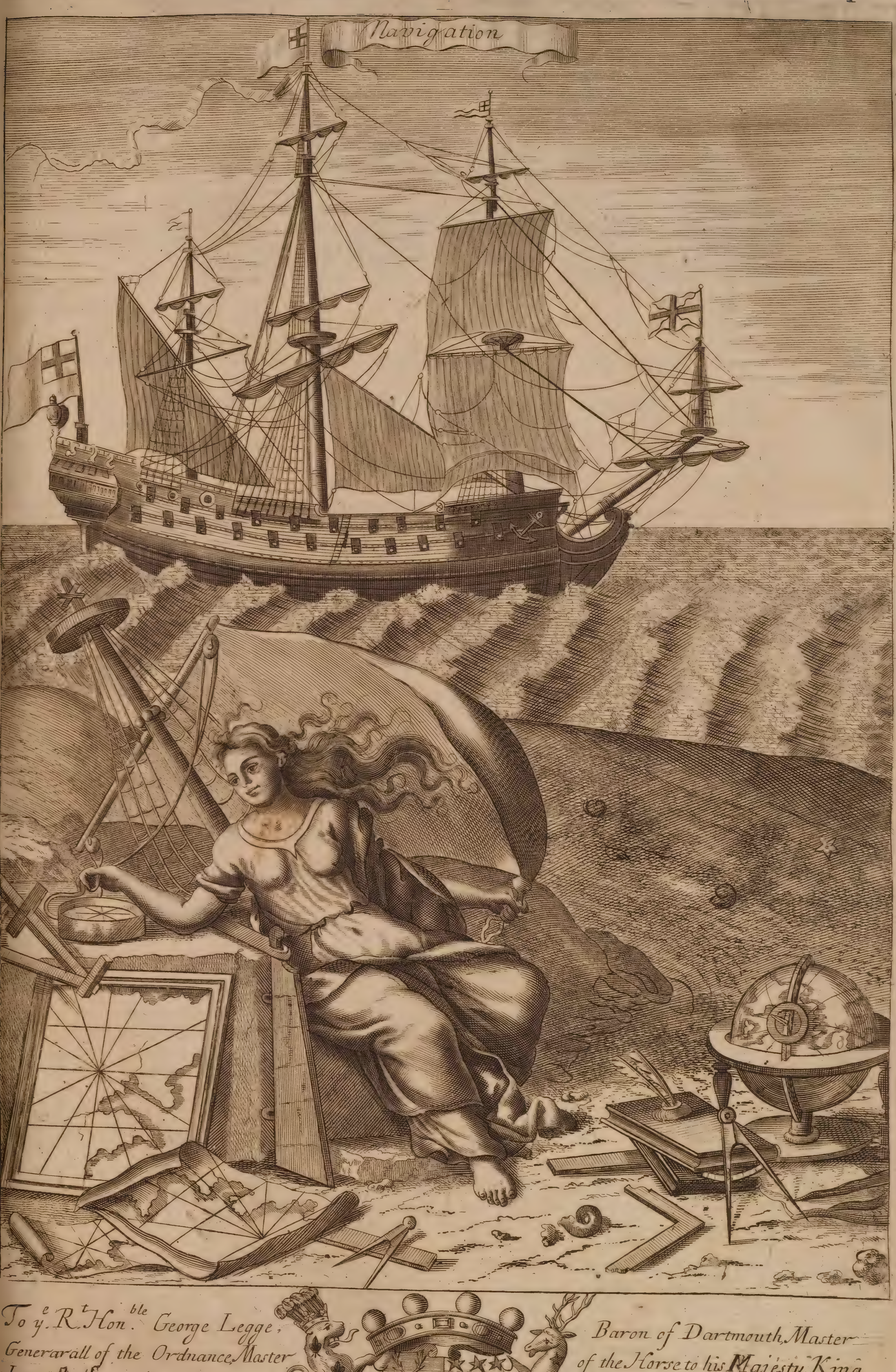

Naui-gation.

NAVIGATION

To ye Honble Arthur Herbert Esq.
Admirall and comander in
cheife of his Majestyes
fleet in ye Mediterra-
nean and one of ye
Comiſsioners
of the Admiralty
&c.
This Plate
is Humbly
dedicated by
Ric: Blome

Navigation Conſiſts of three parts viz.

- the makeing, or building Ships, wherein muſt be conſidered
  - the Materialls as the; Timber, Maſts, Yards, Sayles, Cordage, Anchors &c. of wch not only ye matter, figure, & coherency, but alſoe the weight, and Magnitude ought to be coſidered.
  - the Figure, or Shape, and the Magnitude, that is moſt apt for a quick motion; and ſuch may be defended againſt Storms & Tempeſts.
    - The knowledge of all ye Parts, & materialls of a Shipp, with ye proper names for the ſame, and their vſe.
    - The ſkill to prevent a Breach, Leake or other defect in a Shipp.
- The Ladeing of Ships, where reſpect muſt be had to theſe things
  - That there is not impoſed ſo great a Burthen that its weight taken may be equall with ye weight of ye Shipp, or greater then the Moles of the water, which is equall to the Solidity of ye Shipp but leſser though not much.
  - That if ye matter to Lade ye Shipp be to light, the burthen muſt be augmented with Ballaſt.
  - That ye depth of the water muſt be conſidered through wch the Shipp is to Sayle.
  - By how much ye weight of ye Shipp Laded is greater, by ſoe much ye leſs it is toſsed with Stormes, & Tempeſts.
- The Art of Guiding, or Navigateing a Shipp, wch may be conſidered in theſe parts
  - how to guide, or Stear a Shipp to any Place propoſed without danger, wch requires the knowledge of
    - ye Scituation of Places, as ye Procurrences of Angles. ye bending of ye Shoars. ye Aſpect of Promontories, Mountains, Bayes, depth of waters, Rocks, Sands, ſight of Islands, Coaſt of Lands, &c. all wch are known by Speciall Geography, and ſea Charts.
    - The motions of the Seas.
    - ye knowledge of ye winds both generall, and ſpeciall.
  - To find out the Latitude, and Longitude of Places.
  - The finding out of a place in the Mapps, to which the voyage being performed one arives at a certaine tyme.
  - To caſt vp a Voyage made vpon ye Rhombe, to meaſure it at ye given time, from ye given place
  - The knowledge of places, viz in every place to know ye North, South, East, & West, & ye intermediall Quarters.
    - This requires the Knowledge of nauticall Inſtruments, and the Mariners Compaſs
  - ye Vſe of ye magneticall Needle.
  - ye Hiſtiodrome, or Line of the courſe of a Shipp.



To ye Rt Honble George Legge, Baron of Dartmouth, Master
Generarall of the Ordnance, Master of the Horse to his Majesty King
James the Second, Leiutenant of Alceholt & Wolmer fforest in
Hantshire, Admirall of his Maties fleet of Ships in ye Mediterranian,
Captaine Generall of his late Maties forces in Affrica, & Governour of
Tangier, & one of the Lds of his Maties most Honble Privy Councell Anno 1685
This Plate is humbly dedicated by R. Blome

Gaudet Tentamine Virtus

Deſcription of their Territories here that they were a formidable People, whereas had not their King been at a prodigious Expence to fortifie them with good Forts and Caſtles to protect 'em in their little Trade, hardly worth the Expence, ſince that of Furs has ſunk ſo, they wou'd not deſerve mentioning with the other Nations on this Continent.

Northward of this is *Hudſon's Bay*, and ſome other Places very little known to Geographers; ſo we ſhall leave 'em, and ſay ſomething of the *American Iſles*, which are moſt in Poſſeſſion of the *Engliſh*, or were ſo before the War with *France.*

1. *New Foundland* 360 Miles long, 300 broad. } *Engliſh*, the Capital, ſuch as it is, St. *John's*.
French, the Capital *Placentia*.

2. The *Antilles*, { *Cuba*, 660 Miles long, 180 broad, where broadeſt, *Spaniſh*, St. *Jago* the Capital.
Hiſpaniola, 450 Miles long, 180 broad, *Spaniſh* and *French*, Capital St. *Domingo*.
Jamaica, 170 Miles long, 80 broad, *Engliſh*, Capital St. *Jago*, or *Spaniſh Town*.
St. *Jean Porto Rico*, 130 Miles long, 60 broad, *Spaniſh*, Capital of the ſame Name.

3. The *Lucayes*, *Spaniſh*.

4. The *Bahama* or *Barbuda* Iſlands, *Engliſh Providence* the Chief, *Naſſau* the Capital.

5. The *Charibees*, { *Barbadoes*, the Chief of the *Engliſh*, the Capital *Bridge-Town*.
Martinico, the Chief of the *French*.
Tobago, Dutch.

There are many of theſe Iſlands, and the *Engliſh* drive a Vaſt Trade thither, their Settlements being much more Populous than the *French*, it being computed that there are 60000 *Engliſh* in their *Charibe Iſlands*, and not 20000 *French*, who do not employ a $\frac{1}{4}$ Part of the Shipping.

There remains only to ſay a Word or two

Of the Terra Incognita, *and* Artick Regions.

The Latter are bounded on our Hemiſphere by the *Frozen Sea*, which divide 'em from *Muſcovy*; and in the other by the *South Sea*, the Sea of *Chriſtiana*, and *Hudſon's Streights*, which ſeparate them from *America*. To belong to theſe are reckon'd

Iſland, an Iſland belonging to the King of *Denmark*.

Greenland, not Inhabited.

Spitsberg, the moſt Northerly of all theſe Artick Countries.

Nova Zembla, to the North of *Muſcovy* from which 'tis parted by the Streights of *Weigatz*, by which 'tis thought the Seas of *Muſcovy* and *Tartary* have Communication. Thoſe that can prove and paſs it, may go to the *Indies* without weathering the Cape of *Good Hope*.

The Land of *Jeſſo*, Situated, as 'tis ſaid, between *Aſia* and *America*: If ſo, 'tis without Doubt the Way the Ancients travell'd by to their *Atlantick* Iſland.

The Streights of *Jeſſo* ſeparate it from *Great Tartary*, and of *Anian* from *America*. We are told Part of this Country is ſubject to the Emperor of *Japan*.

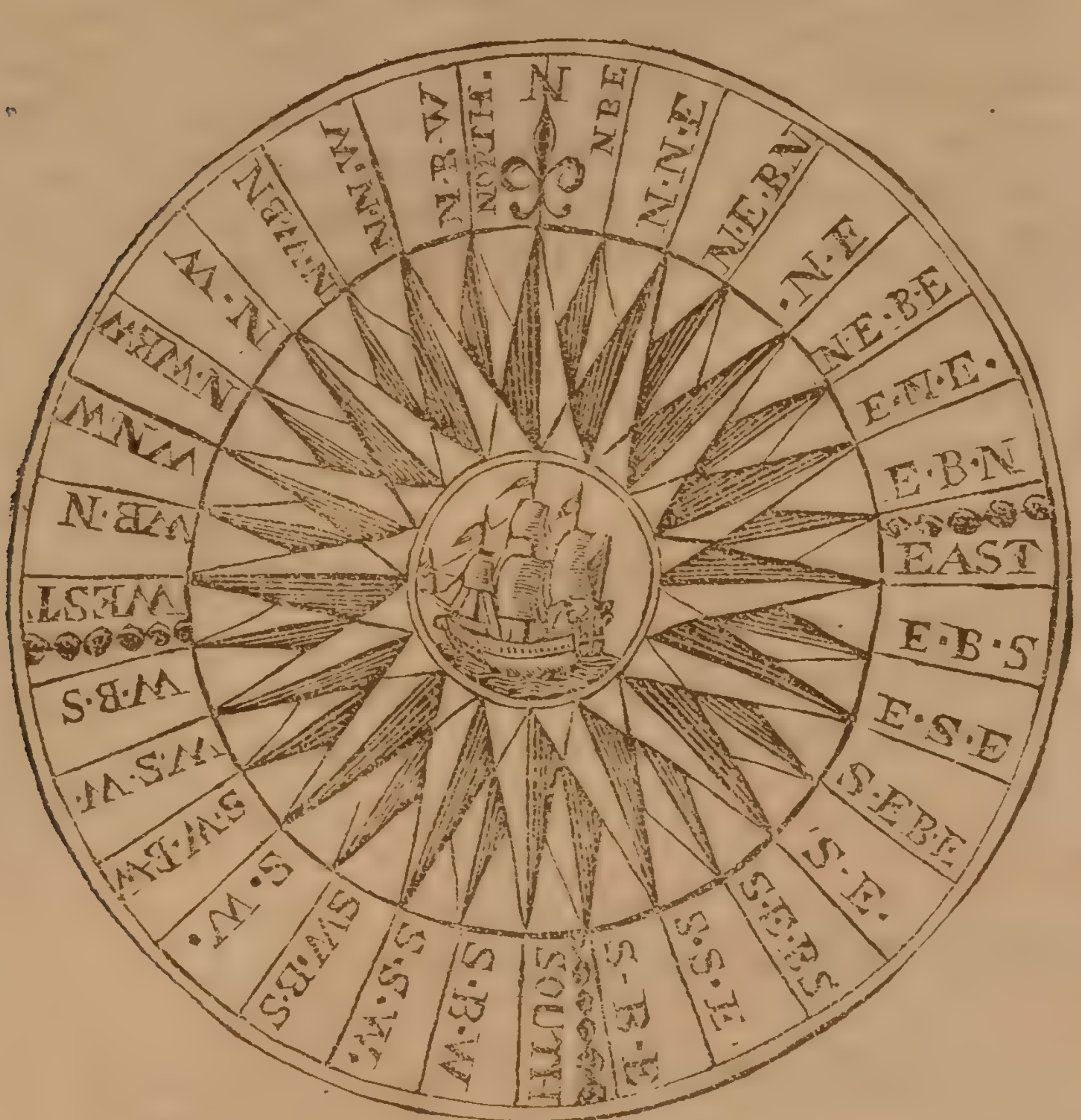
The *Antartick Regions* or *Terra Incognita*, are towards the South Pole, and was diſcover'd by *Magellan*. Their Name of *Terra Incognita* is ſufficient to excuſe us from enlarging upon 'em; and indeed Authors ſeem to make this Vaſt Country, the Inhabitants, &c. what they pleaſe.

NAVIGATION.

WHatever is pretended by the Idolizers of Antiquity, of the Superiority of the Ancients over us as to the other Arts, this, we hope, will be allow'd us entirely, and with it one of the moſt Uſeful *Sciences* that ever was produc'd by the Invention of Man. The Ancients knew no more of it than a *Coaſter* that brings Coals from *Newcaſtle* to *London*. What are their *Mediterranean Voyages* to *Drake's*, *Magellan's*, *Dampier's*, and thoſe Illuſtrious *Navigators* whom the Circumference of the Globe cou'd only confine.

Navigation is the Art of *Sailing*, by which a *Mariner* is inſtructed how to guide a Ship from one Part to another, the ſhorteſt and ſafeſt way, and in the ſhorteſt time. It is either *Improper* or *Proper*: *Improper* is call'd *Coaſting*; as when the Places are no great Diſtance one from another; when the Ship Sails uſually in Sight of Land, and is within *Soundings*; for the Performance of which is requir'd a good Knowledge of the Lands; the Uſe of the *Compaſs*, *Lead*, or *Sounding-Line*, &c. *Navigation Proper* is when the Voyage is perform'd in the Vaſt Ocean, out of Sight of all Land; and here 'tis neceſſary, not only to have ſufficient Knowledge of the *Lead*, *Compaſs*, &c. but the Maſter muſt be a *Thorough Artiſt*, and underſtand *Mercator's Charts*, *Azimuth* and *Amplitude*, *Compaſs*, *Log-Line*, and all good Inſtruments for Cœleſtial Obſervations that can be us'd at Sea. We muſt now explain what theſe Inſtruments are.

The *Compaſs* is a Circle divided into 4 Quadrants, repreſenting the Four Cardinal Winds or Principal Points, Eaſt, Weſt, North, and South; and each Quarter Subdivided into 8 other equal Parts, making in all 32 Rhombs or Points of the Compaſs, as by the Figure.



This Circle thus graduated, being drawn on a *Chard* or *Paſt-board*, has a touch'd Needle or Wire plac'd under it, and in its Center a Braſs Conical Hollow, by which means it hangs *Horizontally* on an Erect Pin, and keeps its *Lilly* or *North Point* always to the *North*, by which the Man at *Helm* knows how to keep the Ship to her *Courſe*.

Mercator's Chart is a Projection of the Face of the Earth in *Plano*, by which the Degrees on the *Meridian* increaſe towards the *Poles* in the ſame Proportion that the *Parallel Circles* decreaſe towards them.

An *Azimuth Compaſs* is an Inſtrument made in a Large Box, with *Jambols* and a broad Limb having 90 Degrees Diagonally divided, with an Index and Thread to take the *Sun's Amplitude* or *Azimuth*, in order to find the Difference between the *Magnetical Meridian* and the *Sun's Meridian*, which ſhews the Variation of the *Compaſs*.

Log-Line is wound about a *Reel* for that purpoſe, fix'd in the Gallery of the Ship. This Line for about 10 Fathom from the *Log* has no Knots, becauſe ſo much ſhould be allow'd for the *Log's* being Clear out of the *Eddy* of the Ship's *Wake* before the *Glaſs* is turn'd up. But then the Knots or Diviſions begin, and ought to be 50 Foot long from one another, tho' the Common Erroneous Practice at Sea is to have them but at 7 Fathom or 42 Foot Diſtance.

The *Croſs-Staff* is to take the *Meridian Altitude* of the *Sun* or *Stars*, in order to find the *Latitude*.

The *Aſtrolabe* is an Inſtrument to take the Height of the *Sun* or *Stars*. It conſiſts of an entire Circle, whoſe Limb is divided into Degrees and Decimal Parts of a Degree, with a moveable *Ruler* which turns upon the Center and carries two Sights. At the *Zenith* is a Ring to hang it by in time of Obſervation, and then you need only turn it to the *Sun*, that the Rays may paſs freely thro' both the Sights, and the Edge of the *Ruler* cut the *Altitude* in the Limb. This Inſtrument is not now much in Uſe at Sea.

The *Quadrant* is a very Uſeful Inſtrument; the Limb is divided into 60 Degrees, and as many Parts of a Degree as the Bigneſs of the Inſtrument will bear; and this, by means of a String and Plummet, gives you the *Sun's Altitude*, or that of any Star or other Object above the *Horizon*, reckon'd from that Edge of the *Quadrant* where the Sights are not plac'd. In *Collins's Quadrant* this Limb is alſo divided into Time and number'd accordingly, and then it ſerves very readily to find the *Sun's* Right Aſcenſion either in Degrees or Time.

We omit the *Calendar* which is plac'd next, and below it is the *Projection*, which is a fourth Part of *Stoffler's Aſtrolabe*. The *Quadrant of Altitude* relates to the Artificial Globe.

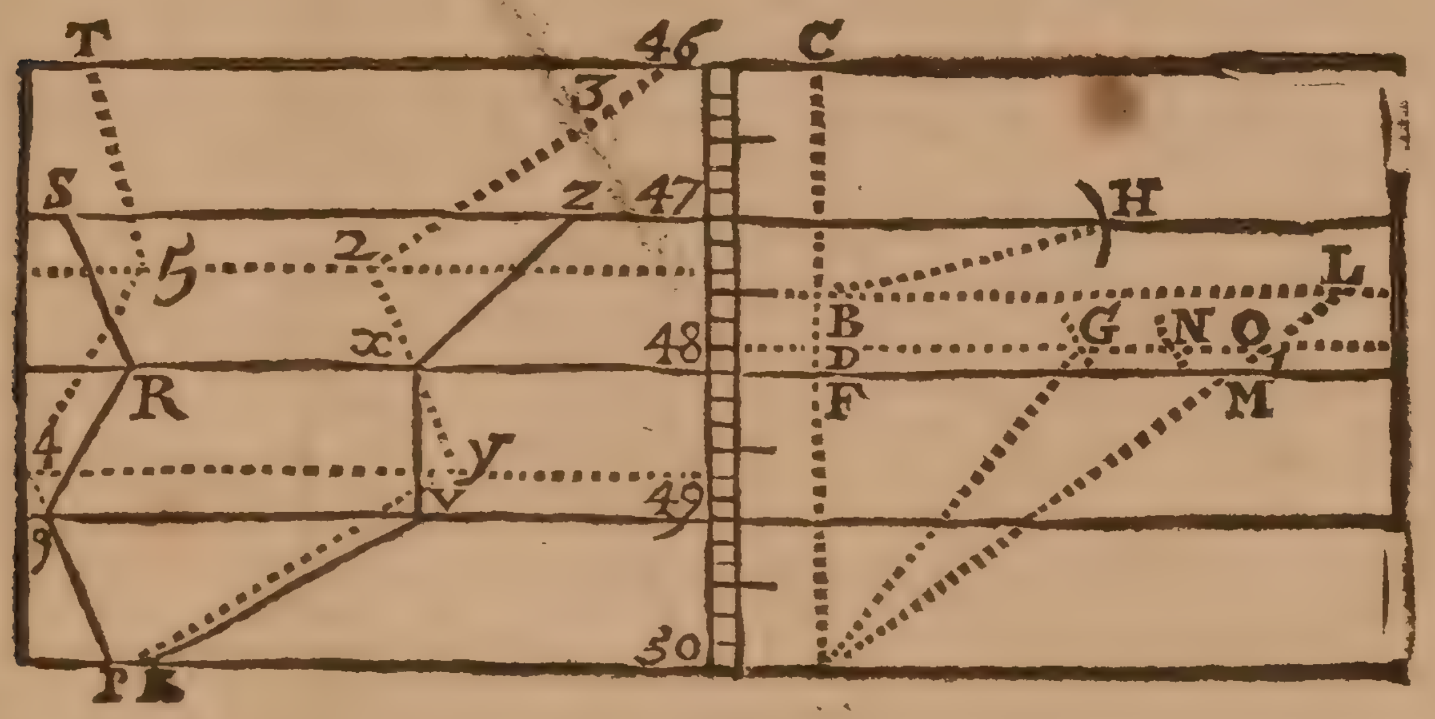
We now proceed to the Method of *Sailing*, and Firſt of the Uſe of the

Log-Board, which, with the *Line* is to keep an Account of the Ship's *Way*; for as many *Knots* as run out in half a Minute (meaſur'd by a half Minute Glaſs) ſo many Miles do they count the Ship Sails in leſs than an Hour, or ſo many Leagues and Miles in a *Watch*. As if there be veer'd out 4 Knots in half a Minute the Ship runs 4 Miles an Hour, or 5 Leagues and 1 Mile in a Watch. The Way of heaving the *Log* is; Firſt to let it down into the Water, then let it run away ſo far as to be out of the Eddy of the Ship's *Wake*; and then one having an half Minute-Glaſs in his Hand, turns it up juſt when the firſt Knot runs off the *Reel*. The Line running eaſily off, when the Glaſs is out he cries *Stop*, another ſtops the *Reel*, and then they count the *Knots* run out; and if they can be ſo exact as to count the odd Feet which the *Line* ſhall run out above any Knot, they ought to account 5 Feet for a Tenth Part of a Mile more. This Invention is follow'd by the *Engliſh* only; and whatever Foreigners pretend to the Advantage of their own Practice, is the ſureſt Method of meaſuring a Ship's *Way*: For there's none of theirs but is liable to more Objections. In the *Steerage* or ſome other Part of the Ship, hangs up a Board call'd the *Log-Board*; a Table divided into 5 Columns, and ought to be of the following Form. This *Log Board's* Account ſhou'd every Day at Noon (when an Obſervation of the Latitude if poſſible ought to be made) be enter'd into the *Log-Book* or *Traverſe Book*, Rul'd and Column'd as the *Log-Board*, from whence it may be tranſcrib'd into the Journals, and how much Way the Ship has gain'd in her *Courſe* daily Eſtimated.

The LOG-BOARD.

Hour of the Day.	The Ship's Courſe. S. W. by S.	Log-Line runs Knots,	Feet.	Winds, Weather, Accidents, &c.
1		4	5	W.N.W. *a moderate Gale.*
2				
3				
4				
5				
6	S.	8	5	W. S. W. *a ſtrong Gale.*
7				
8				
9				
10				
11				
12	N.W.byN.½W.	7	0	W. b. S. *Thick Hazy Weather.*
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				

Dead Reckoning is that *Eſtimation* which the *Seamen* make of a Place, where a Ship is by keeping an Account of her *way* by the *Log*, by knowing the Courſe they have ſteer'd by the *Compaſs*, and by rectifying all with allowance for *Drift*, *Lee* and *Way*, *&c.* according to the Ship's Trim; ſo that his *Reckoning* is without any Obſervation of the *Sun*, *Moon* and *Stars*, and is to be rectify'd as often as any good Obſervation can be made. There are ſeveral ways of correcting the *Dead Reckoning.* When the *Dead Latitude* differs from the *Obſerv'd Latitude*, you muſt correct your *Dead Latitude* as your Courſe has been. For if *North* and *South*, and by Reckoning you find your *Latitude* leſs than by Obſervation, the Ship's Place in the ſame *Meridian* muſt be corrected, and is the *Obſerv'd Parallel.* As for inſtance; Suppoſe you depart from A, C taken notice of in the following Figure, in the 50th Parallel or Latitude of 50 Degrees, and that you Sail directly South 50 Leagues 'twill appear by your *Reckoning* that the Ship is at B, in the Latitude of 47 Degrees, 30 Minutes; but by your *Obſervation* the Ship is in the Latitude of 47 Degrees. Therefore to correct your *Dead Reckoning*, prick your Point in C under the ſame Meridian, and in the 47 Parallel according to your *Obſervation.*



If in Sailing *North* or *South*, the *Obſerv'd Latitude* is leſs than the *Latitude* by *Reckoning*, you muſt ſhorten your Diſtance in the ſame *Meridian* according to your *Obſerv'd Latitude.* As for Example,

Suppoſe you depart from A C in the Latitude of 50 Deg. and Sail South 43 Leagues, which is 2 Deg. 10 Minutes Difference by your *Reckoning*, it will appear you are arriv'd at D in the Latitude of 47 Deg. 50 Minutes; but if by your *obſerv'd* Latitude you find you are but arriv'd in the Parallel of 48 Deg. Prick your Point in F and not in D, becauſe your *Obſervation* ſhews an Error in your *Reckoning.* To Correct the *Dead* Latitude by your *Obſerv'd* Latitude when you Sail *Eaſt* or *Weſt* this Example will do. Admit that departing from B in the Parallel of 37 Deg. 37 Min. after having Sail'd 43 Leagues Weſt, you find by *Obſervation* you are in the Latitude of 47 Deg. To Correct your Courſe, take with your Compaſs on the *Meridian* the 43 Leagues Sail'd, and ſetting one Foot in B with the other, deſcribe an Arch which will cut the 47 Parallel, and the Point of *Interſection* at B will mark the Place of your Ship.

We cannot avoid ſaying a Word or two of *Sailing*, both *Plain* and *Mercator's.*

Plain Sailing is the Art of finding all the *Varieties* of a Ship's Motion on a *Plain* where all the *Meridians* are made *Parallel*, and the *Parallels* of *Right Angles* with the *Meridians*, and the *Degrees* of each *Parallel* equal to that of the *Equinoctial*, which, tho' notoriouſly falſe in itſelf, as ſuppoſing the *Earth* and *Sea* to be a Plain flat and each *Parallel* equal to the *Equinoctial*; yet by laying down Places accordingly, and breaking a long Voyage into many ſhort ones, a Voyage may pretty well be perform'd by it.

The *Chart* moſt in uſe among common *Navigators* is the *Plain Chart*, whoſe Degrees of Longitude and Latitude are made of the ſame Length; which, tho' it be very eaſie and uſeful in ſhort Voyages and will ſerve in the longeſt Voyages, if you Sail home in or near the oppoſite *Rhumb* you went by, yet becauſe few Places or indeed none but ſuch as lye under the ſame *Meridian* or under the *Equinoctial*, can be expreſs'd in it according to their true Situation and Diſtance, the Difference of Longitude will be falſe. If they be laid down by that Courſe and Difference of Longitude, then will the Diſtance and Difference be more than it ſhou'd be, and if they be laid down by their Diſtance and Difference of Longitude (which in many caſes is impoſſible) then the Difference of Latitude will always be too little, and the *Rhumb* too wide from the *Meridian.* And if they be laid down by their *Latitude* and *Separation*, then the *Courſe* will be *wide*, and the *Diſtance* too much, *&c.* and ſince Places, in particular *Charts*, being laid down in ſome one way, and in others another, and theſe Pieces many times tack'd together without due Conſideration of the differing Methods places have been laid down by. The *Geography* and *Hydrography* of the World, is ſo corrupted, that too many Deſcriptions of the whole or of the large Parts of it are enormouſly Erroneous, and the Shape of the Land much diſtorted. It were to be wiſh'd therefore, ſays my Author, that the World wou'd not put over much value on, but wean itſelf from the Uſe of the *Plain Chart*, and by making the true *Chart* eaſie and familiar, bring it in Reſpect and Uſe.

'Twas the great Study of our Predeceſſors to contrive ſuch a *Chart in Plane with* ſtrait Lines, on which all or any Part of the World might be truly ſet down according to their *Longitudes*, *Latitudes*, *Bearings* or *Diſtances.* A way was hinted for this near 2000 Years ago by *Ptolemy*, and a general *Map* according thereto, made in the preceding Age by one *Mercator*; but the Thing Demonſtrated, and a ready way ſhew'd of Deſcribing it was not known till Mr. *Wright* taught to enlarge the *Meridian Line* by the continual Addition of *Secants*, ſo that all the Degrees of *Longitudes* might be proportional to thoſe of *Latitude* as on the *Globe*; which he has done after ſuch an excellent manner, that in many reſpects 'tis far more convenient, for the *Navigator's* Uſe than the *Globe* itſelf, and will better ſhew the *Courſe* and *Diſtance* from *Place* to *Place* which way a Ship ſails or returns. This is call'd *Mercator's* Sailing, and is the Art of finding on a Plane the Motion of a Ship upon any aſſign'd Courſe true in Longitude, Latitude and Diſtance. The *Meridians* being all *Parallel*, and the *Parallels* of Latitude ſtraight Lines.

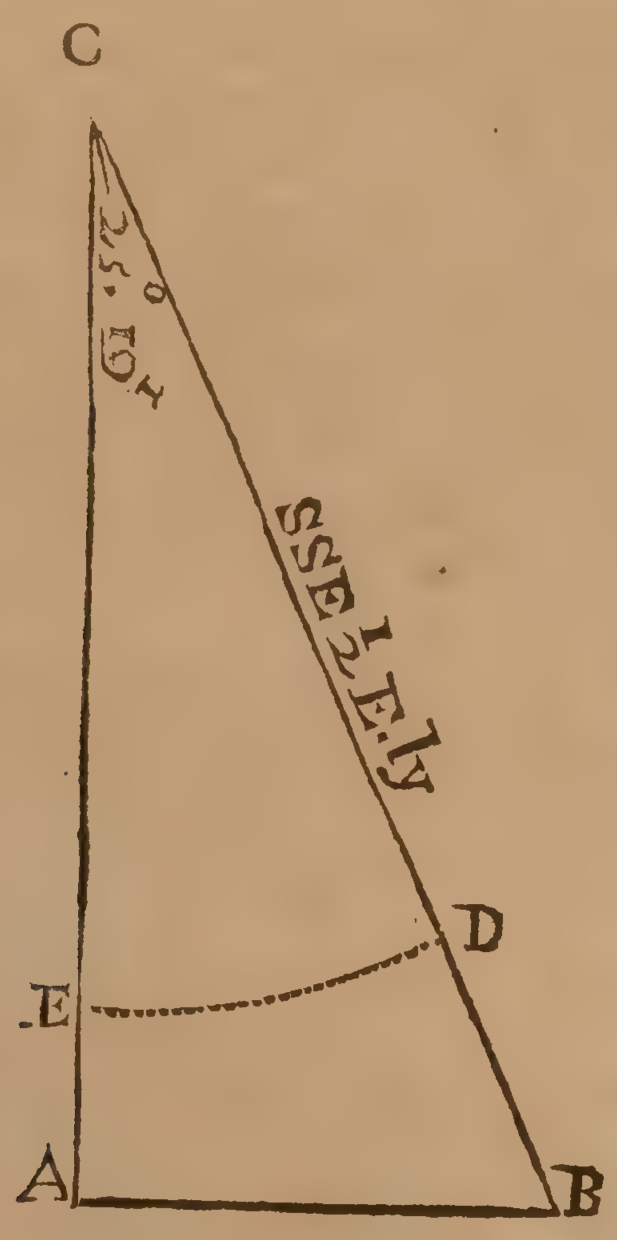
The Rumb or Courſe of a Ship is the Angle which ſhe makes in her Sailing with the *Meridian* of the Place where ſhe is. The *Complement* of the *Rhumb* is the Angle made with any Parallel to the Equator by the Line of the Ship's run. A *Rhumb* is alſo one Point of the Compaſs, or $11\frac{1}{4}$ Degrees, *viz.* the $\frac{1}{32}$ Part of the Circumference of the *Horizon* or *Compaſs Card*; which is the *Repreſentative* of the *Horizon.* A *Rhumb Line* is a Line deſcrib'd by the Ship's Motion on the Surface of the Sea, ſteer'd by the *Compaſs* making the ſame or equal

Angles with every *Meridian*. *Rhumbs* are Heliſpherical or Spiral Lines proceeding from the Point where we ſtand winding about the Globe of the Earth, till they come to the Pole, where at laſt they loſe themſelves; but in the *Plain* and *Mercator's* Charts they are repreſented by ſtraight Lines. Their Uſe is to ſhew the bearing of any Two Places one from another, that is upon what Point of the Compaſs any Shoar or Land lies from another. Having premis'd theſe Things, we will proceed to ſome Caſes in *Plain Sailing*, and *Mercator's*, refering the Reader to what has been ſaid before of both the one and the other.

In *Plain Sailing* it is imagin'd that by the *Rhumb Line*, *Meridian* and *Parallel* of Latitude, there will always be form'd a *Right Angled Triangle*, and that ſo poſited as that the Perpendicular may repreſent Part of the Meridian or North Line, South Line containing the *Difference* of *Latitude*. The *Baſe* of the *Triangle* repreſents the Departure, and the *Hypotheenuſe* the *Diſtance Sail'd*. The *Angle* at the Top is the Courſe, and the *Angle* at the Baſe the *Complement of the Courſe*, any Two of which with the *Right Angle* being given; the *Triangle* may be protracted, and the other Three Parts found. As

Suppoſe, *The Courſe and Diſtance given to find the Difference of Latitude and Departure from the Meridian.*

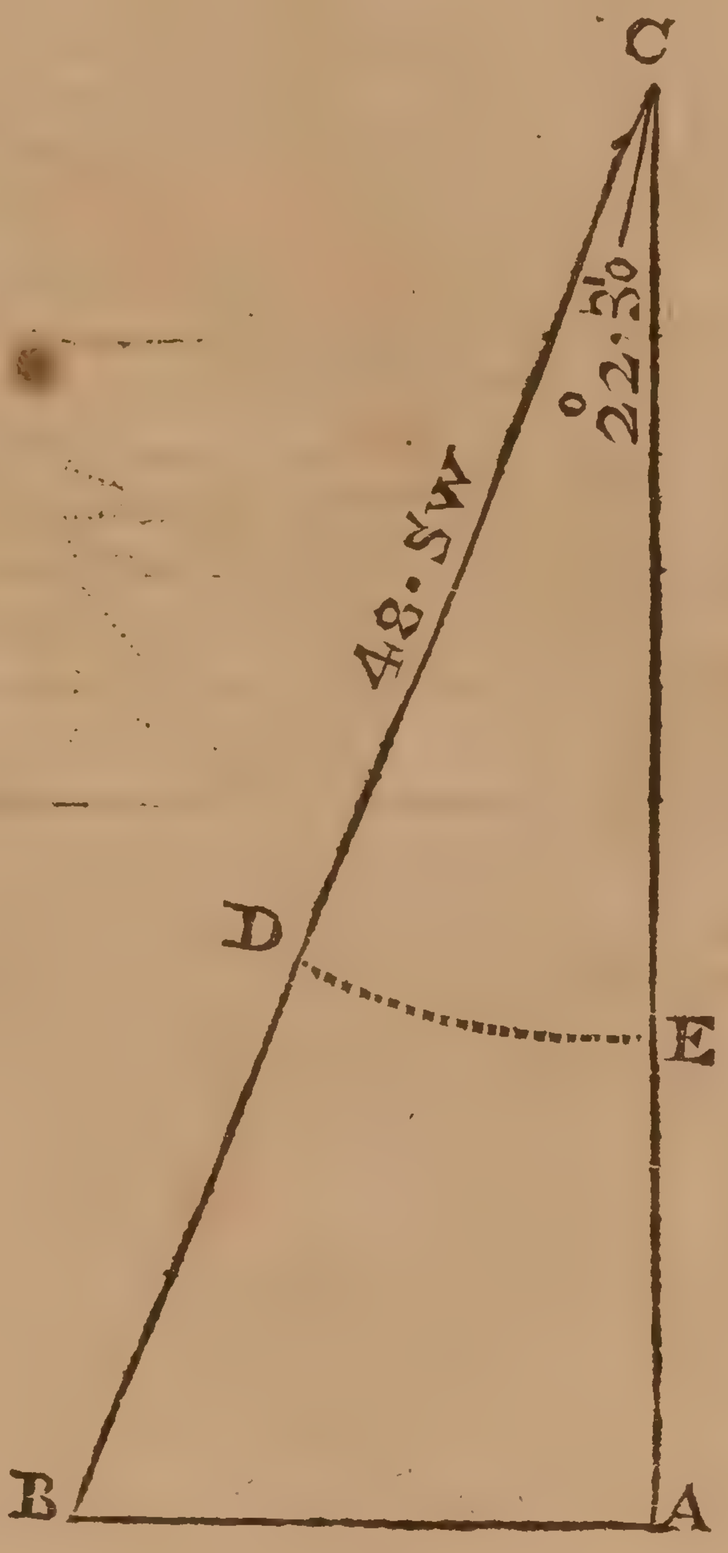
Admit a Ship from the Latitude 50°, 10′ North, Sails S S W 48, 5 Miles. I require the Latitude ſhe is in, and her Departure or Separation.



Draw A C the South and North Line, and with 60 Degrees from the Line of Chords (a Chord in Geometry is a Right Line connecting the Extremities of any Arch of a Circle) from C (becauſe the Ship Sails Southward) deſcribe D, E, which make equal to 22 Degrees 30 Minutes the Courſe, and draw C, B, which make alſo equal to 48. 5 from any Line of equal Parts. Then let fall from B, B A Perpendicular to the Meredian, ſo is the Triangle compleated, and the Lines C A B A may be meaſur'd from the ſame Scale. This is to be done alſo by *Logarythms* and *Gunter's* Scale. *Logarythms*, as defin'd by Captain *Halley*, are *Indexes* of the *Ratio* of Numbers one to another. They were firſt invented by the Lord *Nepper*, a *Scotch* Baron, and compleated by Mr. *Henry Briggs*, Savilian Profeſſor of Geometry at *Oxford*. They are a Series of Artificial Numbers, invented for the Eaſe and Expedition of Calculation, proceeding in an Arithmetical Proportion as the Numbers they anſwer to do in a Geometrical one; but we rather Deſign to ſhew a Gentleman what he is to learn towards acquiring this Science than pretend to teach it him; the ſame we do by the others, our limits being too confin'd to expatiate on Things ſo much as is neceſſary for compleat Inſtruction. *Gunter's* Scale, call'd by the common Seamen the *Gunter*; is a large *Plain Scale* with the Lines of Artificial Signs and Tangents, fitted ſo to a Line of Numbers, that they can by the Compaſſes work all Queſtions in *Navigation* and *Dialling*, &c. with tolerable Exactneſs if the Scale be large and good. To return to our *Plain Sailing*,

2. *The Courſe and Difference of Latitude being given to find the Departure and Diſtance ſail'd.*

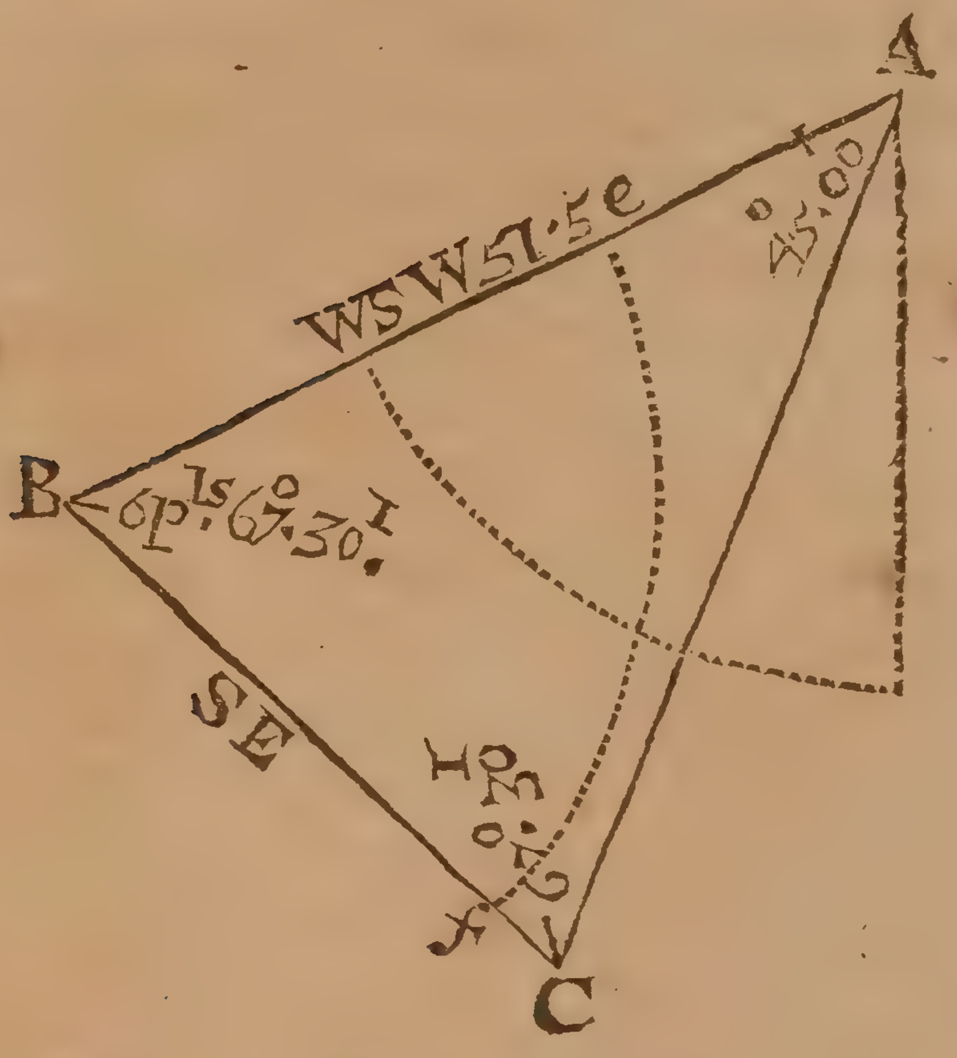
Admit a Ship to Sail from Latitude 48 Degrees 30 Minutes S S E ¼ Eaſterly till ſhe be in Latitude 47 Degrees 21 Minutes. I demand the Departure and Diſtance ſail'd.



Draw the North and South Line C A, and ſubſtracting the Latitudes one from another, it leaves 69 Minutes for their Difference, make C A equal to 69 from the Line of equal Parts; from C with 60 Degrees from the Line of Chords deſcribe D E which make equal to 25 Degrees 19 Minutes, draw C D, and raiſe the Perpendicular A B which compleats the Triangle B A C, whoſe requir'd Parts may be meaſur'd by the Scale. We cannot give more Examples in theſe Caſes; but ſhall only repeat ſome Heads. 3. *The Difference of Latitude and Diſtance ſail'd, given to find the Courſe and Departure.* 4. *The Diſtance run, and Departure from the Meridian given to find the Courſe and Difference of Latitude.* 5. *The Difference of Latitude and Departure, from the Meridian given to find the Courſe and Diſtance.* 6. *The Courſe and Departure given to find the Diſtance and Difference of Latitude.* Theſe are the uſual Caſes of Plain Sailing; which are all to be perform'd by the Knowledge of *Rectangled Plain Trigonometry*.

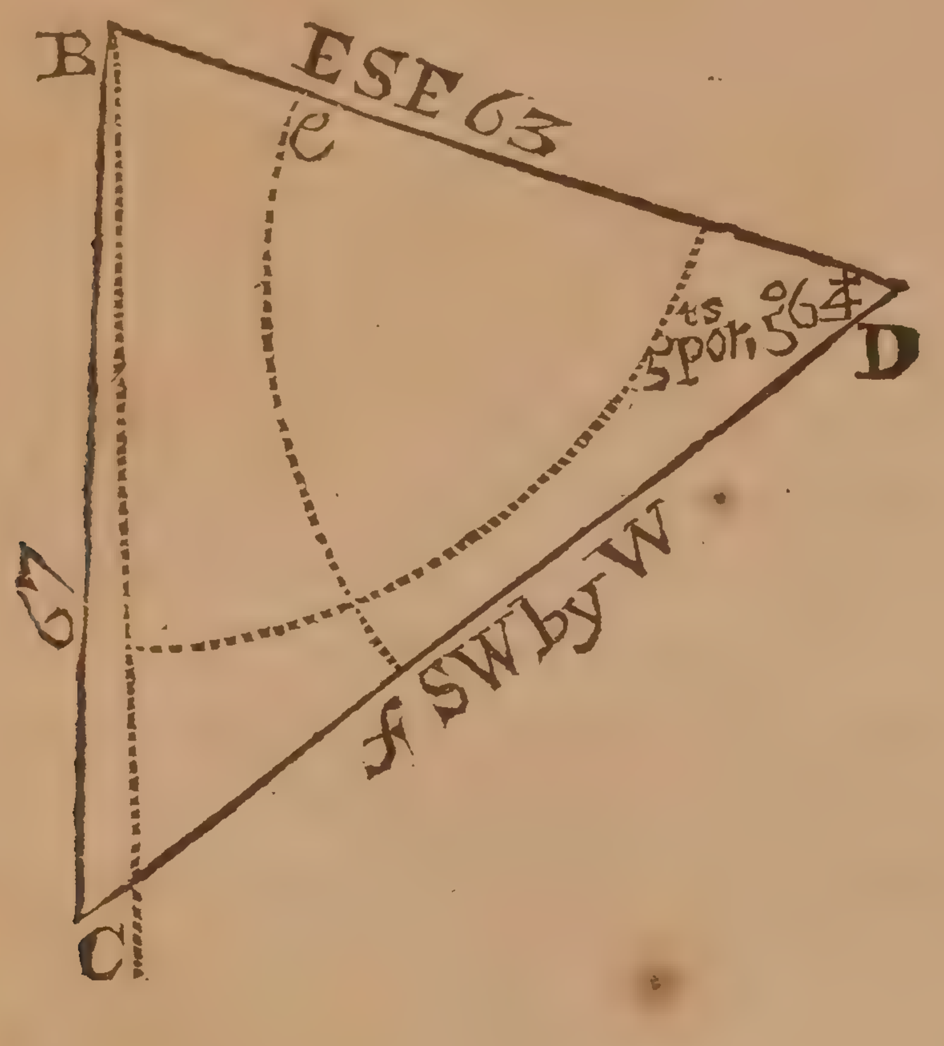
The Doctrine of *Oblique Plain Triangles* is not of ſuch neceſſary Uſe in *Sailing* as that of Right Angled ones is. However we ſhall inſert Two or Three of the moſt uſeful Caſes of it.

Coaſting along the Shoar I ſee an Headland C bearing off me S. S. W. and Sail W. S. W. 51, 5 Miles to B, and then the Headland C bears S. E. from me. I demand my ſeveral Diſtances to the Headland.



From A draw a S. S. W. Line as A C, and a W. S. W. Line as A B, and make A B = 51. 5 Miles, then from B with 60 Degrees of the Chords deſcribe e f, which make equal to 6 Points and draw B f.

A Ship in the Parallel of 46 Degrees North at B, deſcries a Headland at C, diſtant from her 67 Miles; ſhe Sails E. S. E. 63 Miles to D, and then the Headland at C bears S. W. by W. from her. How did the Headland bear from the Ship when ſhe was at B, and how far is it diſtant from her now ſhe's at D?



From B draw an E. S. E. Line B D, which make equal to 63, and from D with 60 of the Chords decribe e f, which make equal to 56° 15′ draw D f e, then from B with 67 Miles croſs D C in C, and draw B C.

We are in the next Place to add ſomething of *Mercator's* Sailing.

To find the Meridional Miles anſwering to any Difference of Latitude. Firſt, By the Table of *Meridional Parts*, which are Printed in moſt Books of Navigation, find the Degrees of either Latitude over-head, and the Minutes in the Left-hand Column downwards, and in the Angle of Meeting are the Parts for that Latitude. Thus alſo are found out the Parts for the other. Then if both Latitudes be of the ſame Name, that is both *North* or both *South*, ſubſtract theſe one from the other, and that Remainder contains the Meridional Miles ſought: If of different Names add them together. As in Example.

Example I.

Requir'd to find the Meridional Miles between Latitude 43°, 15′ North, and 50°, 20′ North.

$$\begin{array}{l}\text{Lat. } 50^\circ, 20' \text{ North} \text{———} \\ \text{Lat. } 43, 15 \text{ North} \text{———}\end{array}\left.\begin{array}{r}35057\\ \underline{28837}\end{array}\right\}\text{Merid. Part.}$$

$$\text{Merid. difference of Lat.} — 6220$$

Example II.

$$\begin{array}{r}\text{Let one Lat. be } 20^\circ, 19' \text{ S.} — \\ \text{The other } 18, 53 \text{ N.} —\end{array}\left.\begin{array}{r}12423\\ \underline{11541}\end{array}\right\}\text{Mer. Part.}$$

$$\text{Merid. Difference of Lat.} \text{——} 23964$$

The Latitudes and Differences of Longitudes of two Places given to find the Courſe and Diſtance between them.

Admit the Courſe and Diſtance between the *Lizard* in Latitude 50°, 10′ North, and *Antego* in Latitude 17°, 25 North, whoſe Difference of Longitude is 50°, 15′ Weſt, requir'd.

$$\left.\begin{array}{l}\text{From } 50^\circ, 10'\\ \text{Subſt.} \underline{17, 25}\end{array}\right\}\text{N. L.}\left\{\begin{array}{l}\textit{Liz.}\\ \textit{Ant.}\end{array}\right\}\text{M. P.}\left\{\begin{array}{l}3490\\ \underline{1060}\end{array}\right.$$

$$\begin{array}{lr}32, 45 & \\ \underline{60} & 2439 = \text{to M. D. L.}\end{array}$$

$$1965 = \text{Diſt. La. Diſt. Lo.} = 54^\circ, 15' = 3255 \text{ M. W.}$$

The Latitude and Courſe given. The Diſtance, Difference of Longitude and Departure requir'd.

Example.

Sailing from the *Lizard* Latitude 50° 10′ North, and the Courſe being 53°, 16′ Weſterly, (Variation and Leeward Way, *&c.* allow'd for) or S. W. 3/4 W. near, and finding by Obſervation the Ship to be in Latitude 17°, 25′ North, What's the Diſtance run, Departure and Difference of Longitude

$$\left.\begin{array}{l}\text{From } 50^\circ, 10'\\ \text{Subſt.} \underline{17, 25}\end{array}\right\}\text{N. Lat.}\left\{\begin{array}{l}\textit{Lyzard}\\ \textit{Obſerv'd,}\end{array}\right\}\text{M. Part.}\left\{\begin{array}{l}3490\\ \underline{1060}\end{array}\right.$$

$$\text{Rem. } 32, 45 = 1965 \text{ Diſt. Lat. M. Diſt. Lat. } 2439$$

Diſtance what,

As the Sine of the Courſe? Rad. Dif. Lat. Diſt. and 36°, 44′ : S. 90°, 00 :: 1965. 3285.

Departure what,

Rad. Mer. Diſt. Lat. :: T. Courſe Diſt. Long. T 45 : 2439 Min. :: T. 53°, 16′, 3255 Min.

Having touch'd upon *Plain Sailing* and *Mercator's Sailing*, we muſt now ſpeak of *Traverſe* in Navigation, which is the Variation and Alteration of the Ship's Courſe upon the Shifting of Winds, *&c.* It muſt be noted, that in Sailing, in reſpect of the Wind, is either *before a Wind*, *by a Wind*, or *Largeing.* If a Ship Sail by or againſt a Wind, there ought to be an Allowance for the *Lee-Way*, and that more or leſs according to the Growth and Surge of the Sea, Mould of the Ship, and Sail ſhe bears, *&c.*

Example.

A Ship being bound to the Eaſtward, and finding the Wind variable, a ſmall Gale and ſmooth Water, plies upon theſe ſeveral Courſes with the Diſtances on each Courſe, as follows:

The Larboard tack on board, Wind from S. S. W. to S. and ſo to S. S. E. and E.

	Miles.
South-Eaſt and by Eaſt, half Eaſterly	5
Eaſt-South-Eaſt	4
Eaſt-by-South	7
Eaſt, half Northerly	3

The Starboard tack on board, the Wind S. E. E. S. E. E, *&c.*

	Miles.
South-South-Weſt	5
South-by-Weſt	6
South	4
South-South-Eaſt	7
South-Eaſt-by-South	3

The direct Courſe and Diſtance from the Firſt Place of Departure is requir'd.

The Work by Traverſe Table.

Courſe.	Points.	Diſtance.	North.	South.	Eaſt.	Weſt.
S. E. by E. ½ Eaſterly.	5½	5		2.36	4.41	
E. S. E.	6	4		1.53	3.70	
E. by S.	7	7		1.37	6.86	
E. ½ Northerly.	7½	3	29		2.98	
S. S. W.	2	5		4.62		1.91°
S. by W.	1	6		5.88		1.17
S.	0	4		4.00		00.0
S. S. E.	2	7		6.47	2. 8	
S. E. by S.	3	3		2.49	1.67	
			29	28.72	21.70	
				29	3.08	
Summ				28.43	18.62	

Having ſet down the ſeveral Courſes and Diſtances, then in the *Traverſe Table* find the Courſe in the Head of the Table, if under Four Points, but at the Bottom if above Four Points; and look the Diſtance in the Left-hand Column, and in the *Square* Meeting will be the Difference of Latitude and Departure under the reſpective Titles. Thus above 5½ Points, and right againſt 5 M. I find over Title Dif. Lat. 2,36 M. in the Difference of Latitude, and over Dep. 4.14. the Departure in the Firſt Courſe, which being plac'd in their Proper Columns, according as they are *Northing* or *Southing*, &c. Proceed in the ſame manner with all the other Courſes or Diſtances, Entring and Correſponding Differences of Latitude and Departures in their Columns; then add up the Columns of Difference of Latitude and Departure, Subſtracting the leſs Difference of Latitude from the greater, and the leſs Departure from the greater, and the Remainders are the whole Difference, Latitude and Departure ſhe has made from the Place of her Departure: So in this Example ſhe's 28° 43′ to the South of the Place of her Departure, and 18° 62′ M. Eaſt, by which I find her Courſe is S.E.by S. Southerly, and Diſtance 34° 5′ M.

It will not be look'd for from us to qualifie a Gentleman in ſuch a ſhort Eſſay to Commence Captain of an *India Man*; and if we cou'd teach him much more, he wou'd hardly truſt himſelf over the *Humber* with his Science. Before we proceed further, we ſhall treat of the Ship's Fabrick. A Ship ought to be built of Wood that will long endure the Water, and whoſe uſeleſs Moiſture is conſum'd with Fire, Pitch'd and defended from Corruption. It muſt be ſo ſhap'd as to be apt for a Quick Motion, and to be mov'd with a ſmall Power. There are ſeveral ſorts, as

Men of War, call'd by the *Spaniards*, *Galleons*, by the *Portugueſe*, *Carracks.*

Theſe are of all Burthens, from 2000 to 200 Tuns. The leſs ſort are term'd alſo

Frigats, and ſo are Merchant Ships Square Stern'd.

Fly-boats differ from theſe in being built rounder and bellying out a-Stern with a narrow Top.

Flutes are large *Fly-boats.*

Caraveles are little *Fly-boats* with 4 Triangular Sails very much us'd on the *Mediterranean.*

A *Hoy* is a ſmall Ship or Bark whoſe Yards are not a Croſs nor the Sails Square, but like a Mizen, and ſo ſhe can lie nearer the Wind than a Veſſel with Croſs Sails.

A *Ketch* is a ſmaller Veſſel of this Kind.

Galleys are flat and very long, with 20 or 30 Oars of a Side, and 4 Men to an Oar. *Galeaſſes* have 50 Oars of a Side, and are moſt us'd by *Spaniards.*

Shallop is a Small light Veſſel with only a ſmall Mainmaſt and Foremaſt, and *Lugg* Sails to hale and let down upon occaſion. They commonly are good Sailors, eſpecially the *French Shallops*, and are often us'd as *Tenders* on *Men of War.*

As to *Pinnaces*, *Long Boats* and the ſmaller *Craft*, we ſuppoſe they are too well known to need any further Explanation. Something might be ſaid of *Ship-Tackling* and *Sea-Terms*, but the *Sea-Dictionaries* are ſo Copious and Perfect in this Matter, that 'twould be in vain for us to pretend to refine upon them or to abridge them in our Compaſs. We might here Treat of the Lading of Ships and their Drawing Water, which for our wonted Reaſon muſt be omitted.

We ſhall add a few things which are not ſo difficult, relating more to the *Theory* than the Practice of Navigation; and herein ſpeak of the Winds, not *Phyſically* but *Nautically*, If we may be allow'd the Expreſſion. The Ancients had no Notion of any Wind's being fair for a Ship, but what was in her Stern, or at leaſt very little contrary; and we read in Hiſtory that the Famous *Genoeſe* Admiral *Andrew Doria* was thought a Conjurer by the Mariners of the *Black Sea*, when they ſaw him Sailing towards them with a Wind almoſt in his *Teeth*. The *Rhumbs* or 32 Points of the Compaſs, are of admirable Uſe in this; for a Ship may Sail towards the ſame Place with 20 or 21 of them. And 'twou'd be aſtoniſhing

ing to think that a Wind which is quite contrary to a Ship, ſhall not hinder her advancing, if we did not know that ſhe can ſhift her Courſe ſometimes to one ſide ſometimes to another, to take hold of the faireſt *Rhumb*. By this means a Weſterly Wind makes a Ship's Way Northerly or Southerly, as well as an Eaſterly; and Ships are every Day in the *Streights* ſeen on contrary Courſes with the ſame Wind. A Mariner may, as has been hinted, make uſe of 21 Winds out of the 32 to follow the ſame Courſe. If he wou'd Sail Northwards all Winds are fair for him from South Eaſt ¼ Eaſt to South Weſt Quarter Weſt. People generally think the Wind that's full a-Stern is the faireſt; but Sailors prefer a Side Wind to it, as if a Ship was bound to the South, a North Eaſt or North Weſt Wind wou'd do better than one full North, which wou'd be full a-Stern. The Reaſon is, ſhe can then hardly make uſe of any but her *Main-Sail*, whereas with a Side Wind all the Sails are uſeful which do not hinder one another. In Stormy Weather *ſhifting a Rhumb* is not Practicable, becauſe the *Sails* are furl'd and the Ship lies by. There are Certain Regular Winds call'd *Trade-Winds* by ſome, Winds which blow always, or almoſt always, one Way. In the *Torrid Zone* the Wind is almoſt always Eaſterly, for which Reaſon when the *Spaniards* Sail for *America* they go to the *Canaries*, and deſcend far into the *Torrid Zone* to take in the Eaſterly Wind. They do the ſame when they Sail from *Peru* to the *Philippine Iſlands*; they touch at *Aquapulco* on the Coaſts of *New Spain*, where the Wind is fair to carry them to the *Iſles of Thieves*, to the Eaſt of the *Philippines*, where they arrive with the ſame Wind. When they return they aſcend higher than the *Iſles* of *Japan*, towards 40 Degrees Latitude, from whence they Sail towards the *Coaſts* of *Mexico*; for commonly they meet with a North Weſt Wind which carries 'em to *California*, and from thence they return to *Aquapulca*. Between the *Molucca Iſlands* and the *Peninſula* of the *Ganges* in the *Indian Sea* the Wind is generally Eaſt from *June* to *October*, and all the reſt of the Year 'tis moſt commonly Weſterly. There are certain Regular Winds which the *Indians* call *Manſons*, and we *Monſoons*. Whether they took it firſt from us or we from them, is not much to our Purpoſe. Theſe *Monſoons* reign between *Java* and *China*, blowing between the South-Eaſt and the North-Eaſt from the Beginning of *September* to the End of *March*. The reſt of the Year they are Weſt or South Weſt towards the Streights of *Molucca*. The *Monſoon* is Northerly from *November* to *April*, and Southerly from *May* to *Auguſt*. On the Coaſt of *New England*, &c. the North-Eaſt Wind begins about the End of *November* and laſts to the End of *March*; then the South-Eaſt ſucceeds during the Spring and Summer, and ſometimes the North-Weſt, but does not ſtay long. On the *Mediterranean* an Eaſterly Wind blows generally from Morning to Noon, and then a Weſterly commonly ſucceeds it.

The Seamen in their Navigation have ſeveral Preſages of *high Winds, Rain and Storms*. When they ſee a *Whitiſh Circle* round the *Sun* they expect foul Weather; When they obſerve a *Red Cloud* in the Horizon when the *Sun* Riſes or Sets, the Wind, if their Prognoſtick is good, will be in that Corner. When the Rays of the Sun are Red when it Riſes, 'tis a Sign of Wind; if a Blemiſh or Black Cloud encircles the Sun when it Sets, they look upon it as an infallible Sign of a Storm. When the *Sun* looks Pale at its Riſing it betokens Rain; if at its Setting, Wind. When 'tis Red all over at its Setting, High Winds are to be fear'd for ſeveral Days. When it Riſes Clouded, and darts its Rays below the Cloud, it preſages Rain; if thro' the Middle, Storms with Rain. When the Clouds gather from all Parts about the Sun, 'tis a Sign of a Storm. The Fifth Day of the Moon is thought by them to be more Subject to Storms than any other. When a *Spot* is in her upper Horn, they ſay 'tis a Sign of Rain; If ſhe do's not appear the Fourth Day, and the Wind is Southerly, they expect bad Weather all that Moon; when ſhe has a Whitiſh Circle round her it Prognoſticates Rain; when there are ſeveral, and her Body appears *Reddiſh*, 'tis a Token of a Storm. They expect a Terrible Tempeſt when the Sea looks blackiſh; and if the Water bubbles, and the Waves ſwell on a ſudden 'twill be a long one; when Porpoiſes and other Sea-Fiſh play above Water, it foretells a Storm; when Swallows fly low it preſages Wind and Rain. My Author has not been pleas'd to give me one Reaſon on which any of theſe Prognoſticks are grounded but the laſt, and that he ſays is, becauſe the Wind drives down the Flyes on which the Swallows live, and forces 'em to come to the Surface of the Water.

All the reſt depend on the Arbitrary Judgment of the Rude Sailor: However, ſince Experience in theſe Caſes qualifies Perſons to Judge, as well as all the Knowledge of *Phyſicks* wou'd do, we cannot think theſe Preſages are not to be minded, or that they may not be of Uſe at Land, if the Places have ſufficient Communication with the Sea.

We ſhall in the next Place diſcourſe of the *Currents* to be met with in the Sea, of which Navigators ſhould be very well inform'd. We do not intend to treat of 'em as they are a Branch of Natural Philoſophy, having treated of Tides already. Mariners tell us there's a General Current that runs from the *Poles* to the *Torrid Zone*. They alſo affirm there's a General Current from Eaſt to Weſt in the Torrid Zone, and judge of it by the vaſt way they make in 24 Hours, which ſome attribute to the Wind. But it has been obſerv'd often, that in Sailing from *Peru* to the *Molucca's* with a good Wind, has taken up but 3 Months, whereas it has requir'd 5 or 6 to return the ſame way with as good a Wind. 'Twou'd be very uſeful if Mariners kept Journals of the Currents they meet with in the Sea, with Remarks of the Circumſtances attending them. We have read of the following: In the Sea of *Petzora* to the North of *Muſcovy*, are Currents that go Eaſt ¼ North, from the Iſle of *Kolgoy* by the Streight of *Weigatz* to the Mouth of the River of *Oby* in the Gulph between *Tartary* and *Nova Zembla*. In this Gulph are Great Iſlands of Ice, very dangerous to Navigators who ought to avoid 'em carefully. There's another from the North Cape which comes from the North-Weſt all along the Coaſts of *Muſcovite Lapland* to the Mouth of the *White Sea*. There are Rapid Currents along the Coaſts of *Arabia* in the Ocean, and towards the End of *September* you meet with Great Tides and Eaſterly Winds beating in on the *Red Sea*, at which time Ships cannot eaſily get out of the Gulph.

In an *India Voyage* a Ship ſhou'd not come within 100 Leagues of the *Maldives* Iſle, for the Currents are very ſtrong and the Sea full of Rocks the nearer you approach them. To the North-Weſt of *Gilolo* are extraordinary Currents, particularly in the Streight of *Caldera*: They run ſometimes Northward, ſometimes Southward, and with ſuch Violence that they have broken a Cable of 27 Inches about, of a Ship lying at Anchor. On the Coaſt of *Guinea* the Current always runs Eaſt-North-Eaſt in the Gulph of *Benin*, ſo that if you wou'd go to the Gold Coaſt you can't keep too much to the South. To the North of *Madagaſcar* you meet with a Current which carries you Northward to the Cape of *Guardafuy* on the Coaſts of *Ajan*. And from the Bay of St. *Auſtin* in the Southern Part of that Iſle, there's another Current which runs from North-Weſt to South Weſt as far as the Cape of *Good Hope*, which is the Reaſon that *Europeans* are ſo hard put to it to double this *Cape*. There's a ſtrong Current in the *Mediterranean* from the Streights of *Gibraltar* all along the *Barbary* Shoar to the Bottom of the Gulph of *Lajazzo* in *Aſia*. Our Author having carry'd us thus far wou'd ſtop us with an Account of the Diſeaſes to which Mariners are Subject, but he tells us nothing new; what we call *Sea Sickneſs* and *Scurvy* are ſo well known, that he might have ſpar'd himſelf the Pains of treating of them as we ſhall do.

Of all the Sciences we treat of, tho' this is of the Laſt Importance to the Publick Good in advancing of Commerce; yet Gentlemen generally preferring *Freſh Water* to *Salt*, and ſeldom venturing themſelves farther than Fiſhermen, we ſhall ſay no more of it. Thoſe who are deſirous to be Maſters of it are referr'd to *Hodgſon's* Navigation, and the *Gentleman's Dictionary* will interpret all the Sea-Terms to Satisfaction.

DYALLING.

SINCE theſe *Eſſays* are intended for the Entertainment of Gentlemen, it will not be improper to give them a ſhort Hiſtorical Account of an *Art* which is little known or ſtudy'd. The Firſt *Sun-Dial* that was ſet up in *Rome* was by *Papyrius Curſor*, about the Year of the City 447; before which, *Pliny* tells us, there's no mention of any Account of Time, but of the *Sun's* Setting and Riſing. This *Dial* was erected in the Temple of *Quirinus*, more for Ornament and Novelty than Uſe, for it did not go Right. About 30 Years after this, as we are inform'd by *Varro*, M. *Valerius Meſſola* being Conſul, brought out of *Sicily*, from the taking of *Catana*, another *Dial* which he ſet up in a Pillar near the *Roſtrum*, but for want of its being made for that particular Latitude it cou'd not go true; however it was us'd 11 Years. And then *Martius Philippius*, who was Cenſor with *L. Paulus*, ſet up another that was more exact. The *Greeks* were a long time without *Clocks* or *Dials*; ſome attribute the Invention of *Sun-Dials* to *Anaximenes Mileſius*, and ſome to *Thales*. *Vitruvius* mentions many kinds of *Dials*, as one invented by *Beroſus* the *Chaldæan*, which was in a *reclining Plane*, Parallel almoſt to the Equinoctial; on this was an half Circle, and then 'twas call'd *Kemicyclus*. *Ariſtarchus Samius* found out the Hemiſphere Dial, and there were ſome Spherical ones with a Needle for a *Gnonon*. The *Diſcus* of *Ariſtarchus* was an Horizontal Dial with its Line rais'd up all around to prevent the Shadow from extending itſelf too far. Having ſaid thus much in favour of Antiquity we muſt do ſo much Juſtice to the Moderns as to ſay, that whatever they knew of this *Art* was very imperfect in Compariſon of the Progreſs lately made in it, now it is reduc'd to Rules, and defin'd to be

The Art of Deſcribing Hour Lines truly on any given Plane, ſo as thereby to ſhew the Hour of the Day when the Sun ſhines.

The *Art* of *Dyalling* is founded on this Suppoſition, That the whole Earth is but a Point in Compariſon of the *Magnus Orbis*, or the Sphere of the Sun's Motion round it (or of it round the Sun) and therefore the *Hour Lines* drawn on any *Plane* are in effect the ſame with theſe *Right Lines* produc'd by the mutual Interſection of a great *Circle* of the *Sphere* Parallel to the *Plane* of the *Dial*, and to the *Planes* of the ſeveral *Hour Circles*. For the *Plane* of every *Dial* is *Parallel* to ſome greater *Circle* of the *Sphere* which is as far from the *Plane* of the *Dial* as is the Point aſſign'd from the *Apex* or *Point* of the *Stile*. The Situation therefore of the *Plane* is the firſt Thing to be conſider'd, and this properly ſpeaking is only in reſpect of the *Horizon* or the *Meridian*.

In reference to the Horizon, if a Plane be exactly Parallel to it, it is call'd an *Horizontal Plane*; and the *Dial* drawn on it an *Horizontal Dial*. If the Plane be perpendicular to the Horizon, as all thoſe of Walls are ſuppos'd to be, the *Dial* deſcrib'd on it is call'd a *Direct Mural Dial*. If the *Plane* be *Oblique* to the *Horizon*, it either hangs over towards you making an *Acute Angle* with it, and then it is call'd an *Inclining Plane*, or elſe it falls of backward from it, making an *Obtuſe Angle* with it, and then 'tis call'd a *Reclining Plane*; and if it reclines back equal to the *Complement of the Latitude* off that Place, it lies in the *Plane* of the *Equinoctial*, and is therefore call'd an *Equinoctial Dial*.

In reſpect of the *Meridian*, a Plane is either *Direct* or *Declining*. The Plane of a Dial is *Direct* when it reſpects one of the Four Cardinal Points directly, or when 'tis either Parallel to the *Meridian* as are all *Direct Eaſt* or *Weſt Dials* (which therefore are properly call'd *Meridional*) or Perpendicular to it, as are all *Direct*, *Erect North* and *South Dyals*; which becauſe they lie in the Plane of the *Prime Vertical Circle* are rightly call'd *Vertical Dyals* by moſt Authors.

The *Plane* of a *Dial* is declining when it is not directly oppoſite to any of the Four Cardinal Points, but declines or deviates ſome way from the *Meridian* or the prime *Vertical* Circle.

The Fundamental Scheme for *Dyalling* is the Projection of the Sphere on the Plane of any particular Horizon. This Projection of the Sphere is a true *Geometrical* Delineation of the Circles of the Sphere, or any aſſign'd Parts of 'em on the Plane of ſome one Circle as on the *Horizon*, *Meridian*, *Equator*, *Tropick*, *&c.*

Dial Planes are Plane Superficies on which the *Hour Lines* are drawn in any Latitude, and may be diſtinguiſh'd into Parallel, Perpendicular and Oblique according to their Poſition with reſpect to the Horizon of the Place, where they are.

Parallel Planes or *Dials* are ſuch as lie level with the *Horizon*; of which we have ſpoken before.

A Dyalling Globe is an Inſtrument made of Braſs or Wood with a Plane fitted to the *Horizon*, and an *Index* particularly contriv'd to draw all ſorts of *Dials*, and give a clear Demonſtration of that Art.

HOROLOGY, or DYALLING

he Worſhipfull Thomas
inger of Ivy Church
r Saliſbury in
ltſhire Eſq.

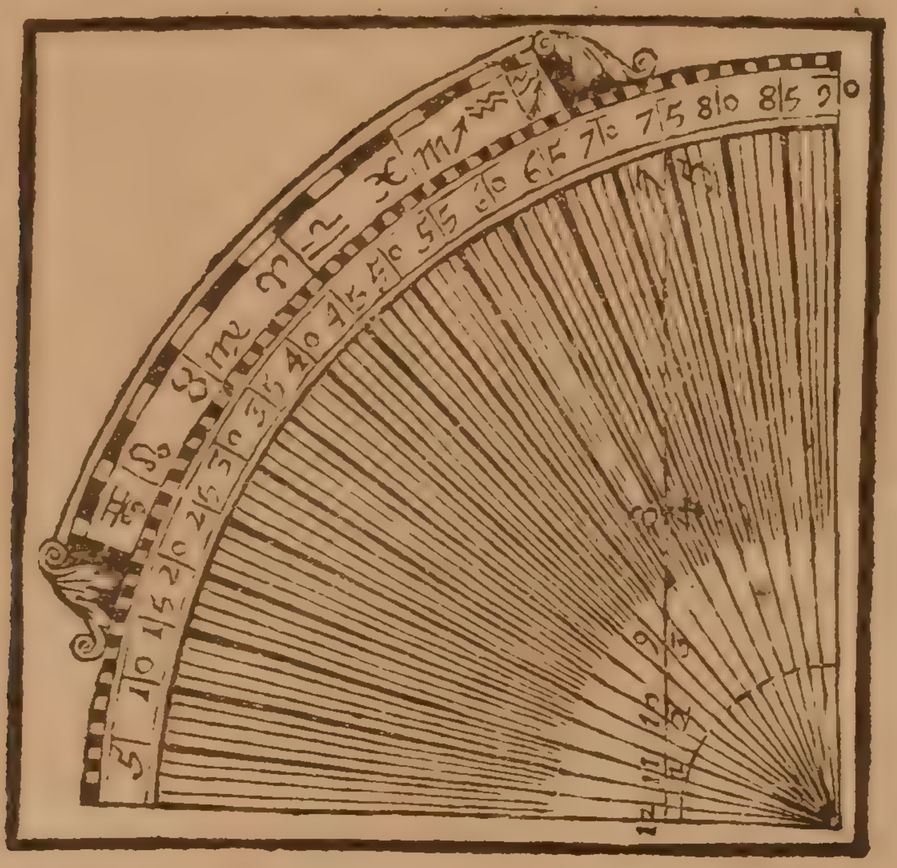
plate is
Dedicated
:Blome

Horology, or Dyalling: may be conſidered in theſe three parts

- **Regular;** are ſuch yt are deſcribed in a Plaine, diſpoſed towards ſome one determined cheiſe part of world, viz
  - direct Eaſt
  - direct Weſt
  - of theſe Regular ye Principall are the
    - Horizontall, which is æquidiſtant towards the Horizon.
    - South Verticall
    - North Verticall
      - are perpendicularly erectet aboue the Horizon, & tends directly towards ye Verticall point.
    - East Meridian
    - Weſt Meridian
      - each of which have their ſeverall wayes which are Equidiſtant from ye Meridian Circle.
    - The Æquinoctiall aboue.
    - The Æquinoctiall beneath.
      - are theſe which each of them their ſeverall wayes are æquidiſtant from ye Equator, ye one aboue, ye other beneath ye Horizon.
    - The Polar above
    - The Polar beneath
      - are thoſe which each of them their ſeverall wayes, ye one above, ye other beneath, are Parallel to ye Axis of ye world.
- **Irregular,** are ſuch that doe not directly point to thoſe principall parts of ye world, but rather decline from them, & are either
  - Declinant, being æquidiſtant from any verticall circle, & are of two ſorts
    - Declining from the ſouth, either to the Eaſt, or Weſt
    - Declining from ye north either to ye Eaſt or weſt.
  - Inclinant are ſuch yt fall off from ye Verticall point, inclineing towards ye Horizon, as not being æquidiſtant from it
- **What things in generall, are neſseſsary to be known for the framing ſundyalls**
  - ye Elevation of ye Pole, which determines
    - The Center of ye hours.
    - The Altitude of ye Style.
    - The ordering ye Dyall it ſelfe.
  - to find out ye Meridian line
  - Instruments neſseſsary for ye makeing Dyalls
    - Rule
    - Compaſses
    - ye Sea Compaſs
    - a Plum line
    - ye Astromomicall Quadrant.
  - To find ye Center of ye Dyall, or hour.
  - To determine ye Place, & Altitude of ye Style.
  - To deſcribe ye Arches of ye ſines in a
    - Horizontall Dyall
    - Verticall Dyall
    - Meridian Dyall
    - Æquinoctiall Dyall
    - Polar Dyall
  - the ſuns declination
  - The Meridian line
  - To place ye Gnomon at its true Center.
  - The Longitude of ye Style.
  - The Æquinoctiall Line
  - The Horozontall line
  - To find ye hour of ye night by ye rayes of ye Moon.
  - ye deſcription of ye hours in ye given plain
  - ye contrivance of the Style as to ye forme & Altitude of it.
  - ye Applycation & diſpoſition of ye dyall it ſelfe.

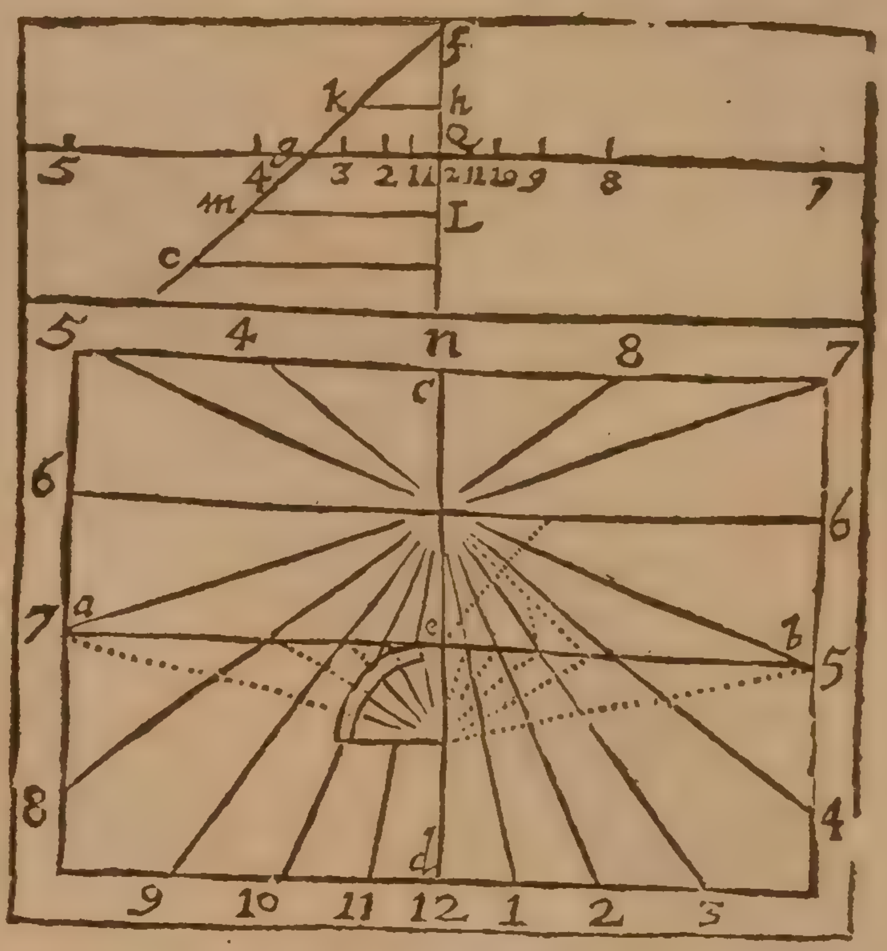
A *Dyalling Sphere* is an Inſtrument made of Braſs, with ſeveral *Semi-Circles* ſtanding over one another on a moving *Horizon*, to demonſtrate the Nature of the *Doctrine* of *Spherical Triangles*, and give a true Idea of *Drawing Dyals* on all manner of *Planes*.

Such as wou'd go ſo far into this Art as to erect a Dyal muſt firſt underſtand the *Elevation of the Pole*, or *the Height of Degrees*, that the Pole in any Latitude appears above the Horizon by which he is to determine of the *Center* of the *Hours* and the *Altitude* of the *Style*, which is the Line whoſe Shadow on the Plane of the Dial ſhews the true *Hour Line.* This is always ſuppos'd to be a Part of the *Axis* of the *Earth*, and therefore muſt be ſo plac'd as that with its Two Extream Points it ſhall reſpect the Two *Poles* of the *World*, and with its upper End the *Elevated Pole.* This Line is the upper End of the *Cock*, *Gnomon* or *Index*. He muſt alſo know how to find out the *Meridian Line* to place the *Dyals Meridian Line* exactly under the *Meridian* of the Place aſſign'd. We have mention'd this *Meridian* already in *Aſtronomy*. He muſt have a Rule and Compaſs, and an *Aſtronomical Quadrant* where the Degrees are exactly and accurately divided by the Help of a Screw on the Edge of the Line fitted with Teleſcopes, and either apply'd to a Wall in the Meridian, or on a ſtrong *Axis* or Pedeſtal with Two Semi-Circles plac'd at *Right Angles* on Two endleſs Screws; which readily directs the Inſtrument to take Obſervations of the Sun, Moon or Stars. This Quadrant muſt be rightly divided into 90 Degrees, and the Horary Line and Points deſcrib'd according to the Scheme.



For the Deſcription of the *Hours*, there are commonly preſuppos'd Two *Right Lines* cutting each other croſs ways to *Right Angles*; of which the one is the *Meridian Line* or Line of the 12th Hour, the other the *Occult Line* which cuts the firſt croſs ways to *Right Angles.* This is call'd by ſome the *Line* of *Hours*; others the *Equinoctial Line*.

All Aſtronomical Hours are diſtinguiſh'd proportionably among themſelves by an Interval of 15 Degrees; becauſe in the ſpace of Five of theſe Hours the Sun runs 15 Meridians. A *Plain Line* is neceſſary in the right placing of the *Dyal* to examine whether it be Parallel to the Horizon or Perpendicularly Vertical, when the Horary Points are to be firſt deſign'd; for which this Scheme will be an Example.



Draw the Line *a*, *b*, which is to be the *Meridian* Line, and that *Obſcure Line c*, *d*, which is to be the *Equinoctial*, and expung'd as ſoon as the *Dyal* is finiſh'd, transfer the Horary Points from the Aſtronomical Quadrant by the Help of the Compaſs to the Equinoctial Line. The *Morning-Hours* are drawn to the Right Hand. In the Equinoctial Line are only found of the *Morning-Hours*, 11, 10, 9, 8, 7; of the *Evening* only, 1, 2, 3, 4, 5. This is call'd an *Horizontal Dyal*, or one whoſe *Plane* lies Parallel to the *Horizon* of the Place; and there are ſeveral Methods of them. As the following, which is taken from a Modern Author of the beſt Authority. You muſt always have the Heighth of the Pole given which is equal to the Heighth of the *Style*, by the Help of which you may find the Hour's Diſtance from the Meridian by the following Propoſition.

As the Radius is to the Line of the *Style's Height*, ſo is the Tangent of the Hour (or Angle at the Pole) to the Tangent of the Hour's Diſtance from 12 (or the Hour Arch).

Example.

Suppoſe an Horizontal Dyal was to be drawn for the Latitude of 51 Degrees 32 Minutes. Firſt find the Diſtance of the Hours 1 and 11 from the Meridian according to the preceding *Canon*.

Thus,

To the S. of the Style's Height 51°,32—9,893745
Add the Tangent of the Hour 15.00—9,428052

Sum Rad. = T of the Hour Arc. 11°,50'—19321797

Which is the Diſtance of 1 and 11 from the Meridian Line. In the ſame manner find the reſt of the Hour's Diſtances, and place 'em in a Table.

'Tis ſuppos'd that the Reader before he will go upon ſuch Experiments is very well acquainted with Logarithms without which this Scheme cannot be operated.

The Table.

Lat.	32 Deg. 51.		Min. N.	
Hours	Ang. at Pole.		Hour Arches.	
	G.	M.	G.	M.
12	00	00	00.	00
11. 1	15	00	11.	50
10. 2	30	00	24.	20
9. 3	45	00	38.	3
8. 4	60	00	53.	35
7. 5	75	00	71.	6
6	90	00	90.	00

For the *Stile* make the Angle B, C, A = to the Latitude of the Place.

So ſhall B, C, A, be the *Style* or *Cock*; which muſt ſtand perpendicular on C 12, and point due North. If you wou'd calculate for every half Quarter you muſt ſay,

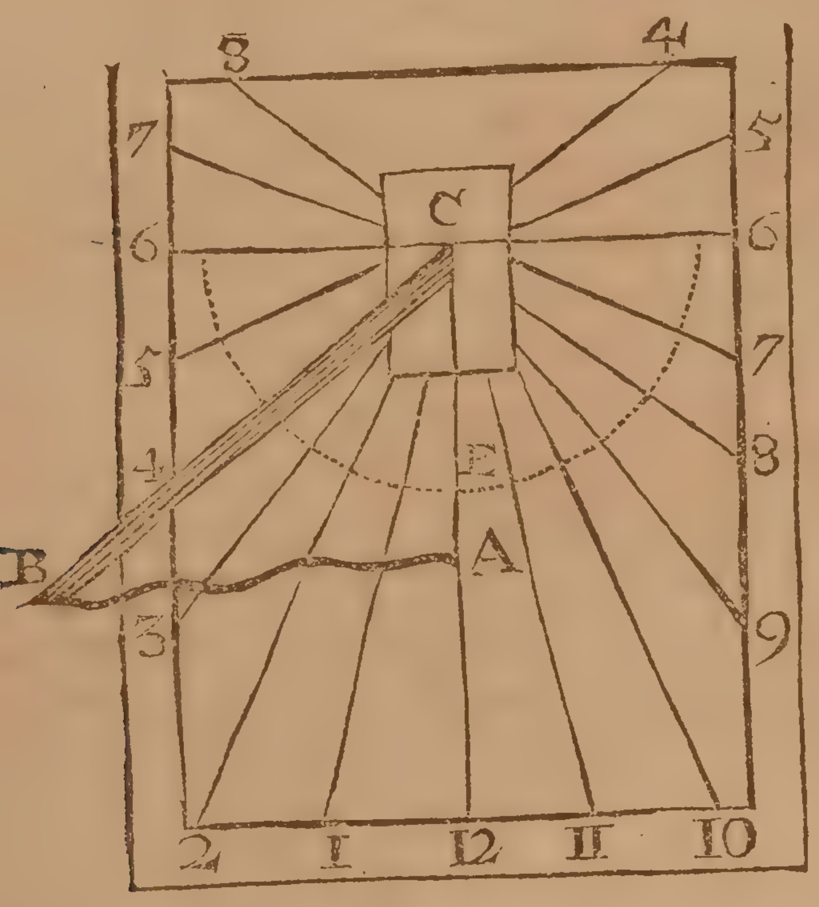
As Rad. S. Lat. : : T, 1 Degree 52 Minutes,

To the Tangent of the firſt half Quarter's Diſtance from the Meridian : :

So T, 3 Degrees 45 Minutes : To T of the firſt Quarter of an Hour's Diſtance : :

So T, 5 Degrees 37 Minutes : To a Quarter and half Quarter's Diſtance : :

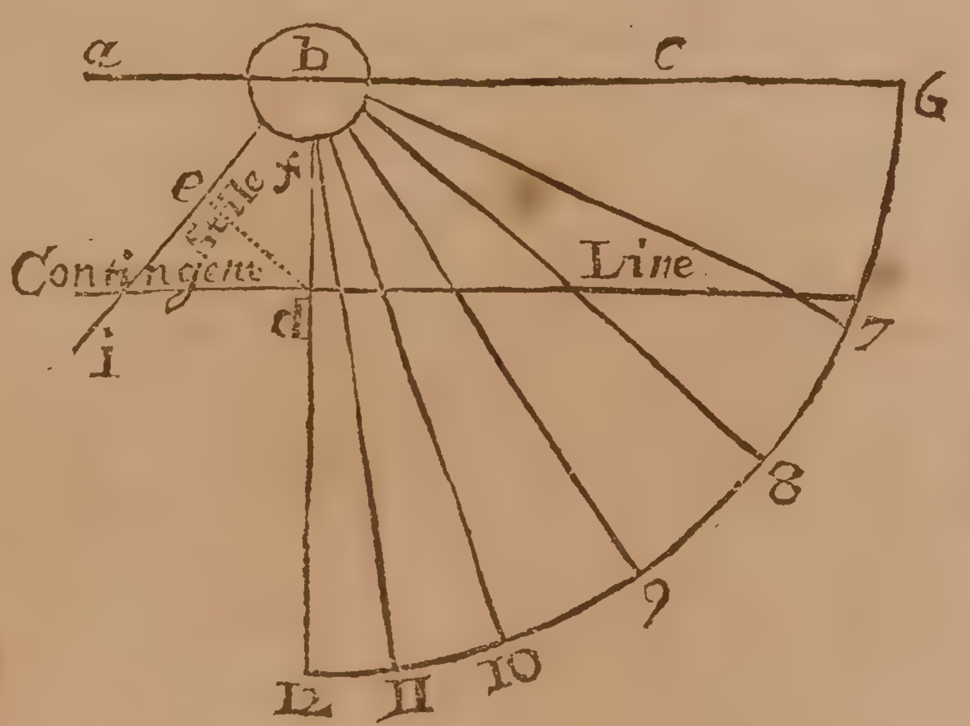
So T, 7 Degrees 30 Minutes : To the Half Hour's Diſtance, &c.



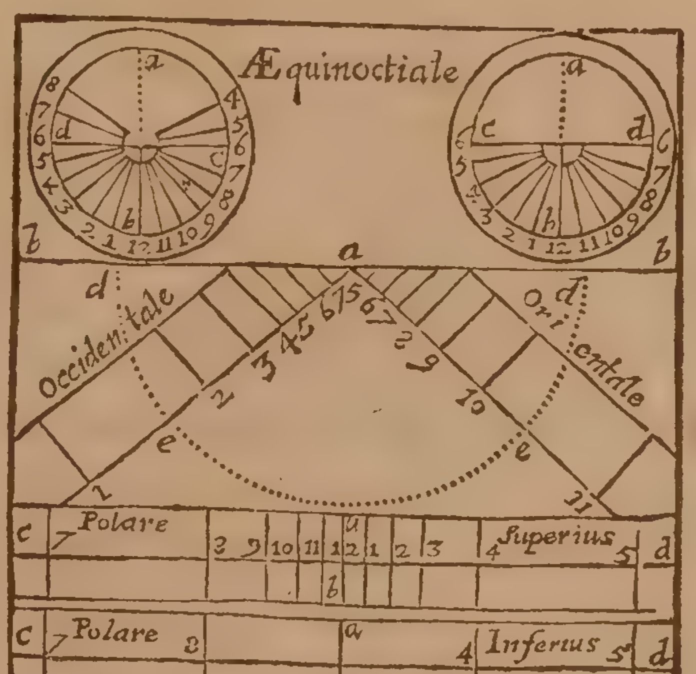
To deſcribe the *Dyal*, reſpect muſt be had to the Bigneſs of the *Plane*, and the Place for the Center C determin'd; and then thro' C draw C 12 for the Meridian (which will be the Subſtylar Line and Hour Line of 12) and at *Right Angles* to it 6, C 6 for the Hour Line of 6, then on C with a Line of *Chords*; whoſe Radius is proper for the Largeneſs of the Dyal. Draw a Circle, and from E both ways ſet the ſeveral Diſtances of the Hour Arks, found by Calculation in the Circumference of that Circle: Then lay a *Rule* to C, and draw Lines from thence thro' all thoſe Diviſions, they will be the true *Hour Lines* on the Plane of the *Dial*.

You muſt note this Practice ſerves to draw an *Erect Vertical Dyal*; only in Calculation, you muſt uſe the *Complement of the Latitude* inſtead of the Latitude, and the Hours muſt be number'd differently.

If you wou'd draw an *Horizontal Dyal* Geometrically, let Two Lines be drawn ſquare wiſe, *viz.* b d for the Hour of 12, and b c for the Hour of 6, draw the *Stile* b c ſo, that the Angle e b d may be equal to the *Elevation of the Pole*; take (where you pleaſe) any Point in the Meridian Line ſuppoſe d, from which into the *Style* let fall a Perpendicular as d e, and transfer it into the Meridian in d f: Then draw i d Perpendicular to the Meridian in d for a Line of *Contingence*. From f, as a Center, deſcribe a *Circle* repreſenting the *Equinoctial* at any conſiderable Diſtance (the bigger the better) and divide it into 24 Parts for Hours, and 48 Parts for half Hours: But 'tis enough for an *Horizontal Dyal*, if one Quadrant between the Hours of 12 and 6 be divided into 6 Parts or 12. Make Points in the *Contingent*, where it ſhall be cut by a Ruler apply'd to the Center, and every Diviſion in the *Equinoctial*. Draw the Hour Lines from the Center b, and every Correſpondent Point in the Contingent erecting the *Stile* over the Meridian according to the Angle i b d.



When you find the *Center* of the *Dyal* or of the Hour, chief regard is to be had to the *Elevation* of the *Pole*; for not any *Dyal* of this ſort will declare the Hours in any Place, but only under that Elevation which belongs to the Region, for which the *Dyal's* made. Suppoſe in this Region the *Pole* be elevated in 49 Degrees which is 41; then place the Foot of the Compaſs in the Center of the Inſtrument, and extend the other Foot from thence to the *Equinoctial Line* deſcrib'd in that Inſtrument, in which part the 41 Degree is cut by the *Radius* numbring from the Line of the 12th Hour. This Extention of the Compaſs transfer upon the Dial, fix one Foot in the Concourſe of the *Meridian* and *Equinoctial Line*, *viz.* e, the other fix in a Part of the *Meridian Line* which is in f, and determine that Point to be the Center of the Hours; for from thence and thro' each Point mark'd in the *Equinoctial Line* are all the Lines to be drawn which are term'd *Hour Arches*. The Reader will perceive this is a New Scheme which has no relation to the former.



Draw thro' that Center of *Hours* a Line Parallel to the *Equinoctial*, which is to be the Line of the 6th Hour both for Morning and Evening. The Lines of the 4th and 5th Hours in the Evening are to be drawn out beyond the Center of Hours; for the Hours 4 and 5 in the Morning (as well as the Lines of the Hours 7 and 8 in the Morning) are to be drawn further out to deſign the Hours 7 and 8 in the Evening. This Scheme is not recommended for this Uſe ſo much as the Two former. It relates alſo to the manner of framing a Meridional Dyal either to Eaſt or Weſt. And Firſt of the Meridian Eaſt Dyal. Draw the Line *a*, *b*, Parallel to the Horizon by *a*; draw a ſlight Circle at any Opening of the Compaſſes beginning from the *Horizontal Line b*, and then towards the Right Side where the Oriental Dyal is to be drawn. Imagine in the Inſtrument the like Arch at the ſame Opening of the Compaſs; then in that Arch cut off the *Complement of the Pole's Elevation*, and transfer that Interval to the Circle drawn from the Point *a*, and let the Arch be cut off in the Point *e*; through which Point *e*, and the Extremity of the Horizontal Line *a*, *b*, draw the Line *e*, *a*, which will be in the Head of an Equinoctial Line, becauſe the Horary Points are to be deſign'd in it. Before you mark 'em draw another Parallel to that Equinoctial; and about the upper Part of the latter mark at Pleaſure the Hour 6, and alſo the like Point in the oppoſite Parallel, ſo as that between theſe Points the Line of the Hour 6 be made at Right Angles. 6 in theſe Dyals are the Beginning of the Hours, and the Style is plac'd in it in the upper Part of that Line where it goes under within the *Horizontal*. From the Horizontal Dyal transfer hither the Intervals of the Hours. The Diſtance of the Hour 1 from 12, which is form'd in the Horizontal, will be in this Place the Interval of the Hour 5 on the one Side, and on the other of the Hour 8, &c. The Firſt Hour of the Sun which appears in this ſort of *Dyal*, is 5, and ſo forwards to 2 incluſive: for 12 cannot well appear. The *Style* in this *Dyal* is a Right Index of a Determin'd Altitude, and is fetch'd from an Interval found between the Point of the Hour 6, and the Point of the Hour 9. The Meridian Weſt Dyal differs little from the Meridian Eaſt Dyal, except that the Occult Arch which is for diſtinguiſhing the Point of the Equinoctial Line, is drawn from the Left Side, and that in the Weſt Meridian the Evening Hours are to be drawn beginning from the 1ſt to the 7th incluſively, with the like Intervals as in the Eaſt Meridian; but the Firſt is in the Lower Place, and ſo the reſt in Order. The Hour 6 is the Place of the *Style* here as in the Eaſt Meridian, and has the ſame Altitude. To deſcribe the Arches of the Signs in this ſort of Dyal: From the Point in which the Stile is Erected, draw a Right Line to cut all the Lines of the Hours to Right Angles, and this will be the Equinoctial Line, in which all the Middle Hours muſt be mark'd, as in the *Horizontal Dyal*; then from the Point in which the Line of the Hour 3 from the Equinoctial is cut, Extend the Compaſs at Pleaſure to deſcribe an Arch, in which the Solar Declinations may be deſign'd in the ſame manner as in the Horizontal Dyal. The Rule is to be apply'd as well to the Points of thoſe Declinations, as to the Point in which the Line of Hour 3 is cut by the Equinoctial, and at the ſame time the Points are to be obſerv'd in which the Line of the Stile is cut as well beneath as above the Style itſelf. By applying the Rule to thoſe Points, as alſo to each Point of the Middle deſign'd in the Equinoctial, it may be obſerv'd in what Part Hour-Lines will be reach'd, ſo as that through thoſe Points the Arches of the *Signs* may be drawn.

The *Equinoctial Dyal* is that whoſe Plain lies Parallel to the Equinoctial. To make this Dyal you need no more than 60 Degrees of your Line of Chords to deſcribe a Circle, in which draw Two Diameters croſſing each other at Right Angles; then divide this Circle into 24 Equal Parts or Hours, which ſubdivide as you pleaſe, every Hour being 15 Degrees, therefore the Half Hour will be 7 Degrees and 30 Minutes, and the Quarter 3 Degrees 45 Minutes. This being done, ſet up a Straight Pin perpendicular to the Plane in the Center of the Circle, and place the Plane Parallel to the Equinoctial, the Meridian Line true North and South, and the Dyal is fitted. Theſe Dyals are commonly ſet up in a Frame to be Elevated to any Latitude.

The next we ſhall treat of are *Polar Dyals*, which are thoſe whoſe Planes are Parallel to ſome Great Circle that paſſes thro' the Poles, or Parallel to ſome one of the Hours, ſo that the Pole is neither Elevated above nor depreſs'd below the Plane, therefore the *Dyal* can have no Center, and conſequently its *Style*, *Subſtyle*, and *Hour-Lines* are *Parallel*; This therefore will be an *Horizontal Dyal* to thoſe who live under the *Equator*. The Style may be either a ſtraight Pin ſet upright, or a Wyre made to lie Parallel to the *Plane*, and muſt ſtand over the Hour-Line of 12. In a *Direct Polar Dyal* the Hour-Lines muſt be drawn all Parallel to the Hour-Line of 12; the Length of the Plane may be taken in any Inches, reckoning the Inch to be divided into 10 or 100 Equal Parts.

'Twill be neceſſary that ſuch as wou'd Erect theſe Dyals be Vers'd in Logarithms as before hinted, becauſe the Operations are moſt eaſily perform'd by them. We have already made ſome Mention of them, and regret the want of Room, that we can't give the Reader here a larger Inſight into them, without referring him to others. Theſe Logarithms are drawn in Tables, which are to be met with in moſt Books of *Trigonometry*, *Navigation*, &c. The *Common*, contriv'd by Mr. *Briggs* before mention'd, is Publiſh'd in Sir *Jonas Moor's Mathematicks*. Having a ſufficient Knowledge of this Table, and the Way of Working it; *For the Height of the Polar Style, ſay:* As the Tangent of the Hour-Line 4 or 5 is to the Logarithm of their Diſtance from the Meridian in Inches and Parts, ſo is the Radius to the Height of the Style in Inches and Parts. *For the Hour-Lines ſay*; As the Radius is to the Logarithms of the Style's Height in Parts of Inches, ſo is the Tangent of any *Hour-Line* to the Logarithm of its Diſtance from the Meridian Line. *As for Inſtance:* Suppoſe your Polar Plane be 12 Inches long, and it be requir'd to put on all the Hour-Lines from 7 in the Morning to 5 in the Afternoon Here you have 5 Hours and 6 Inches on either Side of the Meridian; and before you work the Operation, the Hours and Inches muſt be reduc'd into Degrees and Parts allowing for every Hour or Inch 15 Degrees, ſo you will have 75 Degrees and 600 Parts. *Then for the Style's Height.*

To the Ar. Co. of the Tangent 75° (= 5 Hours } 9,428053
Add the Logarithm of the Diſtance from the Meridian, 600 Poles, } 2,778151

Sum=The Logarithms of the Style's Height, 161 Parts; That is, 1 Inch and 61 Parts of an Inch. } 2,206204

For the Hour's Diſtance from the Meridian.

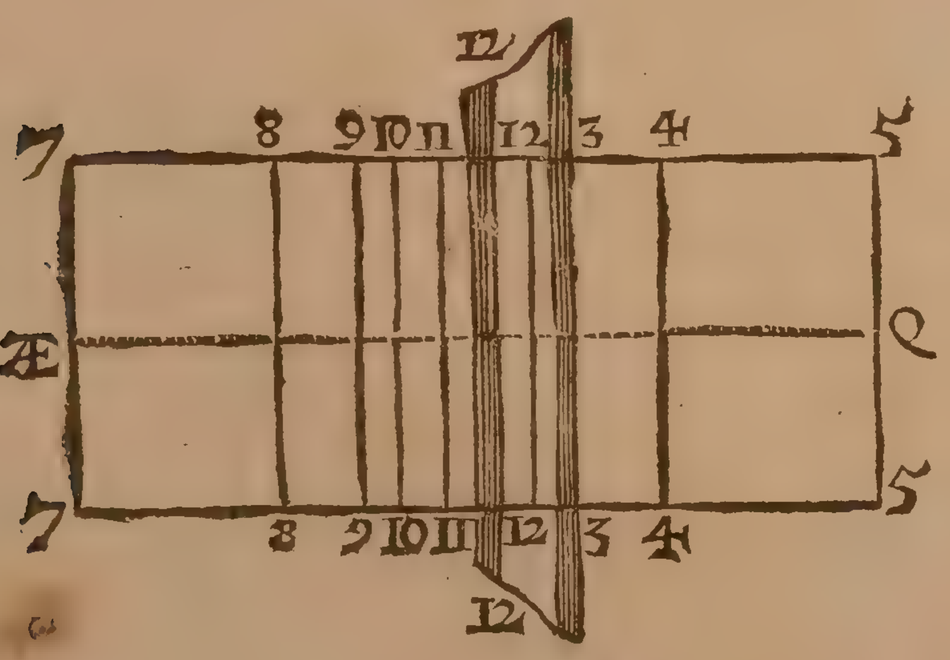
To the Logarithm of the Style's Height, 161 Parts, } 2,206204
Add the Tangent 15° (for the 1ſt Hour) 9,428053

Sum=Radius=Logarithms of the Hour's Diſtance=43 Parts. } 1,634256

After the ſame manner you may find the other *Hour's Diſtance from the Meridian*; then draw them in a Table thus.

Hours.		*Angles at the Poles.*		*Tangents.*	
H.	H.	G.	M.	Inch	Parts.
12.		00	00	00	00
11.	1	15.	00	00	43
10.	2	30.	00	00	63
9.	3	45.	00	1	61
8.	4	60.	00	2	79
7.	5	75.	00	6	00
6.	6	90.	00	*Infinite.*	

To Project the Dyal. Firſt draw on the *Plane* the Meridian Line A B, which croſs at Right Angles with ÆQ the Æquator; then from C the Interſection of the Meridian and the Æquator, ſet off thoſe Parts from the Table both Ways, and thro' theſe Points draw Lines Parallel to A B (or the Hour-Line of 12) thoſe ſhall be the *Hour-Line* requir'd.



Now to Erect Declining Dyals, which are thoſe whoſe Planes are directly oppoſite to one of the Four Cardinal Points, but decline from the Meridian, or *Prime Vertical Circle.* For the drawing of the *Hour-Lines* on theſe *Dyals* there is given the Latitude of the Place and the Declination of the Plane in Order. 1. *The Height of the Style above that Plane.* 2. *The Diſtance of the Subſtyle from the Meridian.* 3. *The Inclination of the Meridians or Difference of the Meridian.*

To find the Style's Height above the Plane, ſay, *As the Radius is to the Co-ſine of the Plane's Declination: So is the Co ſine of the Elevation of the Pole to the Sine of the Style's Height.* To find the Subſtyle's Diſtance from the Meridian, ſay, *As the Radius is to the Sine of the Plane's Declination: So is the Co-Tangent of the Elevation of the Pole to the Tangent of the Subſtyle's Diſtance.* To find the Inclination of the Meridians, ſay, *As the Radius is to the Co-Tangent of the Declination: So is the Sine of the Elevation of the Pole to the Co-Tangent of the Inclination of the Meridians.* Theſe being found, then with a Line and Plummet, let fall a Perpendicular to the Horizon, and that ſhall be the Meridian or Hour-Line of 12.

Then if your Plane decline Weſtward or Eaſtward, place the Sub-Style's Diſtance (and from the Line of Chords) to the Right or Left Hand of the Meridian.

Having found *the Inclination of the Meridian*, find what Angle each Hour makes at the Pole with the Sub-Style, by ſubſtracting 15 Degrees for each Hour that is between the Sub-Style and Meridian, as long as it can be done from the Inclination of the Meridians, and by adding 15 Degrees for the other Hours. And with the *Hour Angles* at the Pole, find the *Hour Arches* by this Proportion, *as the Radius is to the Sine of the Stile's Height*, *ſo is the Tangent of the Hour Angle to the Tangent of the Hour Arch.* Of theſe Hour Angles and Hour Arches frame a Table, as was ſhewn in making an *Horizontal Dyal.*

Example.

A South Erect Dyal declining Eaſtward 45 Degrees, 00 Minutes, Latitude 51°, 31′.

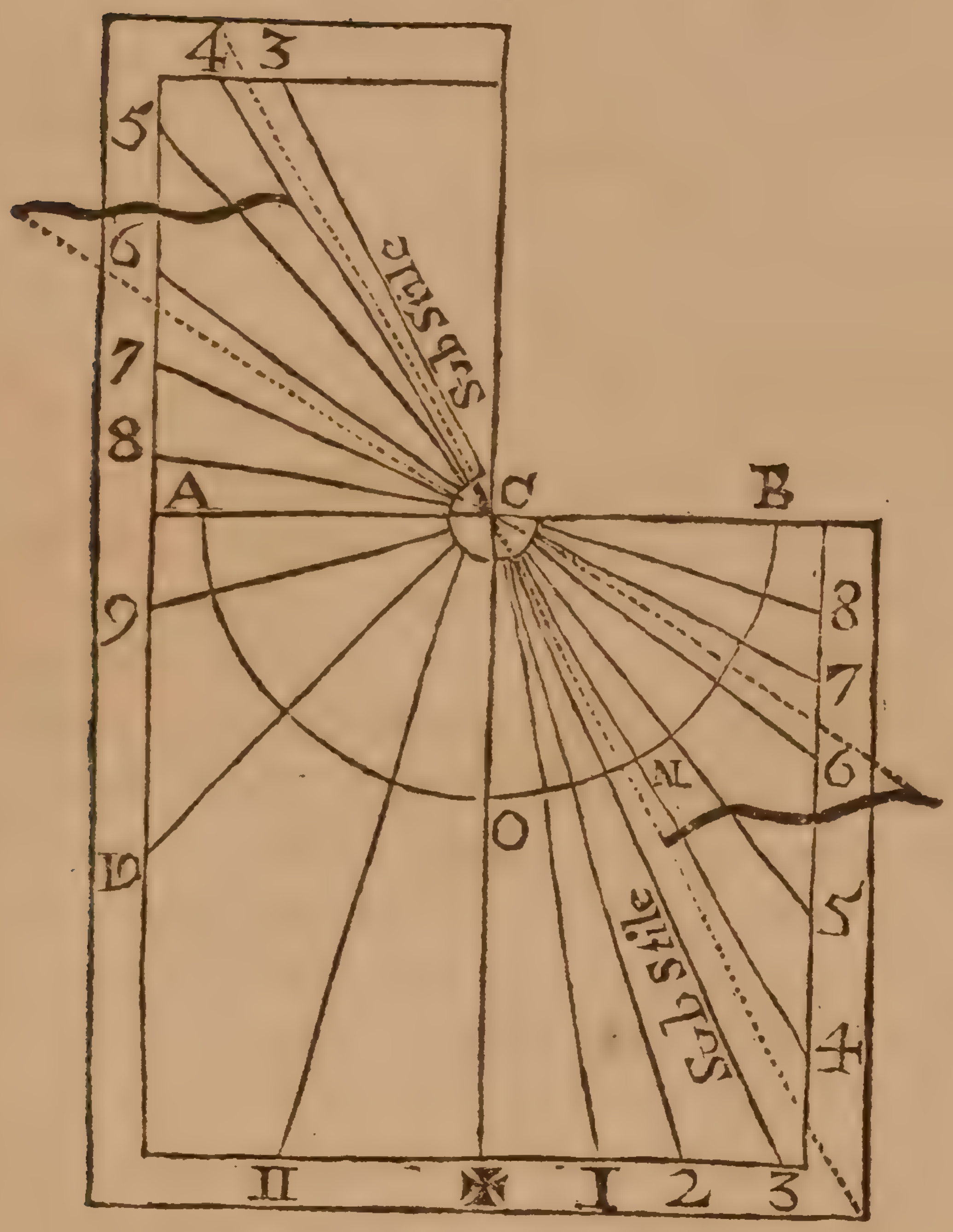
The Requiſites may be found by the preceding Canons, *viz.*

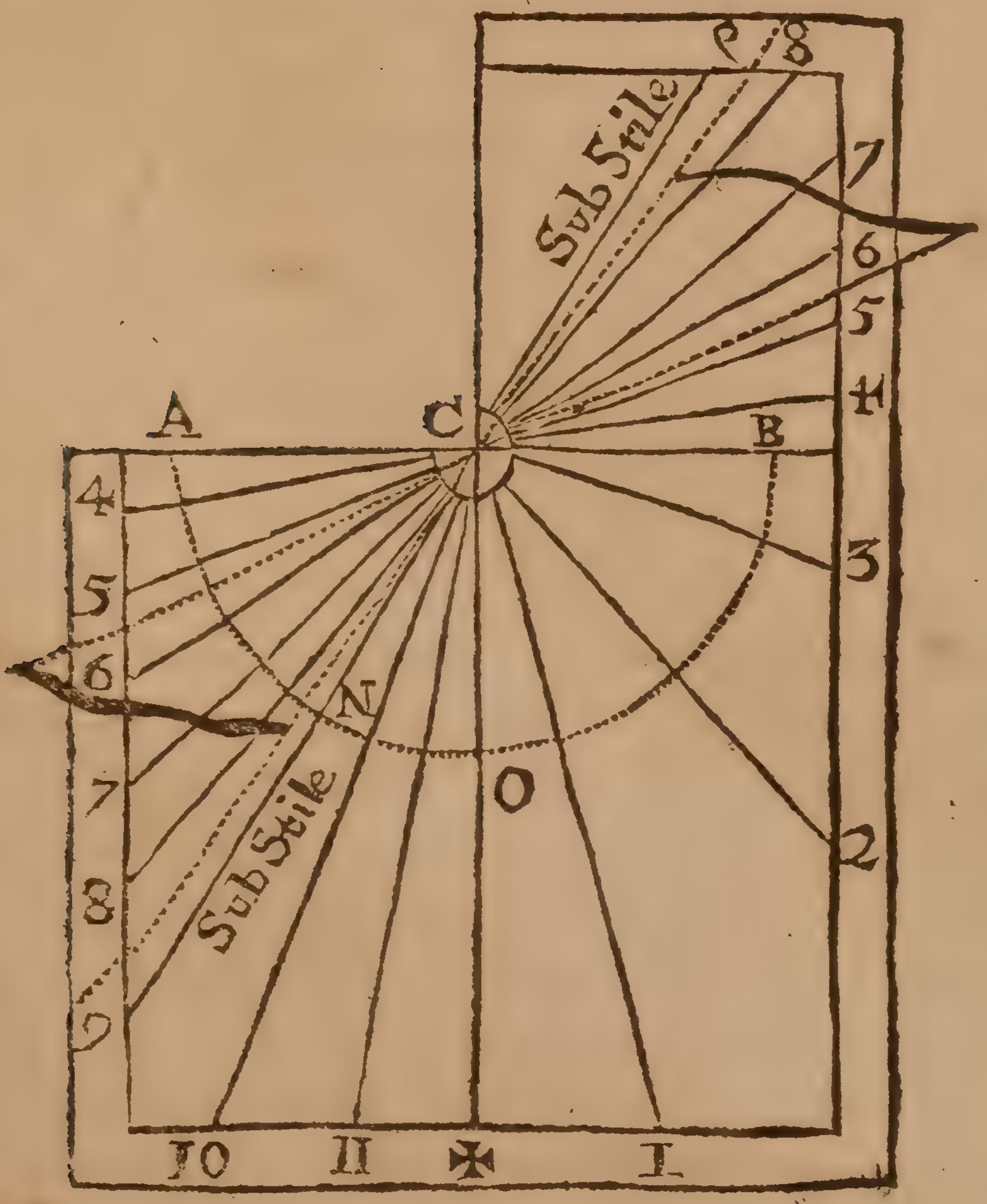
The Height of the Style	26 : 6
Sub Style's Diſtance	00 : 00
From the Meridian	29 : 21
Inclinations of Meridians	51 : 57

Now ſince the *Inclinations of Meridians* is leſs than 60 Degrees, and greater than 45 Degrees; 'tis certain the Sub-Style muſt be between 8 and 9 of the Clock. Then the *Hour Angles* at the Pole are alſo found by *ſubducting* 15 Degrees from the Inclination of Meridians (ſuppos'd to be ſet againſt 12) the Remainder will be for the Hour 11 and from that Angle againſt 11 ſubſtract 15 Degrees, the Remainder ſet againſt 10, and from that Remainder ſubduct 15 Degrees, the Reſidue ſet againſt 9, and that becauſe 'tis leſs than 15 Degrees, take the difference to 15 Degrees, which ſet againſt 8, then by continual Addition of 15 Degrees you'll have the Numbers againſt the remaining Hours.

Find the Hour Arches by the continual Addition of the Sine of the *Style's Height* 26 Degrees 6 Minutes to the Tangent of every Hour's Diſtance from the Sub-Style, and that will give new Tangents of the *Hour Arches.*

	Eaſt Decliner.	
Hours.	Angles at Pole	Hour Arches.
	D. M.	D. M.
3	83. 3	74. 31
4	68. 3	47 31
5	53. 3	30. 20
6	38. 3	19. 1
7	23. 3	10. 37
8	8. 3	3. 24
Subſtyle	*Subſtyle*	*Subſtyle*
9	6 57	2. 26
10	11. 57	10. 3
11	36. 57	18. 19
12	51. 57	29. 21
1	66. 57	45 58
2	81 57	72. 27





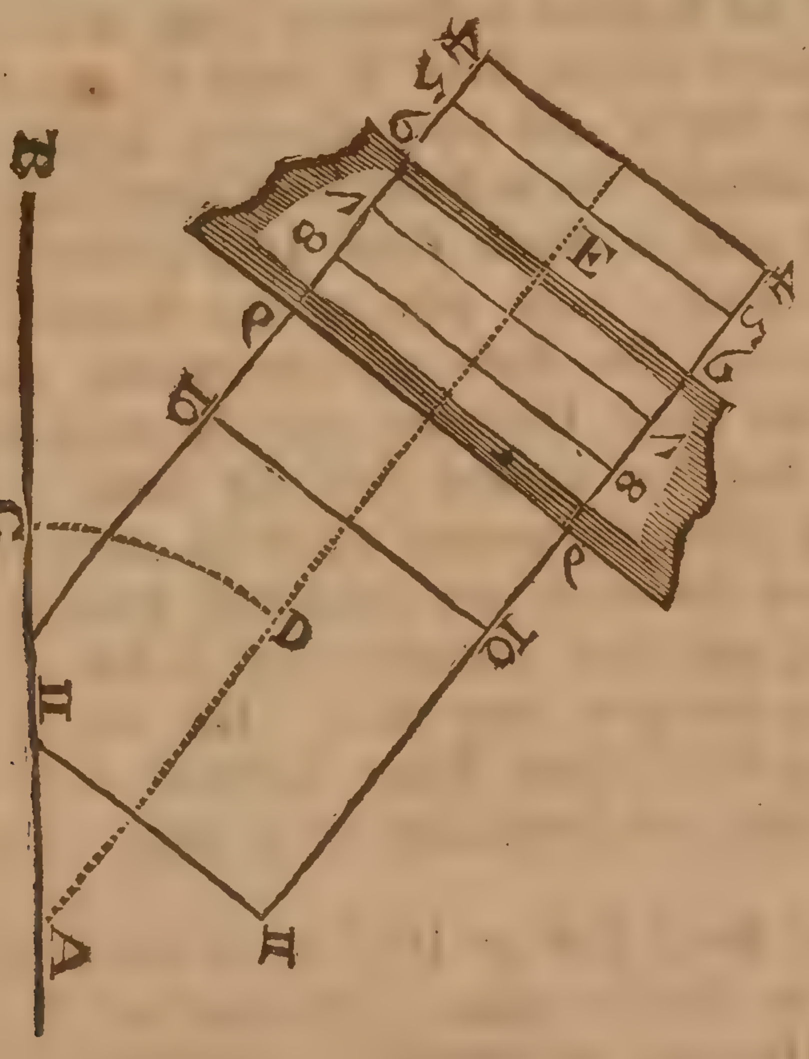
To deſcribe the Dyal.

Firſt draw the Horizontal Line A, C, B, and at Right Angles to it the Meridian C O 12, then with 60 Degrees of your Lines of Chords from C, deſcribe the Semi-Circle A, O, B, and ſet off 29 Degrees 21 Minutes (the *Diſtance of that Sub-Style from the Meridian)* from O to N, on the Weſt ſide of the Meridian, becauſe the Plane declines Eaſt. Set off alſo the ſeveral Hour Arches, as 10 Degrees 37 Minutes for 7 and 5 a Clock, 18 Degrees 19 Minutes for 11 and 1 a Clock, &c. both ways from the Sub-Style on the Circle N R O, and draw Lines from the Center C thro' theſe ſeveral Points, ſo you'll have the *True Hour Lines* deſir'd. Then from your *Chords* ſet off the Style's Height 26 Degrees 6 Minutes from N to R, and a Right Line drawn thro' R from C, repreſents the Axis or Style, and your Dyal is finiſh'd; as alſo Three others, *viz. a South Erect Dyal declining Weſt as much,* and *a North Erect Dyal declining Eaſt and Weſt as much*, only placing the Numbers of the Hours, and the *Style* repreſentatively upon each *Plane*; an *Erect Declining* may be made Geometrically, but we cannot here ſay how. 'Twill be obſerv'd that the greater Parts of *Arithmetick, Algebra* and *Geometry,* are abſolutely neceſſary in the Sciences, and that without them a Learner cannot make an entrance into them. He, whoſe Patience has gone thro' theſe Three Sciences, will find the others eaſie, as depending in a great Meaſure on them.

Direct Erect Eaſt or Weſt Dyals are thoſe whoſe Planes lie directly open to the Eaſt or Weſt Points of the Heavens, or Parallel to the Meridian of the Plane. To draw this Dyal, the Stile's Height may be form'd according to the Bigneſs of the *Plane*, and the Diſtance of the *Hour Lines* from each other by the Direction given under *Polar Dyals*, making of them a Table as in the following one for the Latitude 51 Degrees 32 Minutes.

Hours.	Angles at Pole.	Tangent.	Hours.
Eaſt.	D. M.	Inch P.	Weſt.
4	30. 00	5. 77	8
5	15. 00	2. 68	7
6	*Subſtyle*	00. 00	6
7	15. 00	2. 68	5
8	30. 00	5. 77	4
9	45. 00	10. 00	3
10	60. 00	17. 32	2
11	75. 00	37. 32	1
12	Infin.	Infin.	

Then to deſcribe the Dyal, draw the Horizontal Line A B, and with 60 Degrees from your Chords deſcribe the prick'd Arch C D, whereon ſet the Latitude of the Place from C D. From A thro' D, draw A D E repreſenting the *Equator* of the *Dyal*; then chuſe a Point in this Line to be the Hour of 6 as at E D r a a, 6 e 6 at *Right Angles* with the *Equator*; and from Æ ſet off the ſeveral *Tangents* as you find them in the Table, and thoſe ſhall be the ſeveral *Points* for the *Hours*; thro' each Point draw the *Hour Lines* Parallel to the *Equator* C e 6. The *Style* may be a Streight Pin, equal in Height to the Right Line 6, 9 in either Dyal or a Rod of Iron ſupported by Two Legs of the ſame Height.



The Weſt Dyal is made after the ſame manner, only ſet and number'd a contrary way. *Direct South or North Inclining or Reclining Dyals* are thoſe whoſe Planes incline to the Horizon, and recline from the Zenith, and lie directly open to the South and North.

Theſe Dyals are deſcrib'd after the ſame manner with *Direct South Dyals* only obſerving this Rule in placing the *Style*. In *South Incliners*, the difference of the Angle of *Inclination*, and the Height of the Pole is the Height of the *Style* above the Plane. If the Pole's Height be greater or leſs than the Angle of Inclination, then the North or South Pole is elevated, and the Center is below or above.

In *Direct North Incliners*, the Sum of the Angles of Inclination and Elevation of the Pole is the Height of the Style above the Plane. *Reclining Dyals* are made after the ſame manner. For *South Incliners* are *North Recliners*, and *North Recliners South Incliners*; the one being the Back-ſide of the other.

Declining, Inclining or Reclining Dyals are thoſe whoſe Planes neither face directly any of the Four Cardinal Points, nor are they either Perpendicular or Parallel to the Horizon. For the deſcribing of theſe Dials. Firſt make an Erect one for the given *Declination* according to the Direction in *Erect Declining Dyals*, then let the *Height* of the *Style* above the *Sub-Style* be the

Difference between } the Co-Latitude and { Inclination,
the Sum of } the Co-Latitude and { Declination.

Prime Vertical Dyals, or *Direct Erect North* or *South Dyals* are thoſe whoſe *Planes* are *Parallel* to the *Prime Vertical Circle*; but ſince that Pole is rais'd or depreſs'd on every Plane which lies Eaſt to it, therefore this Plane, if a Direct South, has the South Pole Elevated, and conſequently the *Style* (whoſe Height muſt be the *Complement* of the *Latitude* of the Place) will point downwards. The Proportion to find the Hour's Diſtance on this Plane is; *As the Radius is to the Sine of the Style's Height, or Co-Latitude: So is the Tangent of the Hour, or Angle at the Pole, To the Tangent of the ſeveral Hour's Diſtance from the Meridian*, By this Canon the Hours requiſite for the Plane, as alſo the Half-hours, Quarters, &c. being calculated and ſet in a Table, the *Dyal* is deſcrib'd after the ſame manner as the *Horizontal Dyal*. A *North, Direct Erect Dyal* is but the Backſide of the *South*, becauſe lying in the ſame *Azimuth* with it, therefore 'tis no more but turning the South Dyal upſide down and leaving out the Superfluous Hours between 5 and 7, and 4 and 8, and the *North Dyal* is made. The *Style* muſt point upwards towards the *North Pole*.

We might enlarge on this Science as well as others, but this will give the Reader, who is prepar'd, a good Idea of it, and for the Practice he will probably have recourſe to Authors that write purpoſely on it, ſo we ſhall draw towards a Concluſion of this Article; but muſt firſt obſerve what the *Declination of a Wall or Plane for Dyals* is. 'Tis an Arch of the Horizon comprehended either between the *Plane* and the *Prime Vertical Circle*, if you account it from Eaſt or Weſt; or elſe between the Meridian and the Plane, if you account it from North to South. The beſt way to find this *Declination* is, to get on a large Square Piece of Braſs or Wood, a Limb accurately divided into 360 Degrees, and if it can be, every 5 Minutes; on the Center of which moves an *Horizontal Dyal* purpoſely made for the Latitude of the Place, and which has a ſmall bit of fine Braſs fix'd on its Meridian Line like a *Fiducial* Edge, to cut the Degrees in the *Limb*, the Uſe of which is very eaſy; for at any Time when the Sun ſhines, you need only apply that Side of the Square to the *Plane* where are 60 Degrees on the Limb, and then ſetting it as nearly as you can Horizontally, turn the Dyal about 'till it ſhews exactly the true Hour of the Day (which before muſt be rightly found, and a Watch ſet to it) and then will the *Fiducial* Edge cut the Degrees of the Plane's Declination, and which way to account will be eaſily ſeen, becauſe the *Dyal* pointing true North gives you an Idea of all the Points of the Compaſs. This Method will be of great Uſe to ſuch as make many *Dyals* in or near the ſame Latitude.

A Word or two muſt be added how to find out the *Hour* of the Night by the Rays of the Moon. Suppoſe an *Horizontal* Fixt or Moveable Sun-Dyal at hand, to which joyn what is call'd by ſome a Moon Dyal, made of Two *Concentrick Circles*, in one of which are ſet down the Days of the *Moon's* Age by a *Globule* apply'd to the Number 30. The Age of the Moon muſt be firſt known by the *Epact*, or ſome other way; and then apply a Sun-Dyal to the Lunar Beams in the ſame manner as apply'd to thoſe of the Sun, See what Hour the Moon's Shadow points to, as for Example, the Eighth; then place the Globule to that Hour ſet down in the Horary Circle. And

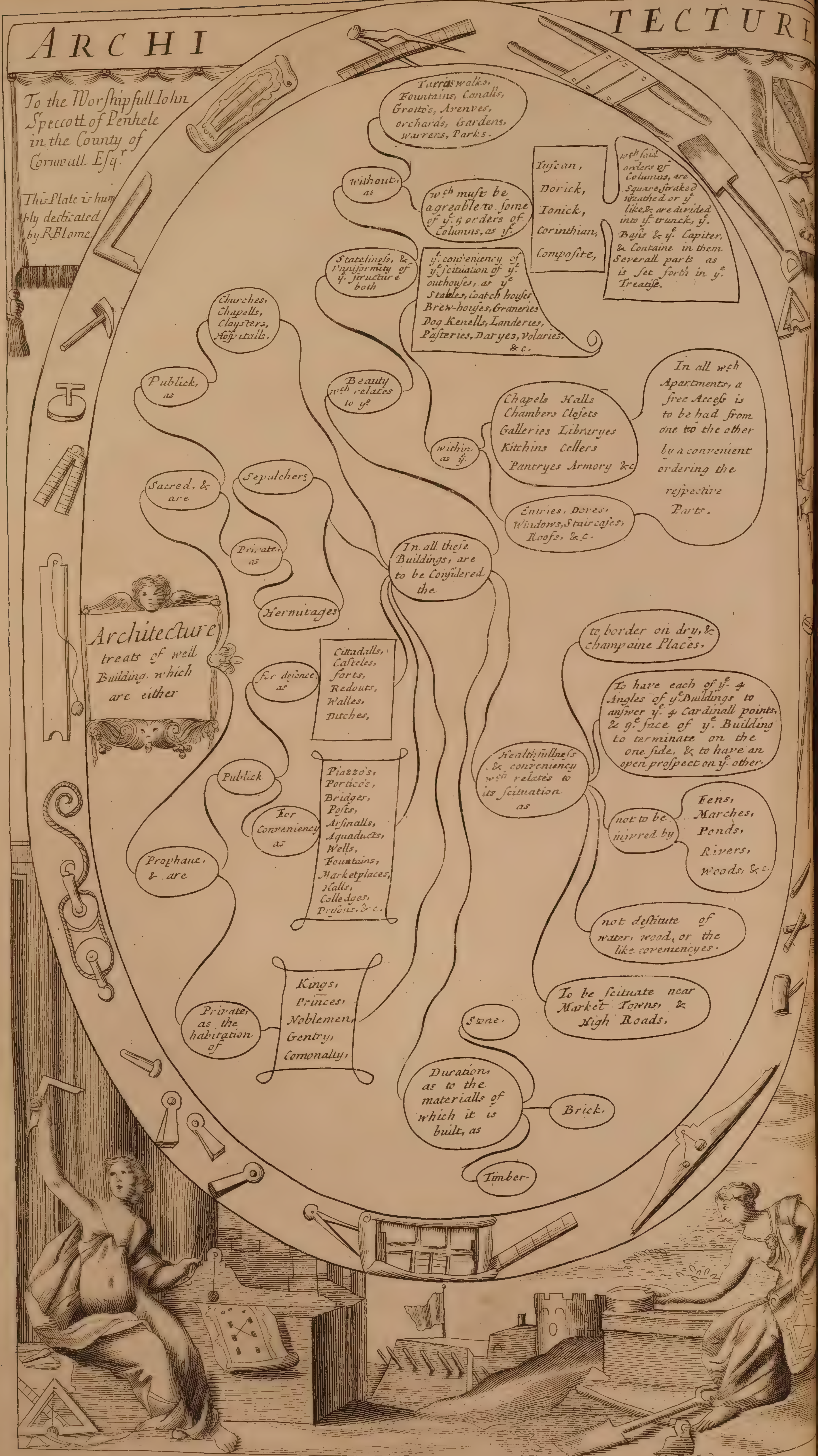
Laſtly have recourſe to the Age of the Moon, and that will give the Hour ſought. For Example; If it be the 12th Day of the Moon's Age, 'twill declare the Hour to be about $5\frac{1}{2}$. But if, as it often happens, a Lunar Dyal be made of 3 Concentrick Circles, of which the laſt and biggeſt is that of the Lunary Days; the Second is the Horary Circle, the innermoſt the Index: Apply that Index to the Day of the Moon; then in the Circle of the Index ſeek the Number of the Hour mark'd by the Lunary Shadow in the *Sun-Dyal*, which is the Hour ſought for. The *Periodick Motion of the Sea may be found on a Lunar Dyal.* Thus; If you wou'd know at what Hour it will be full Sea in any given Place, you muſt know at what Hour it happens at that Place when the Moon is at the Full. Thus place the Globule fix'd at the Moveable Wheel of the Lunary Days at that Hour in which theſe Tides happen in that Place at that time, as for Inſtance, 10 a Clock; then ſeek the Moon's Age for the Given Day. As ſuppoſe the 9th of the Moon, obſerve to what Hour the Number 9 is oppoſite, and that is the Hour ſought.

To ſuch as are acquainted with the Three Fundamental Sciences above-nam'd, this *Eſſay* on *Dyalling* will be ſerviceable in ſome Degree; to others it will ſerve only to give them a ſlight Idea of it, which indeed is as much as cou'd be pretended in 5 or 6 Pages. Maſters affect to conceal this Art by Terms and Operations as much out of the way as is poſſible not to fall into downright Nonſenſe and Confuſion. And as it cannot be ſuppos'd the *Compiler* of theſe Eſſays is a Maſter of each Science, or indeed of the Quarter Part of them; ſo he has truſted entirely to thoſe who are generally eſteem'd to underſtand them to Perfection, making uſe of no Authority which is not Sovereign in theſe Caſes, as will be mention'd in the Preface. And as the Praiſe will therefore redound chiefly to them where Praiſe is due; ſo 'tis but reaſonable the Cenſure ſhould lie alſo at their door where 'tis deſerv'd. All due Care has been taken to keep cloſe to the Text; however, when Authors were not ſo Eloquent as might have been wiſh'd; and in *Algebra*, *Geometry*, *Navigation*, *Dyalling*, &c. Eloquence was no neceſſary Ingredient in the Compoſition of the Science, the Style has been ſoften'd and made more agreeable to a Gentleman's Ear.

ARCHI TECTURE

To the Worſhipfull John Speccott of Penhele in the County of Cornwall Eſqr

This Plate is humbly dedicated by R. Blome.



Architecture treats of well Building. which are either
Sacred, & are
Publick, as
Churches, Chapells, Cloysters, Hoſpitalls.
Private, as
Sepulchers
Hermitages
Prophane, & are
Publick
for defence, as
Cittadalls, Caſteles, forts, Redouts, Walles, Ditches,
For Conveniency as
Piazzo's, Portico's, Bridges, Poſts, Arſinalls, Aquaducts, Wells, Fountains, Marketplaces, Halls, Colledges, Prisons. &c.
Private, as the habitation of
Kings, Princes, Noblemen, Gentry, Comonalty,
In all theſe Buildings, are to be Conſidered the
Beauty wch relates to ye
Statelineſs, & Unniformity of ye Structure both
without, as
Tarras walks, Fountains, Canalls, Grotto's, Avenves, orchards, Gardens, warrens, Parks.
wch muſt be agreable to ſome of ye 5 orders of Columns, as ye
Tuſcan, Dorick, Ionick, Corinthian, Compoſite,
wch ſaid orders of Columns, are Square, ſtraked weathed or ye like, & are divided into ye trunck, ye Baſis & ye Capiter, & Containe in them Severall parts as is ſet forth in ye Treatiſe.
ye conveniency of ye ſcituation of ye outhouſes, as ye Stables, Coatch houſes Brew-houſes, Graneries Dog Kenells, Landeries, Paſteries, Daryes, Volaries, &c.
within as ye
Chapels Halls Chambers Cloſets Galleries Librar yes Kitchins Cellers Pantryes Armory &c
Entries, Dores, Windows, Staircaſes, Roofs, &c.
In all wch Apartments, a free Acceſs is to be had from one to the other by a convenient ordering the reſpective Parts.
Healthfullneſs & conveniency wch relates to its ſcituation as
to border on dry, & champaine Places,
To have each of ye 4 Angles of ye Buildings to anſwer ye 4 Cardinall points, & ye face of ye Building to terminate on the one ſide, & to have an open proſpect on ye other,
not to be injured by
Fens, Marches, Ponds, Rivers, Woods, &c.
not deſtitute of water, wood, or the like conveniencyes.
To be ſcituate near Market Towns, & High Roads,
Duration, as to the materialls of which it is built, as
Stone.
Brick.
Timber.

ARCHITECTURE.

Of Architecture *in General.*

THO' Building is look'd upon as one of the firſt Works of Man, yet Architecture is not one of the moſt Ancient Arts. Her Beginnings, like thoſe of other Arts, were weak; and ſhe grew perfect only by long Practice. Houſes were at firſt made for neceſſity; and as the firſt Men often chang'd their Dwellings, ſo they did not trouble themſelves to make their Habitations either Laſting or Beautiful. But afterwards, when every Man ſought for a Settlement in a particular Country, they began all to build Houſes that were more ſolid, to reſiſt the Injuries of the Weather. At laſt Luxury being ſpread up and down amongſt the moſt wealthy and powerful Nations, Men were for adding *Beauty* and *Magnificence* to their Buildings; and in obſerving what contributed moſt to the Solidity, Conveniency and Beauty of them, *Rules* were made, and an Art form'd to teach good Building, which is call'd *Architecture*; and thoſe who are perfect Maſters of it, *Architects*.

The Name of *Architecture* is ſometimes apply'd to the Work itſelf, as well as to the Art of Building. Thus we ſay, Such a One has made a fine Piece of Architecture.

Architecture, according to *Vitruvius*'s Idea of it, ſhould comprehend a general Notion of every thing neceſſary to the Perfection of an Edifice. The Architect ought eminently to poſſeſs the Theory of all the other Arts that have any relation to *Architecture*, not only for the forming Deſigns of Things to be Executed, but alſo to judge of the Goodneſs of the Materials, to Chuſe them well, and Overſee all the Workmen, as an abſolute Maſter of the whole Work, which the Name of *Architect* implies.

The Ancients had two Sorts of Architecture, as well as we; one which is call'd *Civil*, and the other *Military*. The firſt that they practis'd is the ſame we follow at this Day, and contains all the Rules of publick and private *Edifices*. The other, which regards the Fortification of Places of War, has been chang'd, according to the different manners of Attacking and Defending in different Times. In both one and the other the Solidity of the Work ought principally to be conſider'd. But as to the *Rules* which concern the Symmetry and outward Form, they differ from one another, as Peace and War do, to which theſe two manners of Building have relation.

The firſt Thing to be obſerv'd in Building, is the Situation of the Place, that is, to chuſe one in a fine Expoſition, Healthy, and Commodious for Water, and every Thing neceſſary to Life; which made *Alexander* reflect very wiſely on *Dimocrates*, who propos'd to that Prince to make of all Mount *Athos* the Figure of a Man, who ſhould hold a great City in his Left-hand, and in his Right a Cup, that ſhould receive all the Waters from all the Rivers that flow'd from that Mountain, from whence they ſhould be pour'd into the Sea. For *Alexander* having been wonderfully pleas'd with the Novelty of this Invention, demanded, if there would be Fields enough about that City for the Subſiſtance of the Inhabitants; and underſtanding all their Proviſions muſt be brought them by Sea, he only commended the Beauty of the Deſign, but diſapprov'd the Architect's Choice of the Place, where he pretended to Execute it.

After the Place is choſen, Materials muſt be gather'd together, either in the ſame Country, or brought from elſewhere. For there are certain Places where Stone, Sand and Wood are better and properer for Building than in others.

'Tis probable, that Mankind at firſt, building their *Houſes* for meer neceſſity, they were, properly ſpeaking, nothing but *Hutts*; till at laſt the *Carpenter*'s Art, which is much more ancient than the *Maſon*'s, began to give them ſome Form. For we ſee that all the Members of Architecture are nothing but the Repreſentation of ſuch Pieces of Wood as are neceſſary for the Structure of an Edifice. And the moſt that Learn'd Architects have done to Eſtabliſh a certain manner of good Building, has been chiefly to give Proportion to all the Parts of a Houſe; as alſo Strength and Solidity, according to its Bigneſs, ſo to diſpoſe the Inſide and Outſide with ſo much Convenience and Symmetry, that there ſhall be an Agreement and juſt Proportion between the one and the other, as well for the Commodiouſneſs of the particular Lodgings, as for the exterior Beauty and Grace of the whole Edifice. Tho' to enrich their Works, they make uſe of the ſame *Saillies* or Bearings out, the ſame *Mouldings*, and abundance of other Members of the Body of *Architecture*, the greateſt Part of which are neceſſary in *Carpenter*'s Work, yet they very often ſerve only for the *Embelliſhment* of thoſe that are made of *Stone*.

The Occaſion there has been of making ſeveral ſorts of *Buildings*, caus'd the *Builders* to eſtabliſh different Proportions, that they might have ſome which would agree with all ſorts of *Edifices*, according to the Grandeur, Strength, Delicacy and Beauty they would ſhew in them. And from theſe different Proportions they compos'd different Orders.

The Orders which the Ancients invented at ſeveral Times, and on ſeveral Occaſions, are the *Tuſcan*, the *Dorick*, *Ionick*, the *Corinthian* and the *Compoſite*. Each of theſe different Orders is form'd by the Pillar or Column, with its Baſe and Capitol, and Entableture, or the Architrave, Frieſe and Cornice; ſo that 'tis only thoſe Parts of a Column which makes what we call an *Order* in

Building. And all the Orders are different from one another, only in the Proportion of the Parts, and in the Figure of the *Capitols* of the *Pillars*.

When ſeveral Orders are made uſe of in an Edifice, they ought to be diſpos'd of in ſuch a manner, that the moſt *Delicate* ſhould always be plac'd on the moſt *Strong* and the moſt *Solid*. Thus the *Dorick* is put on the *Ionick*, the *Corinthian* on the *Ionick*, and the *Compoſite* on the *Corinthian*; the *Corinthian* and the *Compoſite* may alſo be put on the *Dorick*. For all the Art and Care in it are to place the Lighteſt a top. Nevertheleſs in the *Beautiful* Buildings of the *Ancients*, we ſee the *Architects* have plac'd the *Ionick* between the *Dorick* and the *Corinthian*, and the *Corinthian* on the *Ionick*. Each Order has its particular Meaſures.

Vitruvius is the moſt ancient of all the *Architects*, whoſe Writings are left us. He flouriſh'd in the Reign of *Auguſtus*, and had ſeen all the ſtately Edifices that were then in *Greece* and *Italy*. All that have work'd in *Architecture*, and the laſt Ages, ſince that Art has been reſtor'd with the other Arts that were deſtroy'd by the Wars and the Invaſion of the Barbarians, who overran *Greece* and *Italy*; All theſe, I ſay, have follow'd *Vitruvius*'s Leſſons, and the Examples they have met with in the *Antiques* that remain. But becauſe they have found a great deal of Difference between the Meaſures which this ancient Author gives to the ſeveral Members of all the Orders, and thoſe of the Buildings they have ſeen, theſe Moderns have differ'd very much from one another, and have not the ſame Meaſure. The Occaſion of their going ſo far from each other, is probably their not comprehending right, that *Vitruvius* lays down in each Order one Meaſure only, which will produce the only Beauty that every one ſeeks after, but is never found in Works of this Nature, excepting where the Workman underſtands by the Force of his Genius, and the Light of his Judgment, how to conduct all the Parts of a Building according to its Bigneſs, Situation and Place, or the Diſtance from which it may be ſeen. For ſuch as have written upon *Architecture*, have made particular Rules, each according to his *Genius* and *Skill*, ſupporting them by the Examples of *Antique* Edifices, which they have ſeen, and of which however we obſerve very often they have not taken the true Meaſures, but have written very differently. This is what Monſieur *de Chambray* has taken notice of, in ſpeaking of the *Compoſite* Order, of which *Phil. de Lorme* and *Serlio* ſay the *Coloſſus* was, and have drawn ſeveral Deſigns of it. Yet *Scamozzi*, and all thoſe who have examin'd the Remains of that great Work, have found out that it was two *Corinthian* Orders, one upon the other. *Palladio*, who has one of the beſt Characters among the Moderns, is ſo much deceiv'd in what he ſays of the Temple of *Diana*, in *Languedoc*, and not in *Provence*, as he affirms, that if he is not more exact in other Things, there is no depending on any thing he ſays of *Antique* Pieces. What oblig'd me to ſay this, are the juſt Meaſures of that Temple, which Monſieur *Mignard*, Architect to the King, carefully took by the expreſs Order of Monſieur *Colbert*, Superintendant of the *Buildings*. He deſign'd it with ſuch Nicety, that we cannot in the leaſt doubt his Fidelity. We ſee, by what he has done, that *Palladio* was not ſo careful, and that he truſted to ſome one or other, who did not diſcharge himſelf well in his Office, as it often happens in theſe ſort of Things. For, as to what he himſelf meaſur'd at *Rome*, perhaps he is more to be depended on. 'Tis plain therefore, that we cannot always rely on thoſe who quote *Antique* Examples, eſpecially when we know they did not ſpare Time enough to meaſure them well, nor could be at the Charge that ſuch a Work requires; and we frequently find Examples in their Writings contrary to Reaſon, and the moſt Eſſential Principles which *Vitruvius* has ſo well Eſtabliſh'd.

'Tis true, this Author ſeems Obſcure in ſeveral Parts of his Book, and even Contrary, in certain Places, to many Excellent *Romans* of Antiquity, which are to be ſeen. But perhaps when we have ſtudy'd him well, and carefully examin'd thoſe, and the Reaſons the Authors might have for what they did, we ſhall not find ſuch a vaſt Difference. Add to this; The *Architects*, who have work'd ſince, have very much vary'd from thoſe who went before them, as is eaſily obſerv'd. *Vitruvius* condemn'd himſelf the Works of ſeveral *Architects*, living at the Time of his Writing his Book.

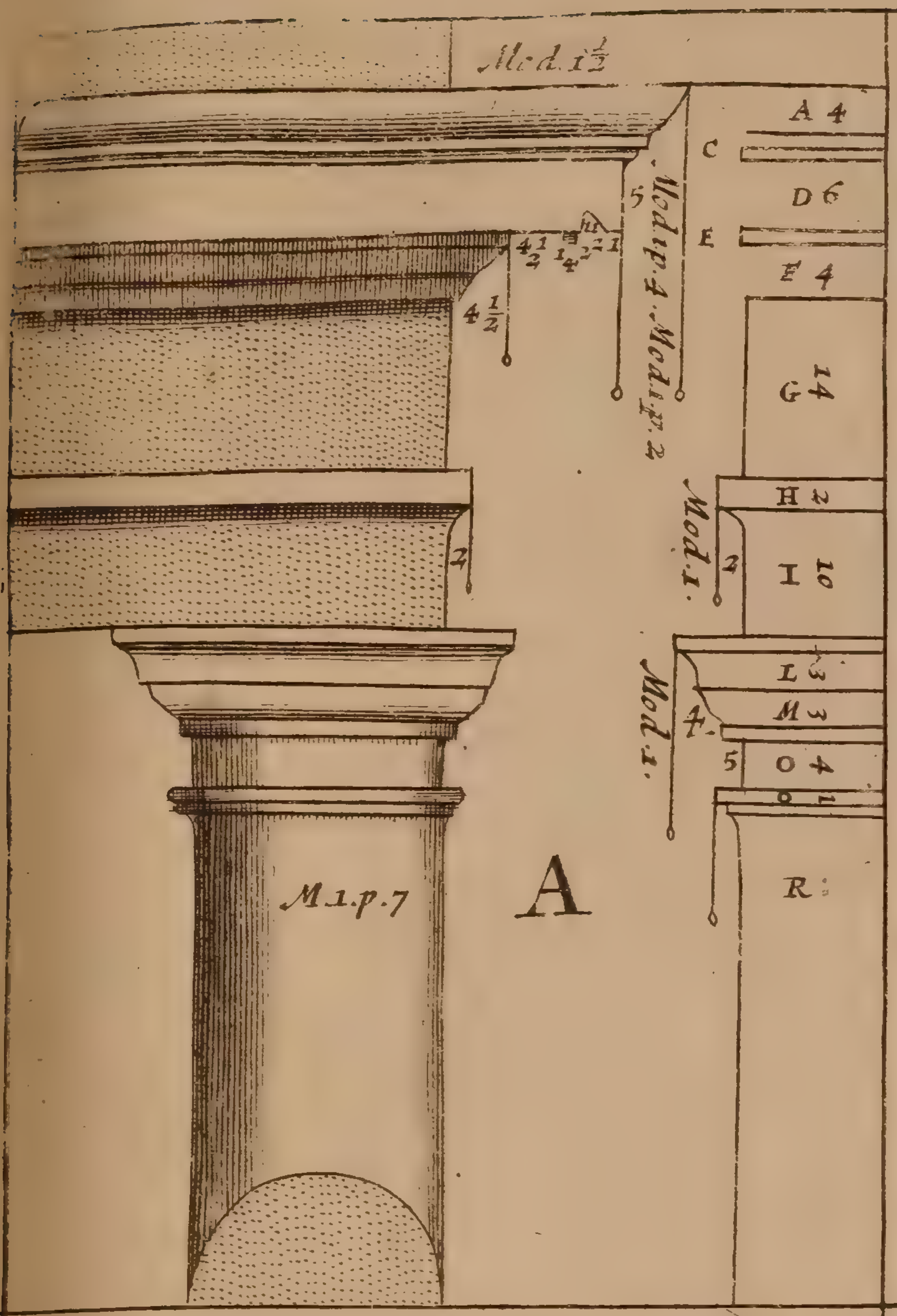
The Tranſlation Monſieur *Perrault* has given us of him, is ſo Exact and ſo Learn'd, and the Notes ſo Curious, 'tis to be hop'd the Publick will reap great Advantage by it; and that after there have been ſo much Pains taken about him, nothing will be wanting for the good Underſtanding of an Author, which ſo many Learn'd Men have endeavour'd to Explain, but Monſieur *Perrault* only has render'd Clear and Eaſy in all thoſe Places; where, till now, we could ſee nothing but Difficulties and an impenetrable Darkneſs.

This Eſſay on Architecture in general, was taken from Monſieur *Felibien*; and what is in his Treatiſe of Architecture, which is not in the Firſt Edition of this Work, will be added in their proper Places.

Of the TUSCAN *Order.*

THE *Tuſcan* Order, as is the common Opinion, came Originally from *Tuſcany* in *Italy*: 'Tis the moſt Simple, and leaſt Ornamental of all the Orders; and is even ſo Rude, that it is ſeldom made uſe of, unleſs for ſome Ruſtick Building, where there's occaſion for but one Order; or ſome great *Edifice*, as an *Amphtiheater*, or ſuch-like Works.

Monſieur *de Chambray*, in his excellent Book of a *Compariſon between the Ancient and Modern Architecture*, divides the *Tuſcan* and *Compoſite*; which, he ſays, were origininally of *Italy*, from the other Orders. He is of Opinion, that the *Tuſcan* Pillar, without any *Architrave*, is the only Piece of Work which deſerves to be wrought, and which can recommend this Order to *Architects*. On this account, he deſcribes *Trajan*'s Pillar, ſhews the Excellence of it; and ſays, It was the Model of the *Antonine Column*; and another that was rais'd at *Conſtantinople*, to the Honour of the Emperor *Theodoſius*, after his Victory over the *Scythians.*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Mod.1.
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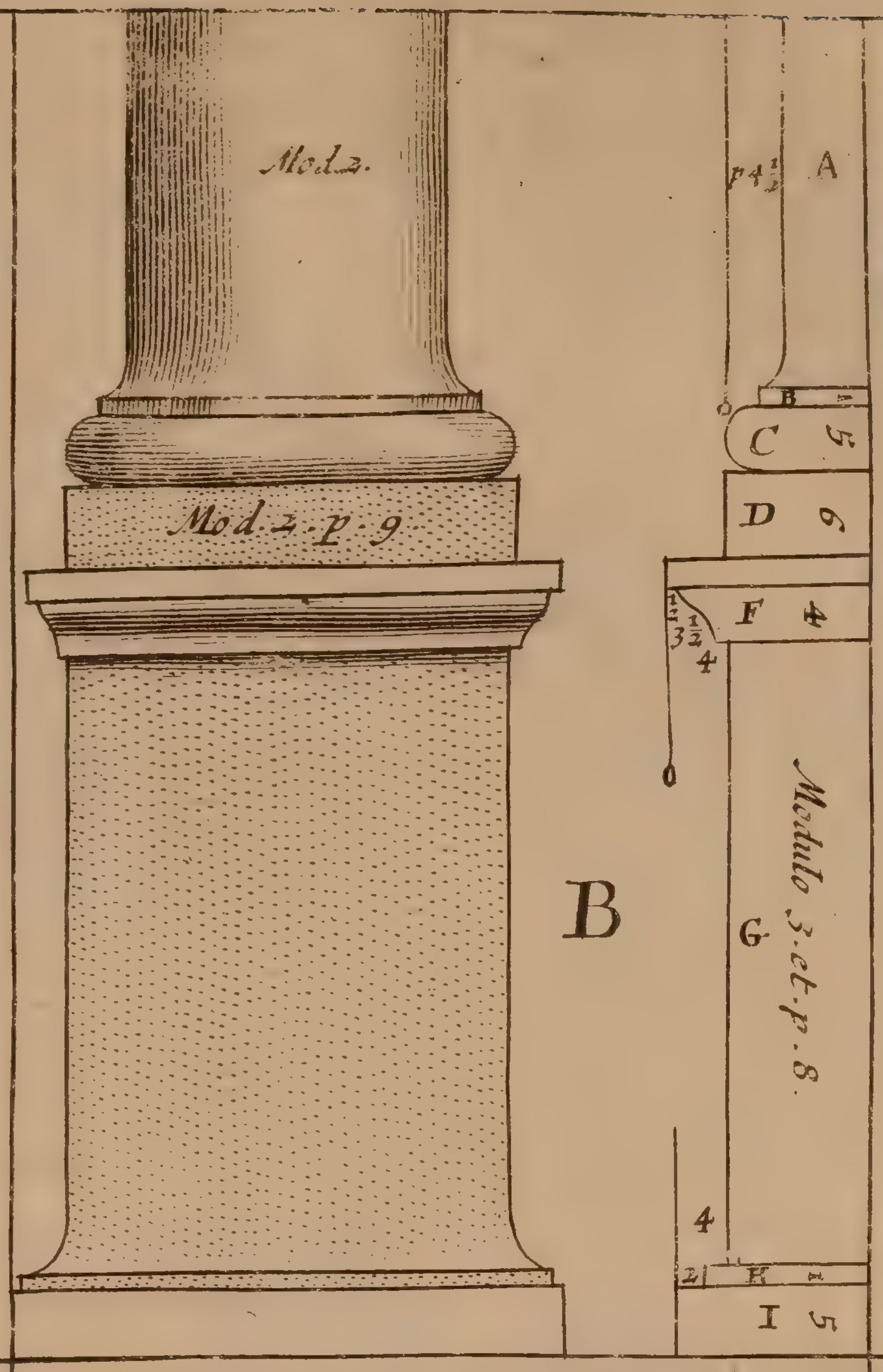
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Modulo 3. et. p. 8.
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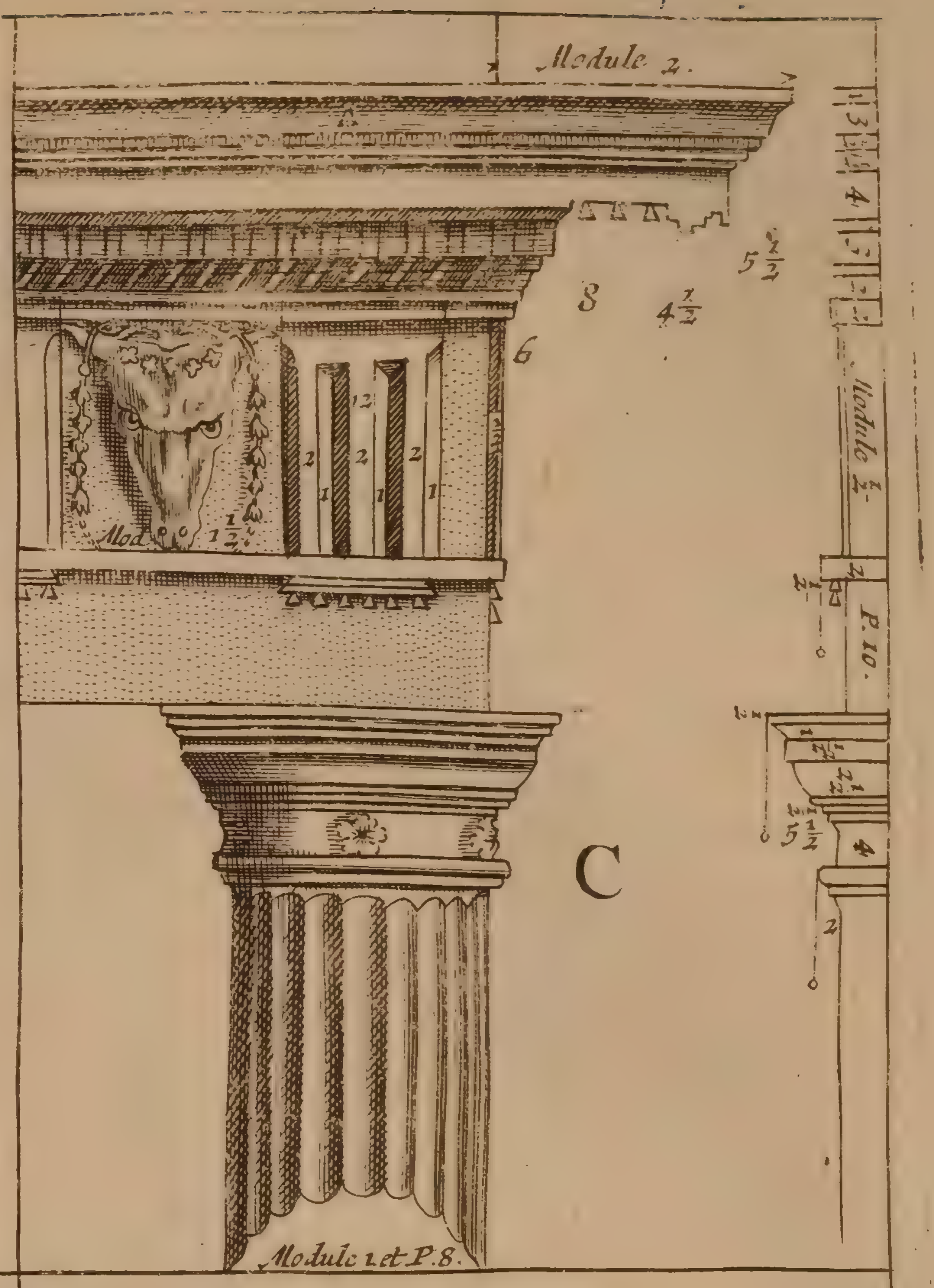
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Module ½.
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Module 1 et P. 8.
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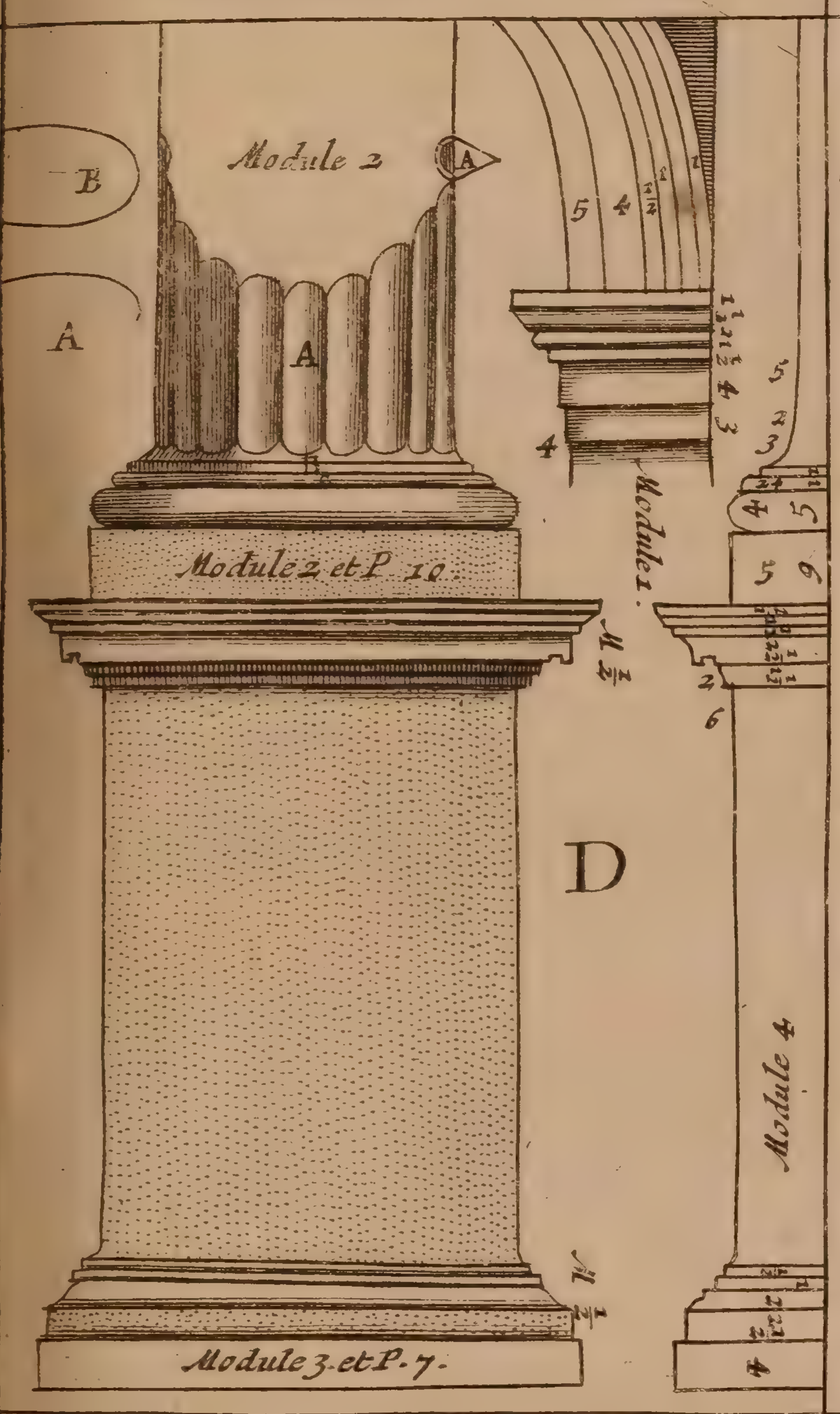
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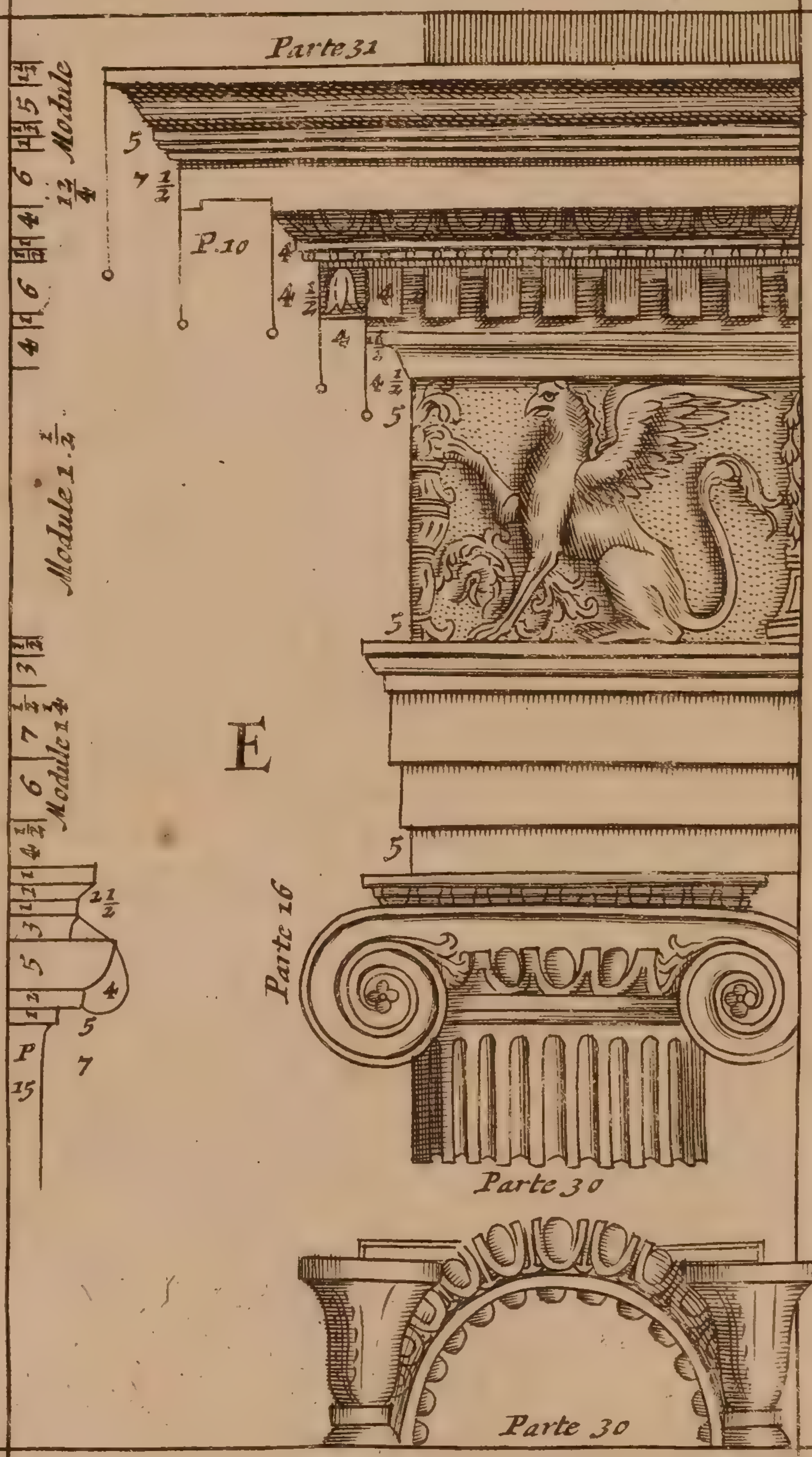
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Module 1½
P. 10
Module 1. ½.
Module 1. ¼
Parte 16
Parte 30
Parte 30
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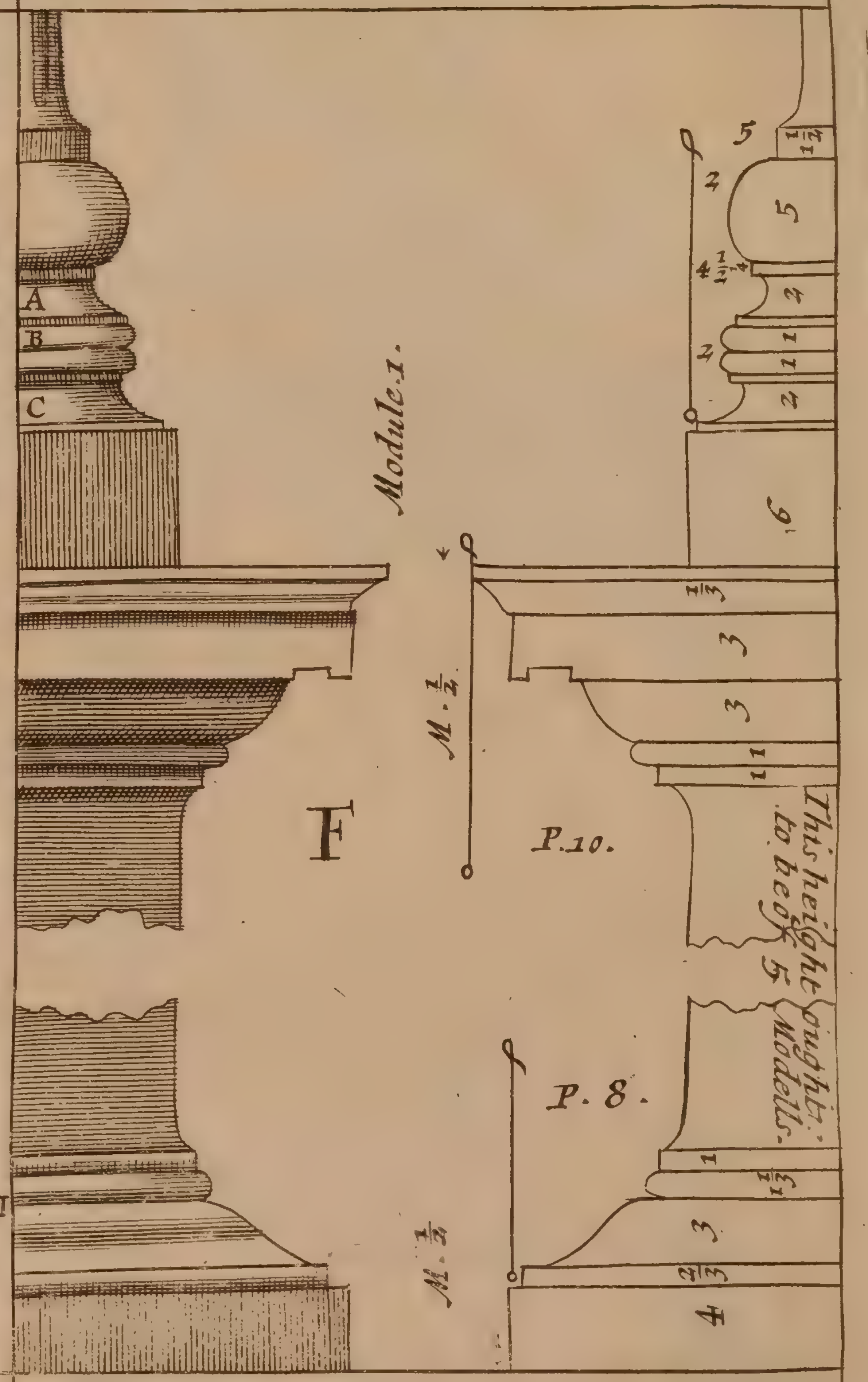
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M. ½.
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P. 8.
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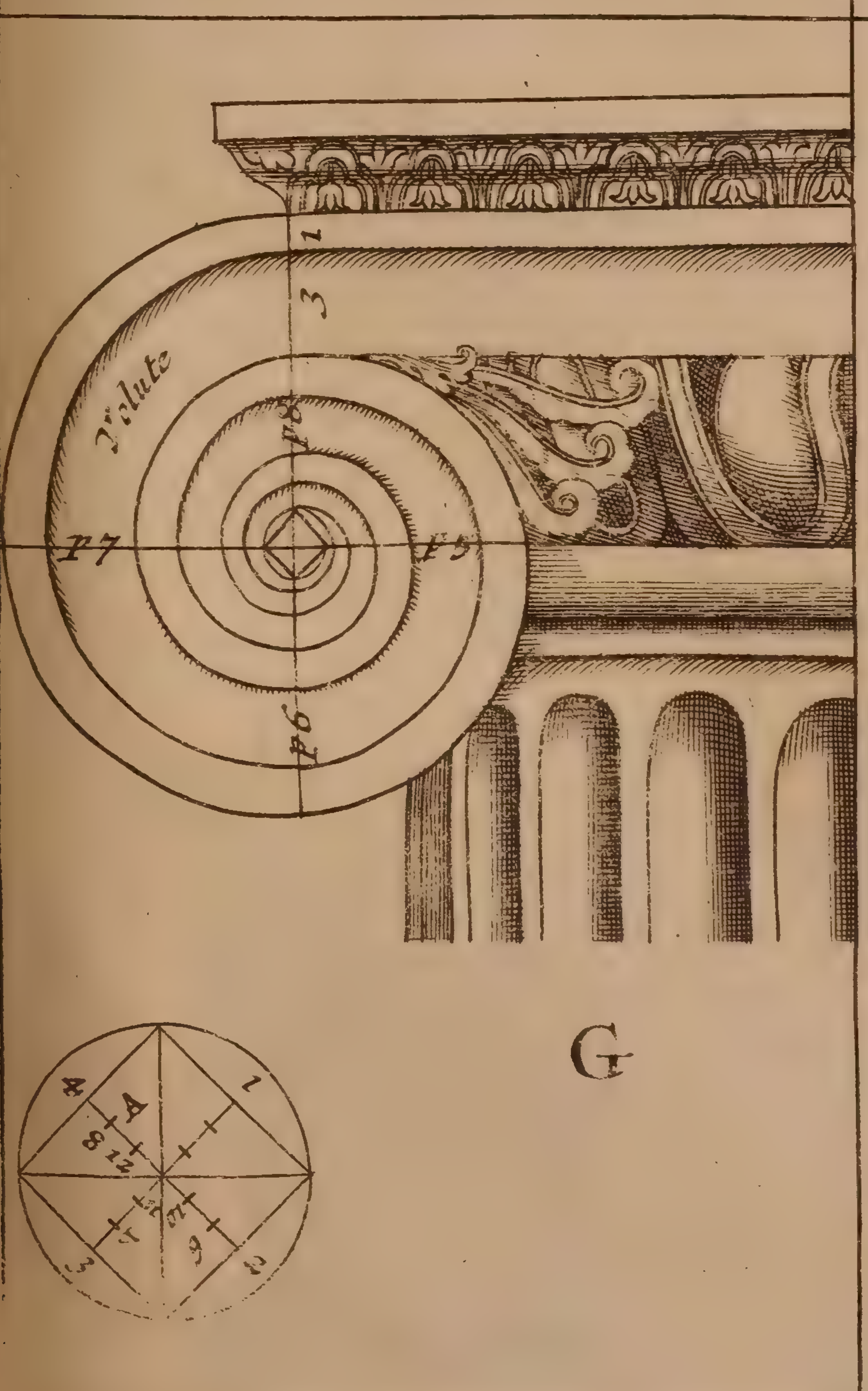
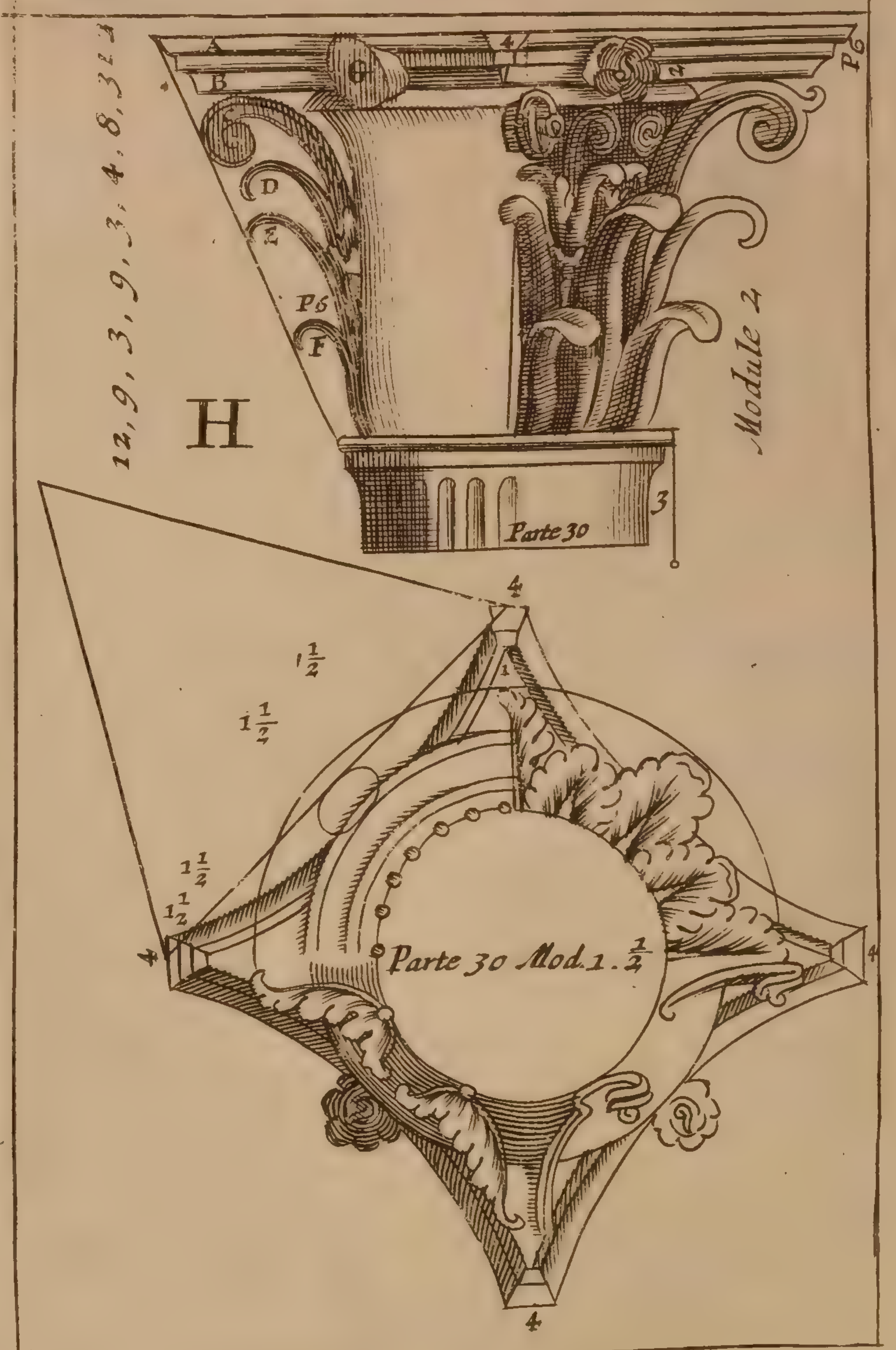
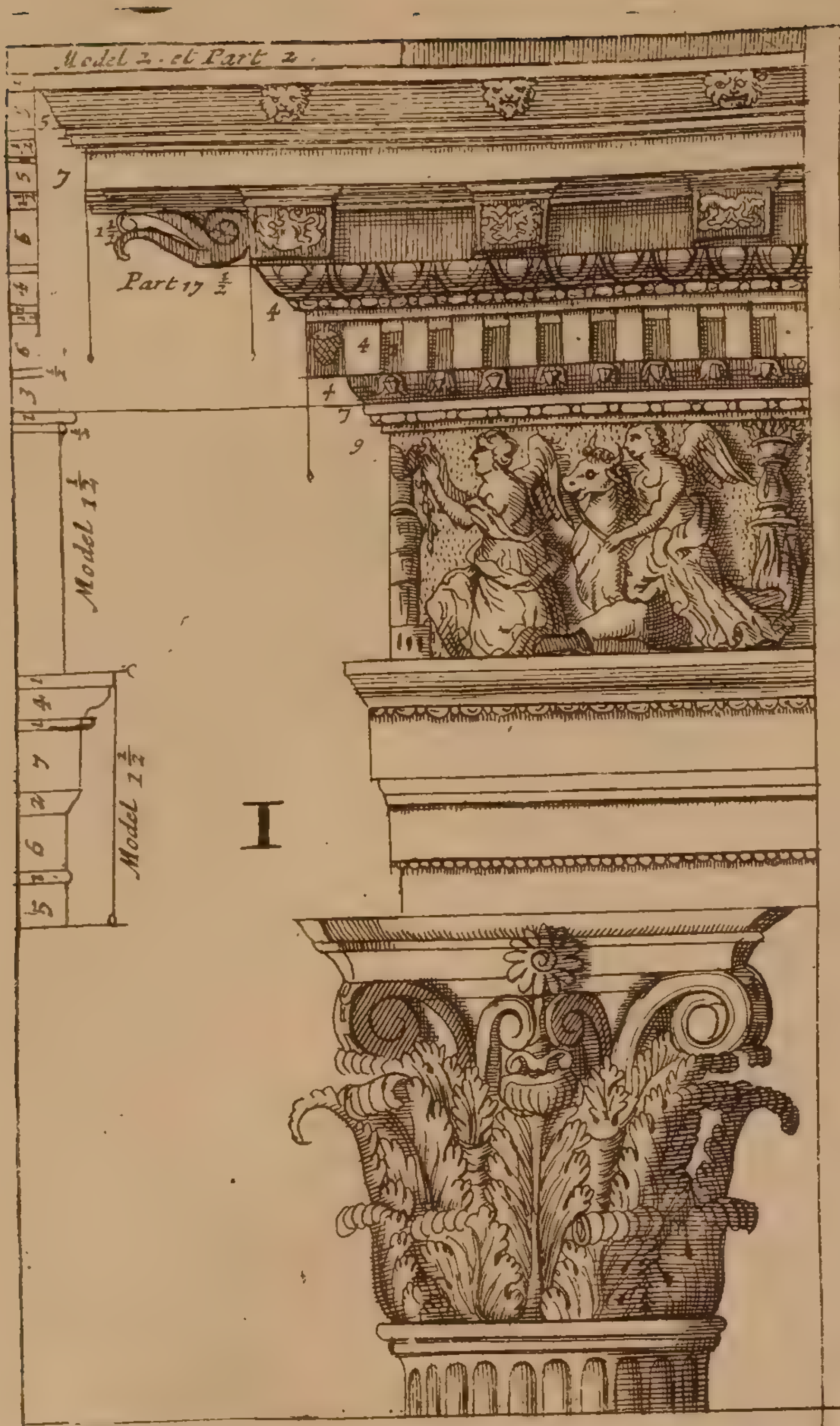
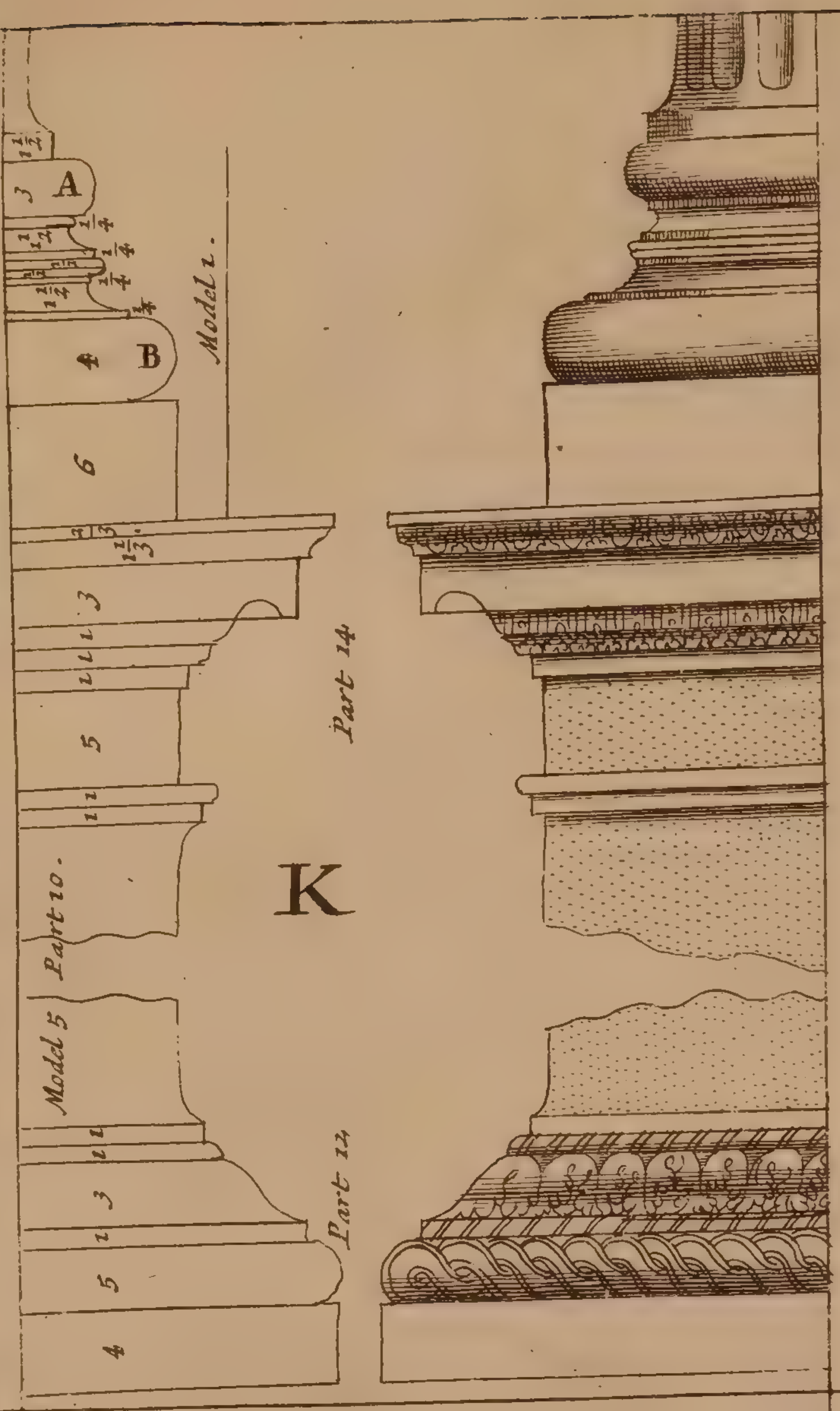
This height ought to be 5 Modules.
F

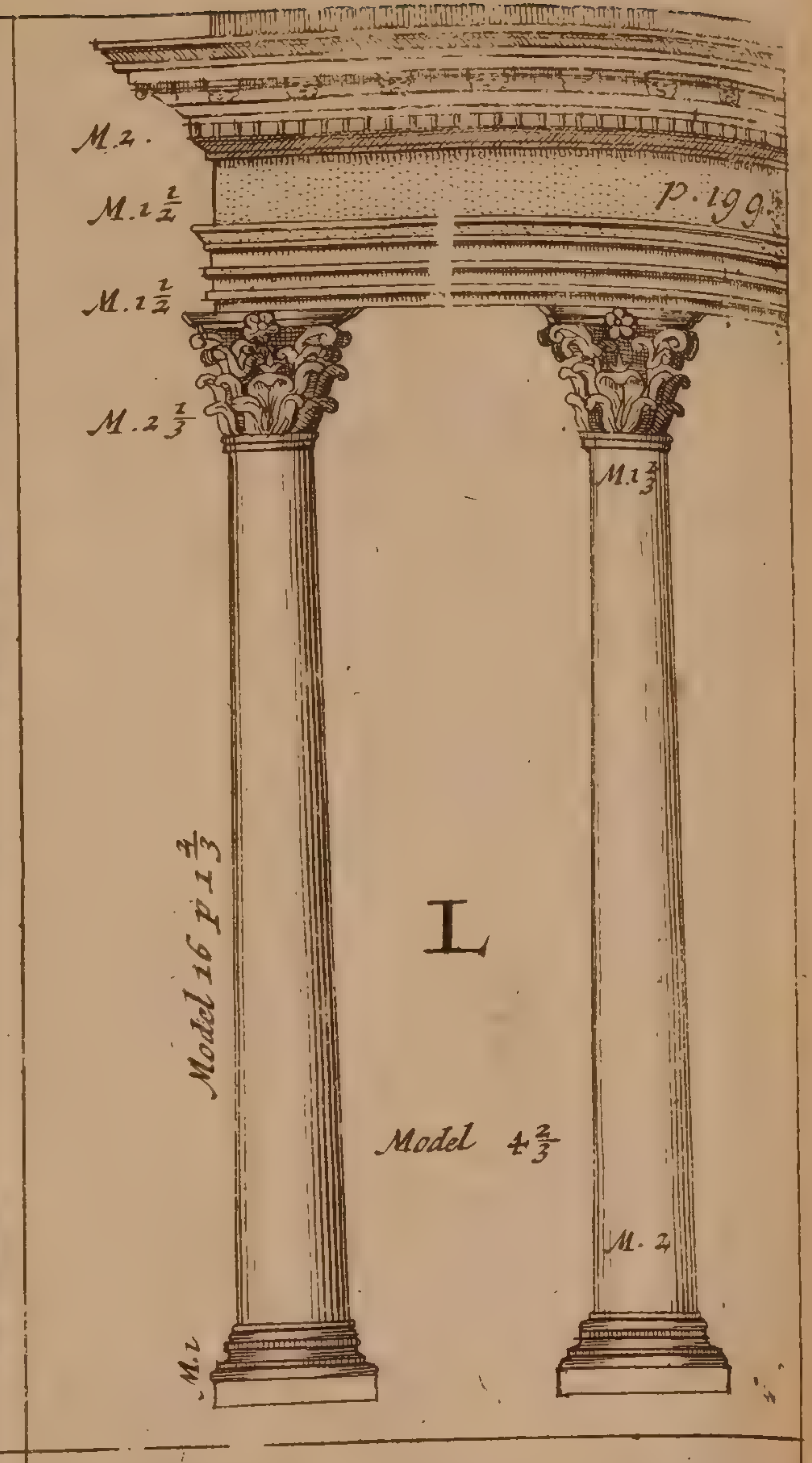

Volute
P7
P5
P8
P6
A
G

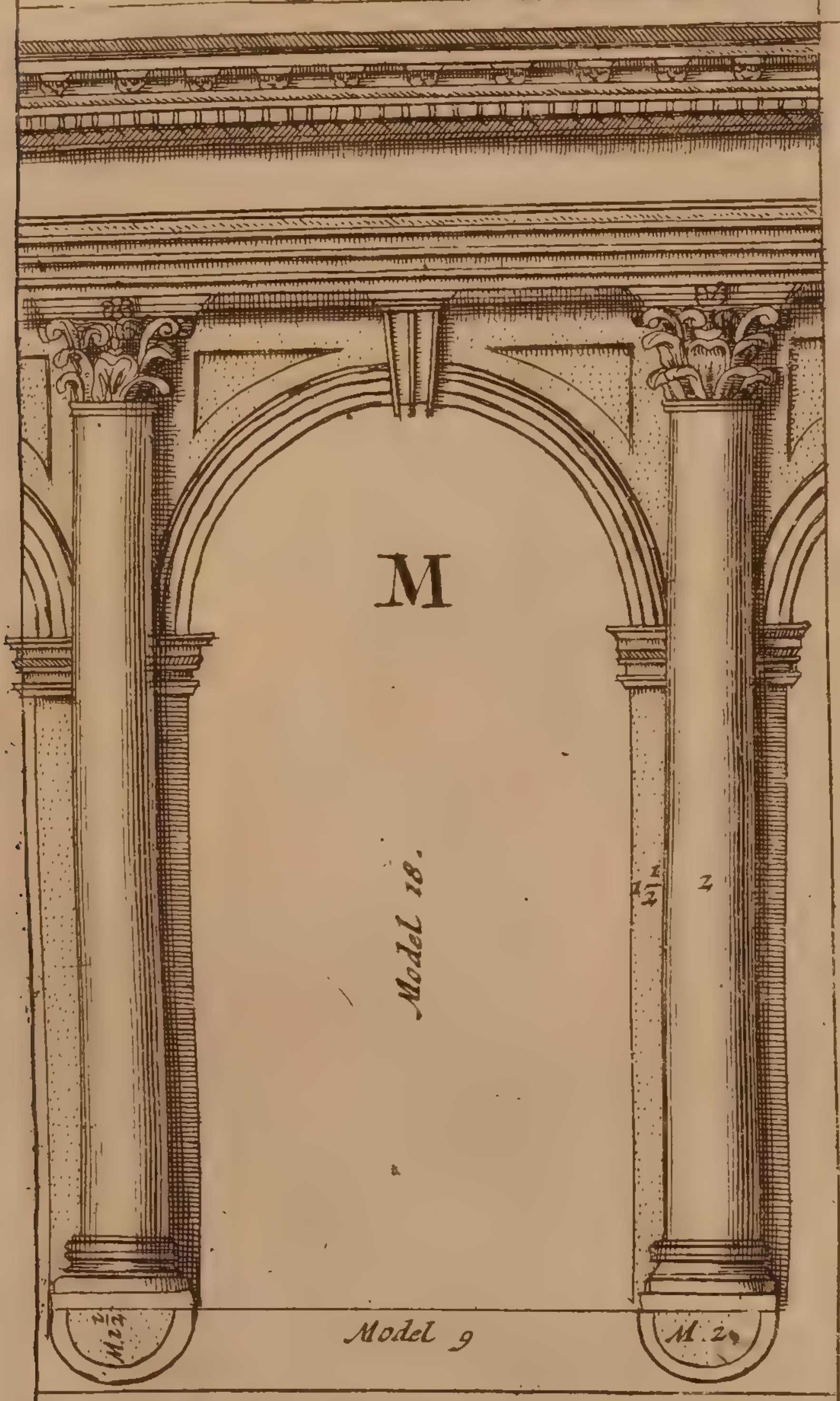
To the Right Worſhipfull
Sr. Thomas Fitch of Eltham,
and Mount=Maſcall in
Kent, Knight & Baronet;
Sr. yor. great Knowledge
in the Art of Architecture
renders you the Fittest
Perſon to be Selected in
this Concern, whoſe
name and Countenance
will much add to the
Reputation thereof, to
whoſe Patronage, this
Treatiſe with the Sculp-
tures of the Severall
Orders, is humbly
Dedicated, by
Richard Blome.

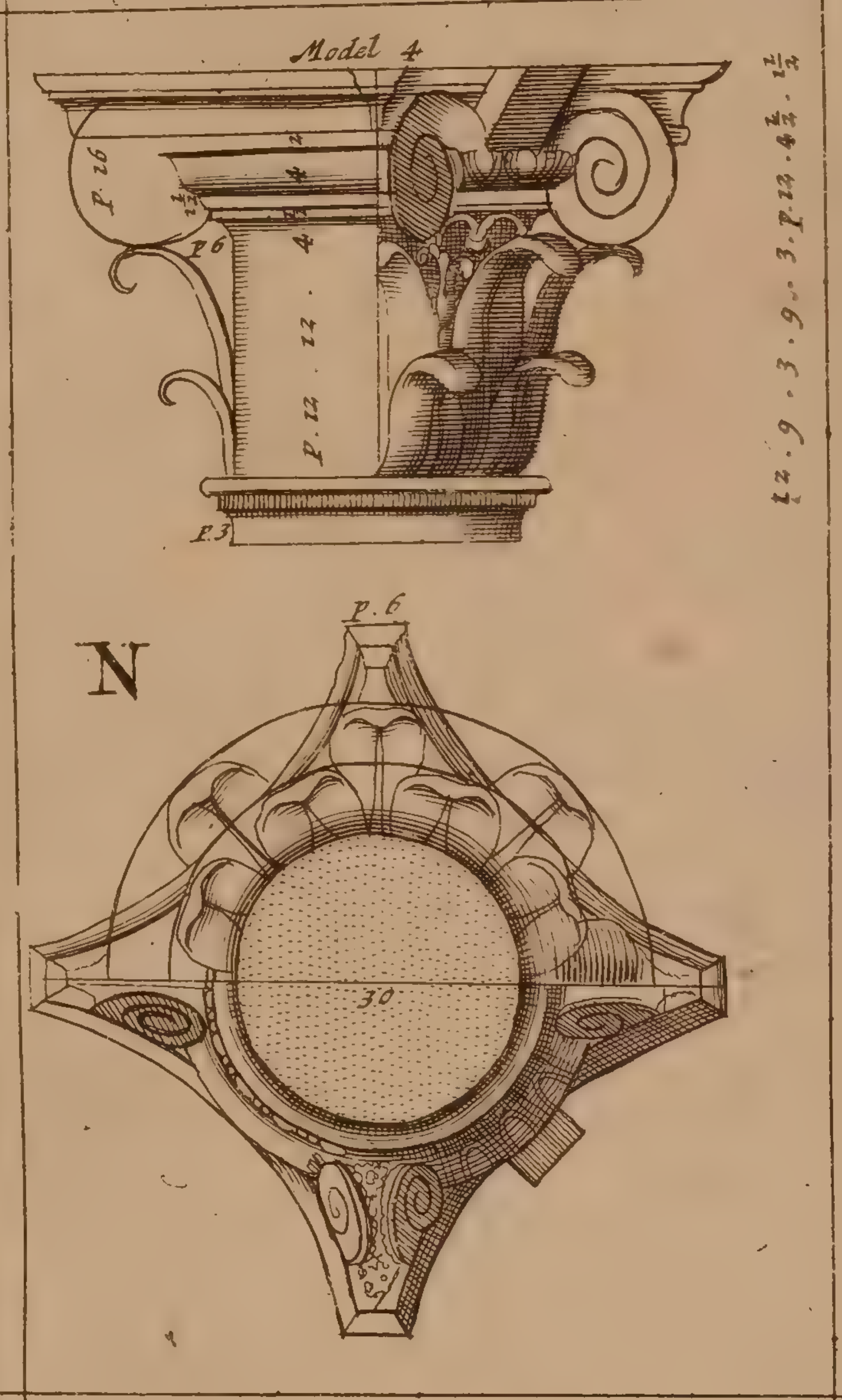

12, 9, 3, 9, 3, 4, 8, 3, 1, 2
A
B
G
D
E
F
P6
Module 2
Parte 30
H
1½
1½
1½
Parte 30 Mod. 1. ½

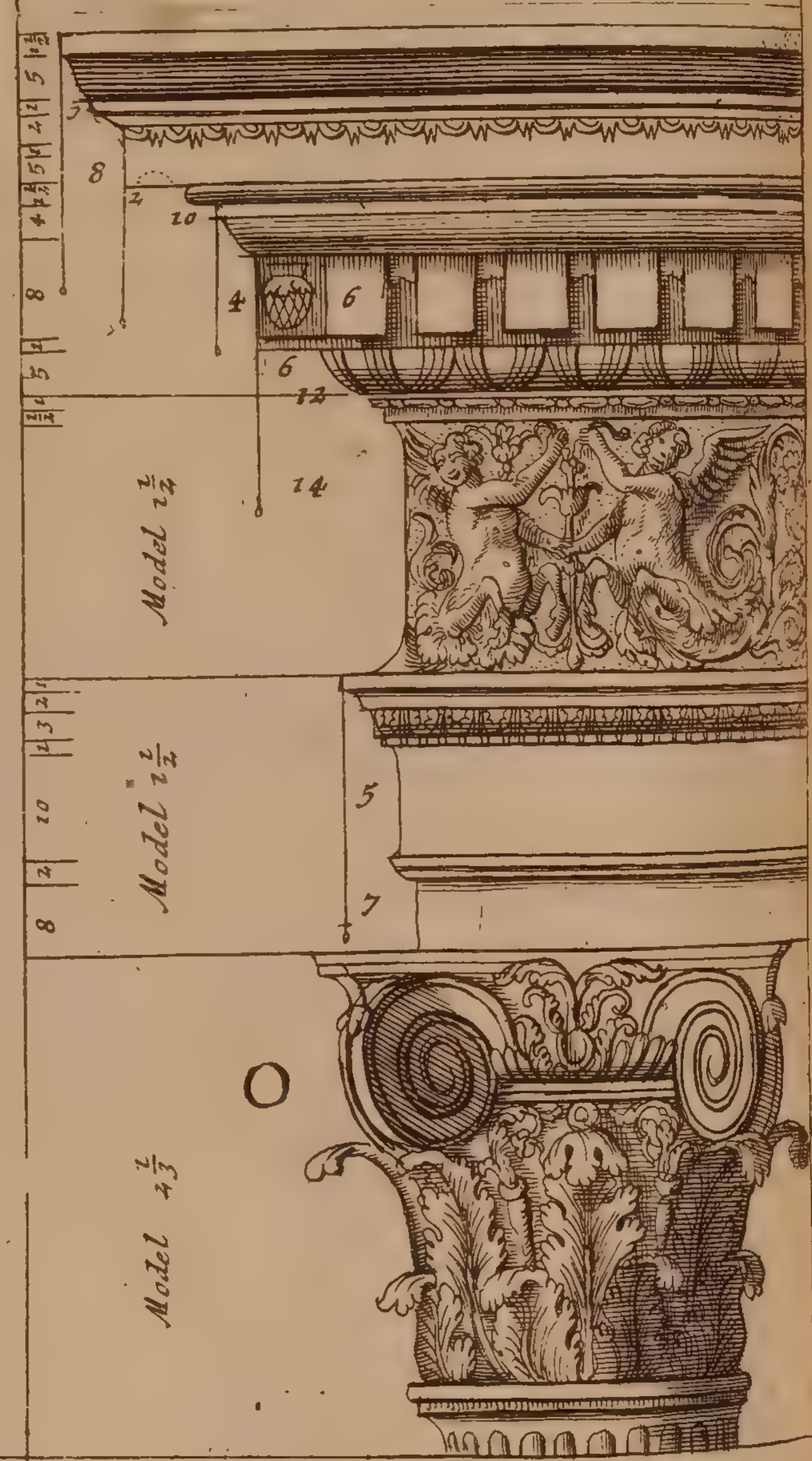

I
Model 2. et Part 2.
Part 17 1/2
Model 1 1/4
Model 1 1/4

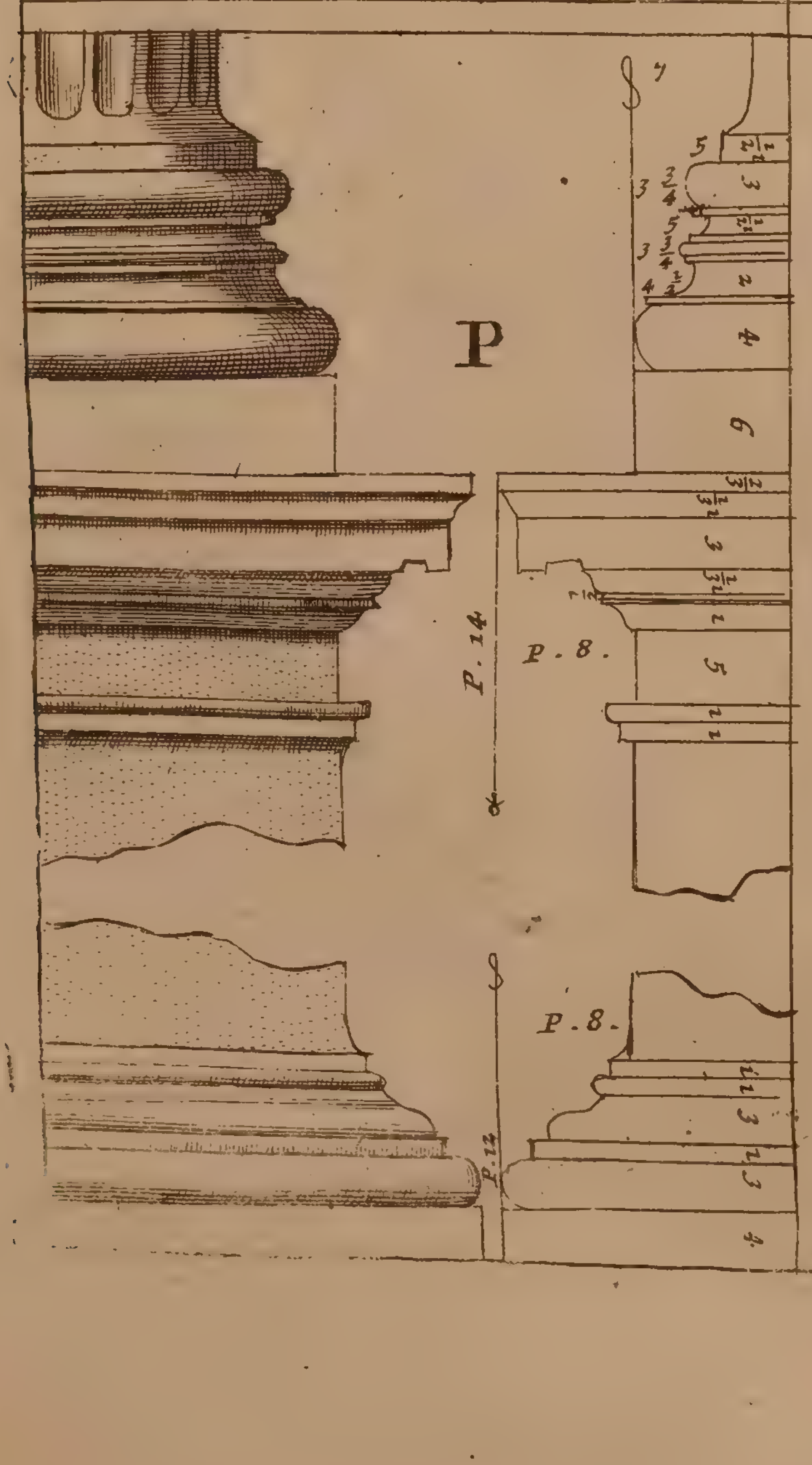

K
A
B
Model 2.
Part 14
Part 10.
Model 5
Part 12

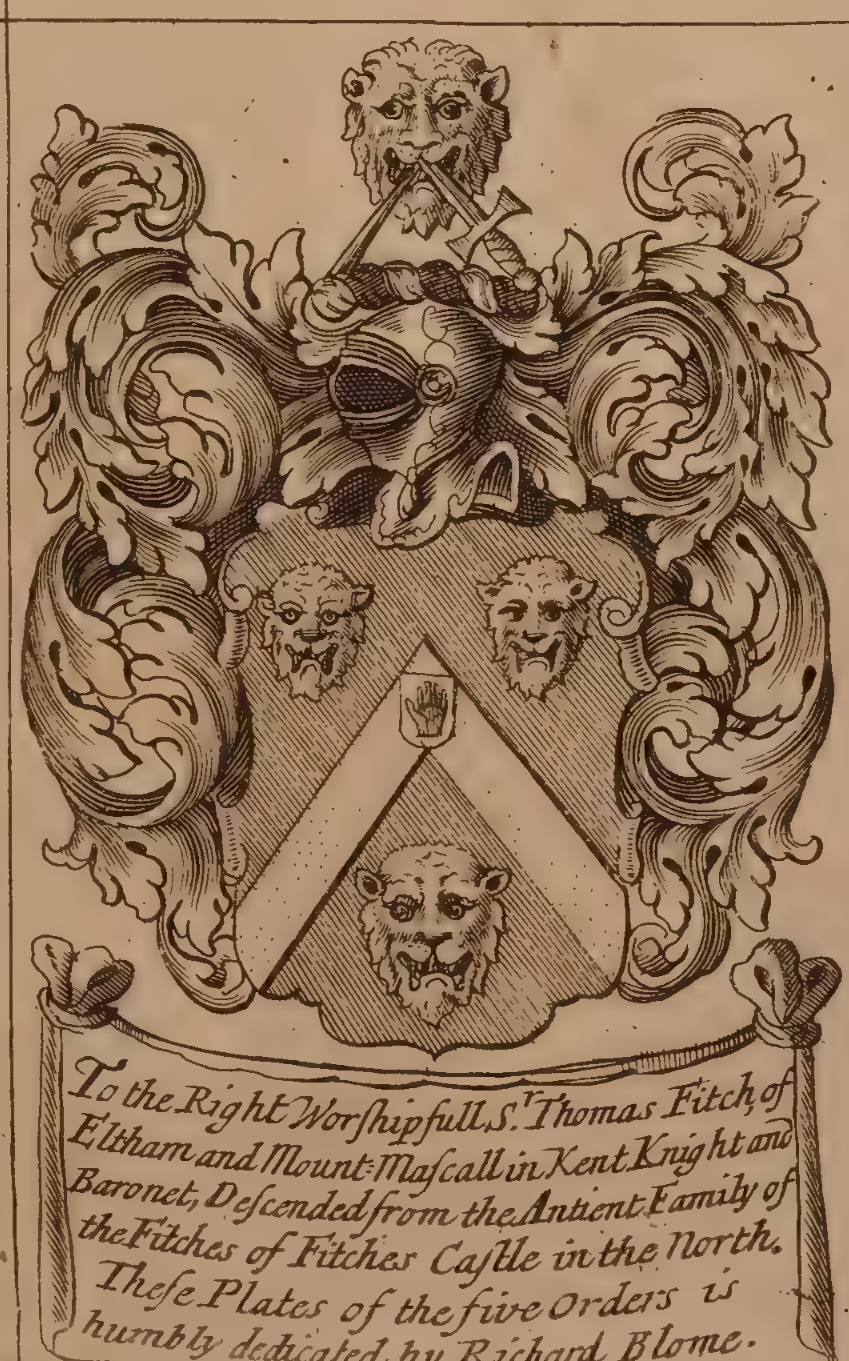

L
p.199
M.2.
M.1 1/2
M.1 1/2
M.2 1/3
M.1 1/3
Model 16 p 1 1/3
Model 4 2/3
M.2
M.1


M
Model 18.
Model 9
M.2 1/2
M.2

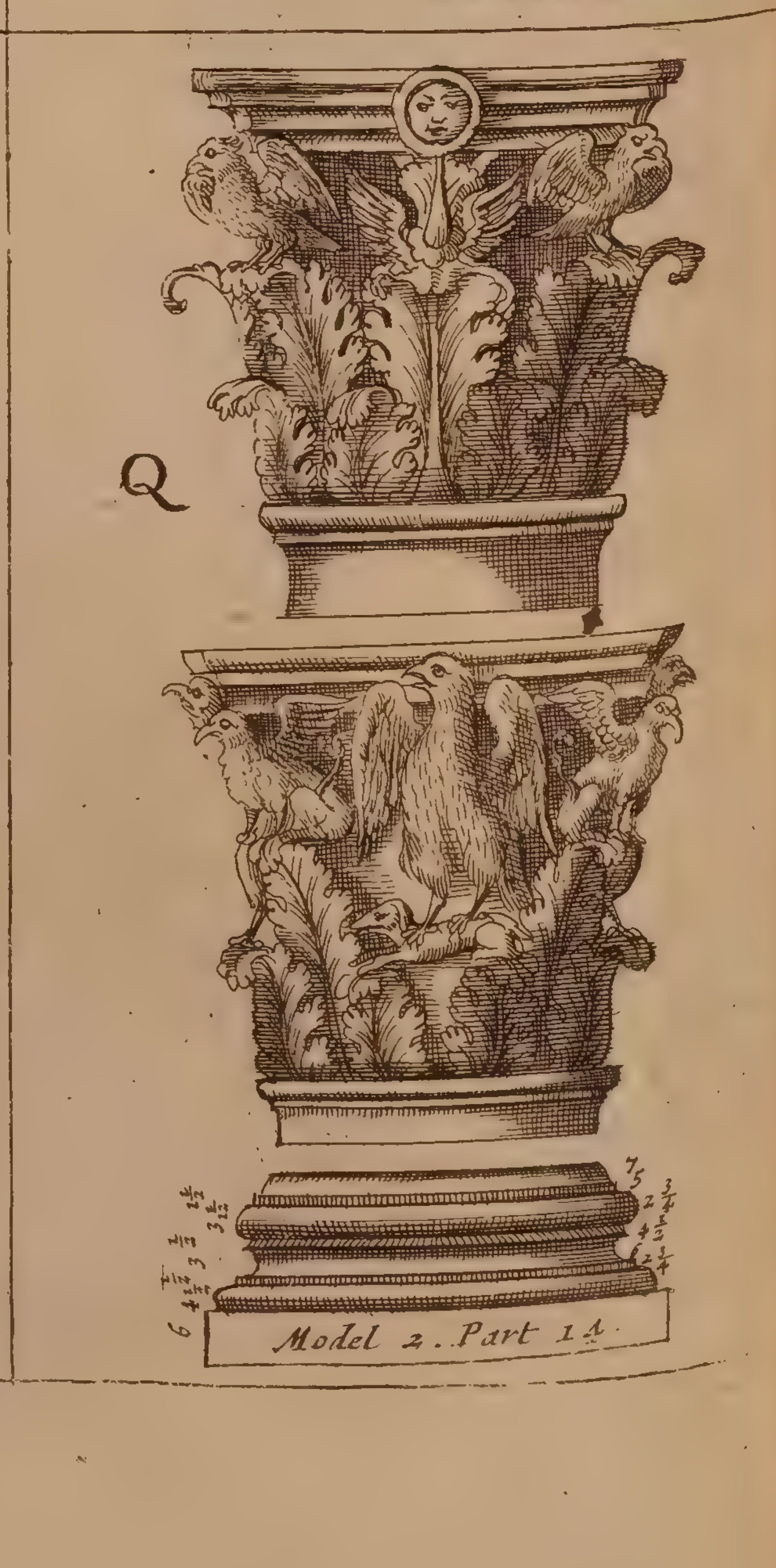

Model 4
P. 26
P.6
P. 12
P. 13
N
p.6
30


O
Model 1 1/4
Model 1 1/2
Model 4 1/3


P
P. 14
P. 8.
P. 8.
P. 14



To the Right Worſhipfull S.r Thomas Fitch, of Eltham and Mount=Maſcall in Kent Knight and Baronet, Deſcended from the Antient Family of the Fitches of Fitches Caſtle in the North. Theſe Plates of the five Orders is humbly dedicated by Richard Blome.


Q
Model 2. Part 14

ans. However, 'tis probable, that the *Trajan* Column was not the firſt that was Erected to the Honour of Great Men. 'Tis not long ago, that there was a little *Tuſcan* Pillar to be ſeen at *Rome*, on which was the Figure of a *Crow*, with this Word above it, *Corvin*; ſhewing, in all likelihood, that the Column was erected to the Honour of *Valerius Maximus*, after the Action he did in ſight of the *Gauliſh* and *Romiſh* Armies; for being Military Tribune in the Conſolate of *Furius* and *Appius*, in the Year 415, from the building of the City, he fought a Gigantick *Gaul* in ſingle Combat; and it was obſerv'd, a *Crow* flew on the Barbarian, and aſſiſted the *Roman*; as may be ſeen at large in *Aulus Gellius*; by this aſſiſtance, *Valerius* overcame the *Gaul*, aſſum'd the Sirname of *Corvinus*; and his Memory was ſo venerated afterwards, that *Auguſtus* put his Statue in the *Forum*: Now, whether it was placed on the Column before mention'd or not, or the latter was Erected in *Valerius*'s Life-time. We may however ſee by it, that *Trajan*'s Column was not the firſt the *Romans* rais'd to commemorate ſome Glorious Action. And, if the *Tuſcan* Order was made uſe of by *Valerius*, 'twas on account of its Solidity.

l. 9. *c.* 11.

The *Tuſcan* Pllar with its Baſe and Capitol, is commonly Seven times as High as it is Thick, meaſuring at the Baſe, the height to be leſſen'd one quarter part of its Diameter. The *Pedeſtal* is very plain, and but one *Module*, or *Diameter* in height. The *Baſe*, which is half the Diameter of the Height, is divided into two Parts, one for the Plinth: The other is divided into four Parts; three for the Tores, and the fourth for the Liſt; which only in this Order makes a part of the *Baſe*; for in the other Orders 'tis a part of the Body, or part of the Column. The *Capitol* is alſo half the Diameter of the thickneſs of the Pillar, narrow at the Baſe, and divided into three Parts; one for the Abacus, the other for the Ovum; and the other is divided into ſeven Parts; of which, one makes the *Liſtel*, and the other ſix are for the *Colarin*, or Frieſe of the Capitol.

Felib.

Tho' the *Tuſcan* Order ſeldom has a *Pedeſtal*, yet it is made here for *Example* ſake, as in the Figure mark'd *B*; where *A* repreſents the Body of the *Column*. *B*, the neather *Band* or *Swathe*. *E*, the *Liſt*. *F*, the *Gula*, or Throat revers'd in the *Pedeſtal*. *G*, the *Body* of the *Column*, &c.

The Figure *A*, ſhews the *Capitol*, *Architrave*, *Frieſe*, and *Cornice* of the *Tuſcan* Order; and the Figure *B*, the *Baſe*, and *Pedeſtal*.

The Names of the ſeveral Parts, or Members of the Column, according to the Figure mark'd A.

THat mark'd *A*, is call'd the *Ovum*, or *Ovolo*. *B*, the *Tondino*, or Round. *C*, the *Liſt*, or Rule. *D*. the *Crown*. *E*, the *Liſt*. *F*, the *Gula*, or Throat revers'd. *G*, the *Frieſe*. *H*, the *Liſt* of the *Architrave*. *I*, the *Architrave*. *K*, the *Liſt* of the *Abacus*. *L*, the *Abacus*, or *Cimatium*. *M*, the *Ovum*, or *Ovolo*. *N*, the *Frieſe* of the *Capitol*. *P*, the Neck of the *Column*. *Q*, the hanging over the *Capitol*. And *R*, the *Body* of the *Column*.

Of the Dorick *Order.*

THe *Dorick* Order was Invented by the *Dorians*, a People of *Greece*. *Palladio* Writes, That when the *Dorick Column* ſerves for a *Portico*, it ought to be Seven times as much in *Length* as in *Thickneſs*; but if fix'd in Walls, it ought to be Eight times as long as thick, and often more taking in the Baſe and Capitol. The *Dorick* Capitol is in height half the Diameter of the Column: It conſiſts of the following Parts; The *Abacus*, the *Ovum*, the *Rings* and the *Frieſe*; the *Aſtragai*, and the *Cincture*, which are below the Capitol, are reckon'd part of the Fuſt of the Column.

Fel.

The *Entableture*, or Architrave, Frieſe, and Cornice, are heavier and higher in this, than in other Orders: For in this, as well as in the *Tuſcan* Column, 'tis commonly a fourth Part as much in Height as the Column itſelf; and the others do not exceed a Fifth.

The height of the *Architrave*, is half the *Diameter* of the *Column*: 'Tis compos'd of one only *Faſcie*, and one *Swathe* or *Band*, which Crowns it; and has for particular Ornaments certain *Gutta*, or Drops, below the *Triglyphes*. Some Modern *Architects* put two *Faſcies* in the *Dorick* Architrave, in Imitation of ſome Remainders of Buildings, which are not of the greateſt Antiquity nor the beſt *Gout*.

The *Frieſe*, with its Liſt; which is the flat Band, that ſeparates it from the Cornice, ſhould be three quarters of the Diameter in Height. Its Ornaments, are *Triglyphes* and *Metopes*, but 'tis very difficult to diſpoſe of them well. Read *Vitruvius*, l. 4. c. 5.

The height of the Cornice, is equal with that of the *Frieſe*, when the *Column* is above Seven times its Diameter in Height: The *Frieſe* and *Architrave*, keep always their ſetled Meaſure; one of half, and the other of three quarters. The Diameter and the Surplus, which makes the Fourth Part of the Column, is thrown back on the Cornice.

If that Column is Fluted, it has generally no Liſt, or plain Space between each Flute, as is obſerv'd in the other Orders; and beſides, the Flutes are not ſo deep; they ought to be Twenty in Number.

As for the *Pedeſtal*, *Palladio* aſſigns it in Height two Diameters, and a third of the Column taken at the Bottom, and makes uſe of the *Attick* Baſe. For by what remains to us of the Antient Buildings, it appears, that the *Dorick* Order has no *Baſe*. Thus far Monſ. *Felibien* goes, in his Treatiſe of the *Dorick* Pillar. The Figure will give the *Engliſh* Reader a further Light; and it may be thus deſcrib'd in particular.

The Figure mark'd *C*, repreſents the *Dorick* Order, whoſe Parts are thus mark'd; *A*, the *Grove*, or hollowing of the upper *Liſt*. *B*, the *Dentils*, or Teeth. *C*, the *Capitol* of the *Triglyph*. *D*, the *Triglyph*, in which thoſe Parts that are fram'd inwards, are call'd *Flutes*, or *Hollows*: And the ſquare Place of the *Frieſe* between the *Triglyphs*, is called a *Metops*. *E*, the Props, or little *Bells*. *F*, the *Cimatium*. And *G*, the *Amulets*, *Bands*, or *Liſts*.

Of

Of the Ionick Order.

THE *Ionick* Order derives its Name from *Ionia*, a Province of *Aſia*. The Pillar, with its *Capitol* and *Baſe*, ſhould be in *Height* nine times the *Diameter* of the *Column* taken at the Bottom. It was not thus, when this *Order* was firſt invented; for it then conſiſted of but Eight Modules, or *Diameters* in Height. But the Ancients intending to make it more agreeable than the *Dorick*, encreas'd the height of the *Column*, by adding a *Baſe*, which is not us'd in the *Dorick* Order.

The *Entableture* takes up a *Fifth* Part of the Height of the *Column*, of which the *Baſe* is half the *Diameter*, and the *Capitol* a little more than a *Third*. The Capitol is chiefly compos'd of *Voluta's*, which renders this Order different from all the others. There are ſeveral Ways of making theſe *Voluta's*, as may be ſeen in *lib. 5. c. 27.* Monſieur *Perrault*'s Notes upon *Vitruvius*. *Phil. de Lorme* ſays, he firſt diſcover'd thoſe which are now moſt commonly put in Practice; and ſeems to complain, that ſome one elſe had aſſum'd the Honour of that Diſcovery, becauſe *Palladio* and *Serlio* had ſpoken of it before him. *Michael Angelo* alſo invented a particular ſort of *Voluta*'s. The *Ionick* Pillar is generally fluted with twenty four Flutes. There are ſome which are not concave, till above the third Part of the height of the Column, the Flutes of which third Part are fill'd with round Baſtons. 'Tis true, in the Ancient Buildings, almoſt all the Great *Columns* that are fluted, have Flutes from the Top to the Bottom, which was an Invention of the *Architects*, to imitate the *Folds* of Womens Robes, for they pretended this Order had the ſame Proportions.

The Height of the Pedeſtal of the *Ionick* Pillar, ought to be two, and two Thirds, or thereabouts, of the Diameter.

There are ſeveral Things to be obſerv'd in all the Parts of this Order, to give it that Beauty and Elegance which it requires, as may be learn'd in the beſt Authors, and particularly *Vitruvius*.

This is *Felibien*'s Account of the *Ionick* Order: To which may be added the following Particulars.

The Figure mark'd *D*, repreſents the *Ionick* Order, whoſe Parts are thus mark'd. *A*, the *Scotia*, or upper Hollowing. *B*, the *Aſtragals*, or Rounds. *C*, the *Scotia*, or neathermoſt Hollowing. Alſo, the Figures mark'd *E*, *F*, and *G*, are parts of the *Ionick* Order; the latter of which is the *Voluta*, or Scroll.

The Figure *D*, ſhews the *Baſe* and *Pedeſtal* of the ſaid Order. *E*, the *Capitol*, *Architrave*, *Frieſe*, and *Cornice*. *F*, the *Baſe* and *Pedeſtal*. And *G*, the manner of deſigning the *Voluta* of the *Capitol*.

To make a *Voluta*, a Line is to be drawn level from beneath the *Doucine*, and to be prolong'd as far as the Line, which form the upper Abord of the *Baſton*; the point of Interſection of theſe two Lines, will be the *Center* of the *Eye* of the *Voluta*: Then from the *Center*, trace every one of the four Lines of one part of the *Model*, and draw through their Extremities other *Lines*, you will make a Square cut the ſides into two equal Parts; draw two Lines through the oppoſite Diviſions, which will paſs from the *Center*; divide each one into ſix equal Parts, and you will have twelve Points mark'd 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12. which will ſerve for *Centers* to twelve Fourths of *Circles* that compoſe the *Voluta*, which conſequently will have three entire Revolutions, and will end in a Point, as it began at the lower ſide of the *Doucine*: But from the upper ſide of the *Abacus*, there is to be begun another *Voluta*, which will end at the firſt, and whoſe twelve Parts of the *Circle* will have the ſame *Centers* as the firſt; and the *Eye* of the *Voluta* is the *Circle* deſcrib'd from the Interſection of the two firſt *Lines*, as *Center* of the overture of one part of the *Model*.

Obſerve, That the *Abacus* having left off Projection, then its upper *Liſt* will make the *Creux* of the *Voluta*: And the ſame *Liſt* which is compriz'd of the two Lines of the *Voluta*, will be the Part Projecting.

Of the Corinthian Order.

THIS Order was invented at *Corinth*; its Meaſures are the ſame with the *Ionick*: The greateſt Difference between them, is in their Capitols.

The *Corinthian* Column, with its Baſe and Capitol, is generally ten times in Height, to what it is in Diameter; tho' *Palladio*, and ſome others, aſſign it but nine Diameters and a half. If it is fluted, it ought to have almoſt twenty four Flutes, the depth of which ſhould be half of their breadth: The *Liſt*, or plain Space that ſeparates one Flute from another, ought to be one third as broad as the width of the Flutes: There may be twenty eight, or thirty two of them, according to the bigneſs of the Pillars, and the Place where they are put; becauſe, if there's occaſion to make it look bigger, you need only multiply the number of the Flutes.

The greateſt part of the Modern Authors aſſign only to the *Entableture*, or *Architrave* Frieſe and Cornice, a fifth Part of the height of the entire Pillar, including the *Baſe* and *Capitol*: But if we wou'd take the beſt Remains of Antiquity at *Rome*, particularly the *Rotunda*, for an Example, the *Entableture will allow* of greater Height: 'Tis true, regard muſt be had to the bigneſs of the Edifice, according to which, the upper Parts ought to be more Powerful.

The Height of the *Capitol* ſhould be one *Diameter* of the *Abacus*, a ſixth or ſeventh Part of the Diameter of the Pillar taken at the Bottom: The reſt is divided into three Parts; one for the firſt Range of Leafs, and another for the ſecond: As for the third, 'tis again divided into that which joins the *Abacus*, in form of *Voluta*'s, and that which makes the *Colicoles*.

Thus far *Felibien*. To which may be added what another Author ſays of the Capitol. ' The reſt of it has the Figure of a Bell reverſt, whoſe Side (which is under the *Abacus*) has two Parts of Largeneſs, and four of Projecture. 'Tis divided into four equal Parts, and each of them again into twelve, for the Foliages, which ſerve for Ornament to the Column; theſe *Foliages* conſiſt of Olive-branches, which are to hang down about four Parts; but their Projecture is ‘to be determin'd by a Line drawn from the Extremity of the *Cimatium*, to the *Roundel* under the *Capitol*. Some are of Opinion, that the *Foliage* may paſs a little beyond this Line; and the Angles of the *Cimatium* are carry'd by *Rollers*, which others call *Tigats*, beſides two other Rollers, which are turn'd one towards the other, ſo far as to touch under the Flower, which is moſt commonly a Roſe: This Roſe ought to be in breadth one quarter of the Diameter of the Column taken at the Bottom.

The *Pedeſtal*, according to the ſame *Felibien*, ſhould be a fourth Part of the Column. 'Tis divided into eight Parts, one for the *Cimatium*, two for the Baſe, and the reſt for the *Dye*. As to the Figures of this Column, thoſe mark'd *H*, *I*, *K*, *L*, and *M*, repreſent the *Corinthian* Order. In that mark'd *K*, the Letter *A*, ſhews the upper *Torus*, or *Swathe*; and *B*, the neather *Torus*, or *Swathe*. In that mark'd *L*, the Letters *A*, *B*, together, are call'd the *Abaces* of the *Capitol*; but for Diſtinction, *A* is taken for the *Cimatium* of the *Abacus*; the *Stalks*, *B*, *C*, *D*, the leſs *Leaves*; and *G*, the *Flowers*. The Figure *H*, ſhews the manner of deſigning the *Capitol*. That of *I*, the *Capitol*, *Architrave*, *Frieſe*, and *Cornice*. That of *K*, the *Baſe*, and *Pedeſtal*. That of *L*, an Example of the *Pillars*. And that of *M*, of *Pilaſters*.

Of the Compoſite *Order.*

THE *Compoſite* Order was added to the other Four by the *Romans*, who place it above the *Corinthian*, to ſhew, (as ſome Authors tell us) that they were Maſters of all other People: And that 'twas not Invented, till after *Auguſtus* had given Peace to all the World.

'Tis compos'd of the *Ionick* and *Corinthian*, but is ſtill more Ornamental than the *Corinthian*, to which it is like in all the Meaſures and Numbers, excepting that the Capitol has but four Voluta's, which take up the Space that in the *Corinthian* is fill'd with Voluta's and Colicoles: The Capitol has a *Cimatium* like the *Corinthian*, a little Space of two Parts; whence ſpring the Voluta's, and then an Ovum, or Baſton, and a Liſt like thoſe that are in the lowermoſt Part of the *Ionick* Capitol. The Voluta is the ſame as the *Ionick*, having as much of the Front as the Corners of the *Corinthian Abacus*; that is, four Parts, or a little more: It ſprings from the Foot of the Flower, and its Eye is terminated by the upper ſide of the *Baſton* or *Roundel*. The Capitol from the *Abacus*, is divided into three Parts, the uppermoſt is allow'd to the *Voluta*; and the other Ornaments taken from the *Ionick* Order; and the lowermoſt to the *Foliages*. *Felibien* ſays, We may believe by ſeveral Ancient and Modern Buildings, that there are other ſorts of *Capitols*, which agree with no other Order but this. He continues, The *Compoſite* Column, like the *Corinthian*, is ten times as High as it is Thick. *Phil. de Lorme*, who believ'd that thoſe Pillars of which the laſt Order was form'd, were *Compoſites*, writes, That they were as big at the *Capitol*, as at the *Baſe*; which however, is not obſerv'd in the ancient Edifices, where the *Entableture* is alſo a Fourth Part of the Column. But *Palladio* allows only a Fifth Part to it, as well as to the *Corinthian* Order. He alſo aſſigns to the *Compoſite* an *Attick* Baſe; or a Baſe compos'd of the *Attick* and *Ionick*, as he does to the *Corinthian* Order. As for the *Pedeſtal*, its Height ought to be a Third Part of the Pillar.

Nevertheleſs, all the Meaſures are not ſo well ſetled, but they vary according to the Bigneſs of the Building. *Vitruvius* ſhews how the Members of an Order ought to be made, according to its Height; for the Members of an Edifice ſhould be Encreas'd, or Diminiſh'd, as is convenient for the Beauty of the Work. So true is this, that among the Antiquities in *Provence*, there's a Tomb, which Monſieur *Mignard* the Architect, Deſign'd very lately, with more than ordinary Exactneſs: the Columns of which, have alſo have no ſetled Meaſure: There are ten pretty high of the *Compoſite* Order, which ſupport a little Dome; and becauſe they are all Iſolees, each ſtanding by itſelf, and the Light paſſes by the ſides of them, they are ſo big, that they are not above eight Modules in Height, and yet they have an admirable Effect.

Regard muſt be alſo had to the Number of *Pillars*, and a Difference be made between ſuch as are not above four in Number, and ſuch as are ſix or eight in a Row; thoſe that ſtand againſt a certain Body, and thoſe that ſtand by themſelves, muſt be conſider'd; as alſo ſuch as are the Extremities or Angles of a Building; which ought always to be greater than others, becauſe the Air encompaſſing them, takes off part of their Bigneſs in View, and makes 'em look Leſs.

As for thoſe *Pillars* which are not Entire, but the half or third Part of their Bigneſs is loſt in the thickneſs of a Wall, other Meaſures muſt be obſerv'd, different from thoſe that are quite Round. The former was not only Invented for the Decoration of Walls, but alſo to ſtrengthen them, and ſerves for *Jambes* to Gates and Doors; alſo for Counter-Pillars, the better to ſupport the Vaults of Edifices. Ornaments may be added on certain Occaſions, to *Pillars* and *Pilaſters*, as *Phil. de Lorme* has done in the Palace of the *Tuilleries*.

This is what Monſieur *Felibien* writes of the *Compoſite* Order.

The Figures mark'd *N*, *O*, *P*, *Q*, repreſent the ſeveral parts of this Order, viz. *N*, the manner of Deſigning the *Capitol*. *O*, the *Capitol*, *Architrave*, *Frieſe*, and *Cornice*. *P*, the *Baſe* and *Pedeſtal*. And *Q*, an Example of the *Capitol*, with *Birds* and *Beaſts*.

This Order has as great a Fame as the *Corinthian*. Its principal Parts are compos'd of the ſame Ornaments, and divided in the ſame manner: And indeed, there is no material Difference to be found, except in its *Capitols* and *Pedeſtals*.

The *Pedeſtal* of this Order, differs not from that of the *Corinthian*, except in ſome parts of the upper and lower *Cimatium*.

Among the Antiquities of *Rome*, has been found a very great number of *Capitols*, which not belonging to any of the Four *Orders*, are to be attributed to the *Compoſite*, becauſe they have almoſt all the principal Meaſures of that which is compos'd of the *Ionick* and *Corinthian* Orders here deſcrib'd. In the place of the *Voluta*'s, *Rollers*, and *Tigats*, there are *Eagles*, *Griffons*, and other Animals; and in the place of a *Flower*, there are *Faces* and other Things.

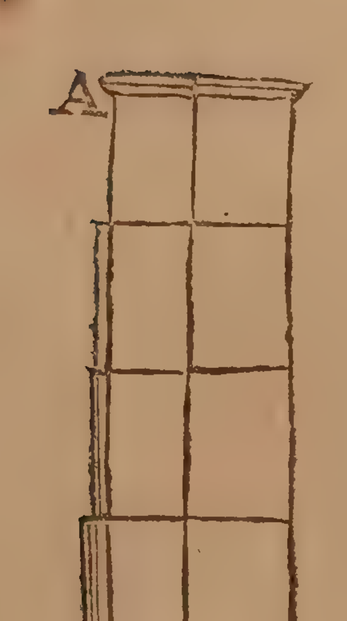
What follows, is taken entirely from Monſieur Felebien's *Treatiſe of Architecture.*

Of Pilaſters and Wreath'd Columns.

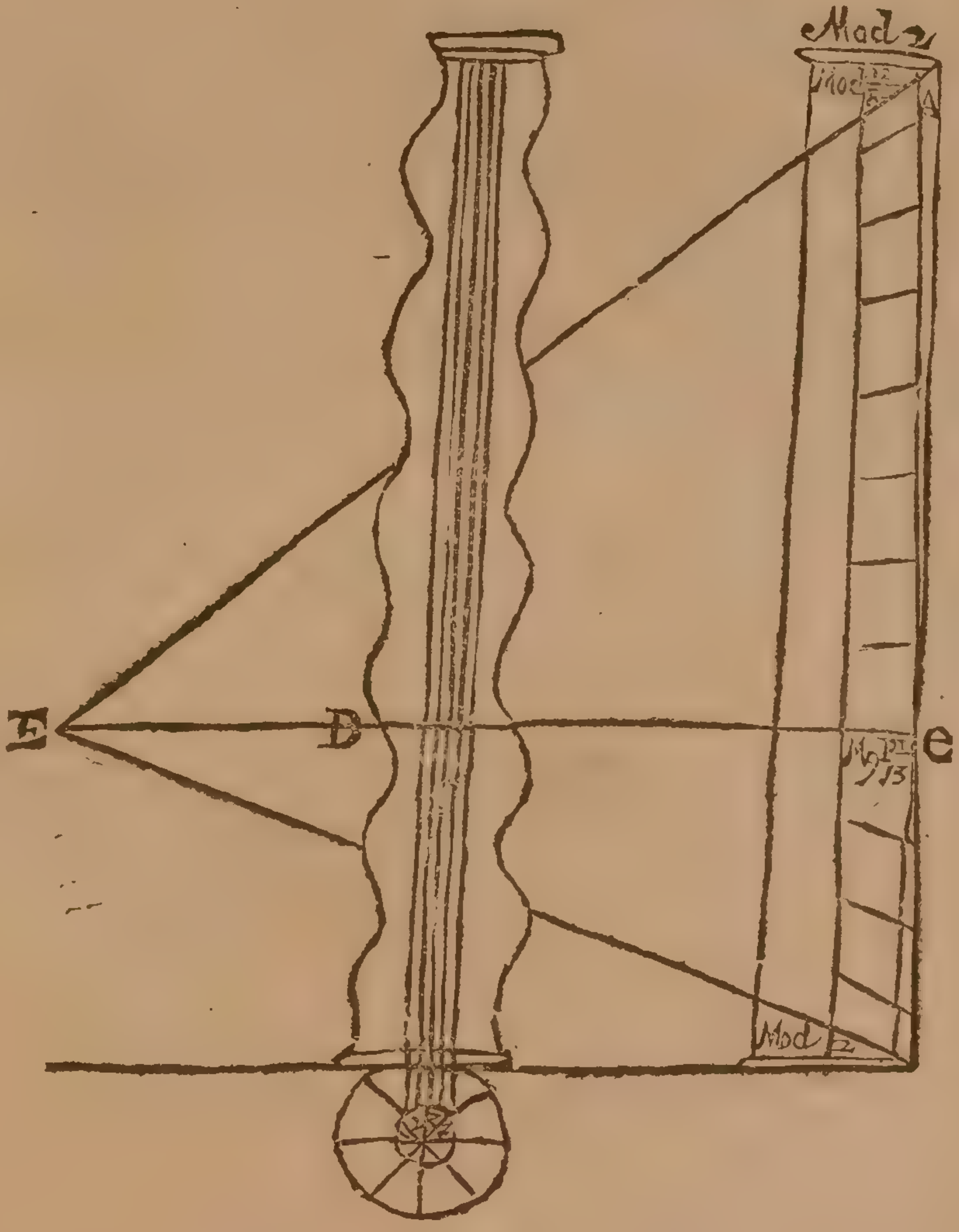
THere are Square Columns, which are call'd *Pilaſters*, and are thought to be the ſame ſort of Pillars, which in Ancient Authors are term'd *Atticurges*: They are proper to all the Orders, and ſuſceptible of the ſame Ornaments. Some of them may be ſeen at the Corners of the *Portico* of the Church of the *Four Nations.*

Wreath'd Colums, ſuch are now in Uſe, are a Modern Invention; and the Ancients, who were above all Things careful to make their *Buildings* firm, never would have *Wreath'd* Pillars, tho' they had been for Ornament only: They deſir'd, that Nature and Veriſimility ſhould appear in all their Works, which are not to be met with in thoſe ſort of Columns, they having neither Force nor Figure to ſuſtain a great Burden: Neither were they much us'd till lately, that the Great *Braſs* Columns in St. *Peter*'s Church at *Rome*, were made. Workmen think one Example of Novelty ſufficient to authorize their Imitation, and juſtifie their taking all manner of Licenſe, very often *mala propos*, and againſt Reaſon; as ſeveral have done with reſpect to Cartridges, with which they may be ſaid to have disfigur'd Architecture, ſince they ſaw *Michael Angelo* make uſe of them. By this we ſee, that ſuch as do not throughly underſtand their Art, and are indeed nothing but *Copyiſts* and *Apes* of others, almoſt never Imitate them, except in thoſe Things in which they did ill. For, 'twas not in his Cartridges that *Michael Angelo* ſhew'd himſelf an excellent Architect; he was Maſter of thoſe other Parts of his Art, that may very deſervedly be imitated. But as to thoſe heavy and ridiculous Ornaments, they are not to be found in any *Antique* Edifices, no more than *Wreath'd* Columns. *Palladio* only ſays, He had obſerv'd in a little Temple near *Trevi*, ſome Pillars of the *Corinthian* Order with Flutes twiſted about the *Fuſt*; but the Trunk of the Column was not Twiſted, as is done now a-days. *Vignole* has deſcrib'd the true Figure of it, and ſet down the manner of making it.

Of the Diminution and Enfleurs of Columns.



THE *Diminution* of *Columns* is made ſeveral ways: But it will be ſufficient to give Examples of the two chief of them. For the Firſt. Let the Column *A,B*, be divided from a Third Part upward. Let the *Semi-Circle E, D, C*, be made at the Point *E*, and from *A*, the point of *Diminution.* Let the Line *A, G*, be let down perpendicularly; then let the Point *E, G*, be divided into as many equal Parts as you pleaſe: For Example, into ſix; and let *E, A*, be alſo divided into other equal Parts; and when the *Perpendicular* and *Horizontal* Lines ſhall cut each other, draw the Line *E, H, I, K*, which will give the *Diminution* deſir'd: And the ſame way may be made uſe of in the *Tuſcan* and *Dorick* Orders.



This other way, tho' it be leſs common, yet is eaſie to be conceiv'd by the *Lines*. The Meaſure of the *Columns* being agreed on, a *Line* is to be drawn *ad finitum*, beginning at *C*, and continuing through *D.* Afterwards bring back the Meaſure *C, D*, to the Point *A*, till it cut the *Perpendicular* at the Point *B*; and *A, B*, being continu'd to *E*, from thence there may be drawn as many *Lines* as you pleaſe; which parting from the *Perpendicular*, will tend directly to the Circumference of the *Column*; upon which, applying to the Meaſure *C, D*, you will there have the *Enfleur* of the *Column*, as well above as beneath. And this way may be apply'd to the *Ionick*, *Corinthian*, and *Compoſite* Orders.

But if it be thought fit to make theſe *Columns* Wreath'd, after the manner of thoſe which are at St. *Peter*'s at *Rome*, there muſt be a *Plane*, as is here mark'd; and that little *Circle* in the middle, ſhews how it is to be Wreath'd; which being divided into eight Parts, and four *Lines* being drawn qarallel to the *Perpendicular*, the whole *Column* is to be divided into 48 Parts; and the *Spiral Line* form'd through the Middle, ſerves for a *Center* to the *Column*, upon which is to be ſet forth the bigneſs of the *Column Strait-Line* by *Line*, as it is here repreſented. But 'tis to be obſerv'd, That the four Numbers, 1, 2, 3, 4, mark'd upon the *Plane*, are only to ſerve as far as the firſt Half-Story, in regard the beginning Parts from the *Center*, muſt be continu'd from thence upward about the little *Circle*, to the laſt Half-Story above; where alſo the four Points below are to be made uſe of.

REMARKS.

THE *Roundels*, or *Baſtons*, are deſign'd by a *Demy-Circle.* The *Ovum*, or quarter of a *Round*, by a quarter of a *Circle.* The *Gueul* Revers'd, or *Doucine*, by the Sixth part of a *Circle*, deſcrib'd with the *Equilateral Triangles*, in ſuch ſort, that the *Crooking* from below be inward, and the *Crooking* from above be outward. The *Strait Gueul*, or *Demi-Doucine*, is deſign'd as the *Doucine* itſelf, only with this Difference, that the bending from below

low is outward, and that from above inward. The *Abacus* is deſign'd by an *Arch*, deſcrib'd with an *Equilateral Triangle*, in the ſame manner as the *Scotia's*, and the Imbelliſhment of the *Trunk* of the *Column* towards its *Cincture* or *Collar*.

Of the Order of the Cariatides, *and the* Perſick Order.

BEſides the Five Orders, of which mention has been already made, there are ſome Writers who put Two more after them, as the Order of the *Cariatides*, and the *Perſick* Order. The Firſt is nothing elſe but the *Ionick* Order, without any Alteration, except that inſtead of *Pillars*, the *Entablement* is ſupported by the Figures of *Women*. *Vitruvius* attributes the Origin of this Order to the Ruin of the Inhabitants of *Caria*, a City of *Peloponneſus*. He ſays, That being united with the *Perſians* in the War againſt the *Greeks*, their own Country-men; the latter, after they had routed the *Perſians*, laid Siege to the City of *Caria*, and having taken it by Storm, reduc'd it to Aſhes, and put all the Men to the Sword, carrying away the Women and Children into Captivity. But to leave ſome Tokens of their Vengeance to Poſterity, they repreſented in all the Publick Edifices they built afterwards, the Image of thoſe miſerable Captives, making them ſerve for Columns to ſupport a heavy Burthen, which was the Puniſhment they had deſerv'd for the Crime of their Husbands.

'Twas another ſuch Accident that gave riſe to the *Perſick* Order; for *Pauſanias* having defeated the *Perſians*, the *Lacedemonians*, in Token of their Victory, erected Trophies with the Arms of their Enemies, whom they afterwards repreſented under the Figure of Slaves, bearing the *Entabletures* of their Houſes. And as the *Ionick* Order was choſen for the *Cariatides*, as moſt agreeable to the Figure of Women; ſo the Architects choſe the *Dorick* Order to repreſent the *Perſians*.

Theſe two Examples have been the occaſion of making uſe of ſeveral ſorts of *Figures* in *Architecture*, to bear up Cornices, Corbels and Compartiments. Several of theſe ſorts of Figures are to be ſeen in the *Gothick* Buildings, with as much Exceſs as without Order and Reaſon. 'Tis probable the *Greeks* alſo made ſuch Figures as theſe, after different Manners. For in the *Antiquities* near *Athens*, there are *Figures* of Women carrying Baskets on their Heads, which ſerve inſtead of *Cariatides*. They alſo put Human Figures under Compartiments and Corbels, calling them *Atlas's*. According to *Vitruvius*, the *Romans* term'd them *Telamones*. The *Greeks* had ſome Reaſon to call them *Atlas*, the Poets feigning that he bore up Heaven with his Shoulders, but we can't imagin why the *Romans* gave 'em the Name of *Telamones*, *Vitruvius* himſelf ſaying nothing of it.

Baldus, in his Dictionary on *Vitruvius*, ſeems to have hit upon the Thing well enough, when he ſays, 'tis likely he who made uſe of that Word to expreſs Figures ſupporting a Burthen, did not write it *Telamones*, but Τλήμονας; which Word in the *Greek* ſignifies *Wretches* who are condemn'd to hard Labour, and this agrees perfectly well with the Figures that ſuſtain Cornices and Corbels, as is to be ſeen commonly in ſome ancient Churches, where the Figures of Saints and ſome other Illuſtrious Perſons ſerve for Pillars.

Of the Ornaments of Architecture.

AS to the Ornaments of an Edifice, it may be ſaid of them, that they ſerve only to embelliſh the ſeveral Parts by the different Pieces of Sculpture that are put there.

Vitruvius calls the *Entabletures* of each Order *Ornaments*, as the *Architrave*, *Freiſe* and *Cornice*, the *Metops*, *Tryglyphes* and the *Guttæ*. Other Things that are met with in Architecture, were invented to imitate the Beams, Girders, and other Pieces of Timber made uſe of in Building; and the Ancients imitating not only what Nature ſhew'd them, but aſſiſting themſelves by the Art and Invention of other Workmen, made ſeveral Parts of Sculpture in Cornices and Capitols of Pillars. Read *Vitruvius* on this Head.

The *Ornaments* that generally are cut on the Mouldings, are Foliage, Flutes, Rubans wound upon Sticks or otherwiſe, *Chaplets*, *Shells*, *Roſes*, *Flowers*, and divers other Things, according to the Place and Part to be adorn'd. Certain Parts may be enrich'd with *Baſſo Believo's*, as *Freiſes*, *Pedeſtals*, and other flat Places, as may be ſeen in the *Antiques* that are left us.

The Ancients did not take ſo much Care to finiſh the Ornaments of great *Edifices*, as *Amphitheatres*, and the like; but in thoſe of their little *Buildings* they were very exact. The former would have taken up too much Time, and been too great an Expence.

In ſome Parts of Architecture Sculpture is Eſſential, as *Vitruvius* obſerves, in the 3d. Chapter of his Fourth Book; ſuch are *Corinthian* and *Ionick* Capitols and Trygliphes, *&c.* In others 'tis not abſolutely neceſſary, as in the Oval of great Cornices, the Dantilles of *Corinthian* Cornices; the *Corinthian* and *Ionick* Freizes, the Cornices, the Metops of the *Dorick* Order.

Of ſeveral Sorts of Edifices.

THERE are three ſorts of Buildings in Architecture. 1. Sacred Edifices, as the ancient Temples, and our Churches and Chappels. 2. Publick Edifices, as Courts of Juſtice, Tombs, Theatres, Amphitheatres, and other Buildings, which ſerve for *Shews* and *Feſtivals*; and *Triumphal Arches*, *Gates*, *Bridges*, *Aqueducts* and *Priſons*. 3. Palaces and Private Houſes.

The Ancients had two ſorts of *Temples*; ſome built after the *Greek*, and ſome after the *Tuſcan* Manner, as may be ſeen in *Vitruvius*,

They aim'd at making their Temples have a particular Agreement with their *Deities*, not only with reſpect to the *Situation*, but alſo to the Form of their Structure. Thoſe that were Dedicated to the *Sun*, were of a *round* Figure; as were alſo thoſe Dedicated to *Luna* and *Veſta*; ſuch a one is that built by *Numa*, which is to be ſeen at *Tivoli*. Thoſe Dedicated to *Minerva*, were *open* in the Middle; thoſe to *Minerva*, *Mars* and *Hercules*, were of the *Dorick* Order; thoſe to *Venus*, *Flora*, the *Muſes* and *Nymphs*, of the *Corinthian*; thoſe to *Juno*, *Diana*, *Bacchus*, and other the like Divinities of the *Ionick* Order. And all theſe Temples were enrich'd with Ornaments ſuitable to each Divinity.

They were for the moſt part of White Stone, or Marble; and when of Braſs, or any other Matter, whiten'd within-ſide; for of all Colours the *White* is that which agrees beſt with a Temple, becauſe it repreſents that *Purity* with which the Divinity that is there Worſhip'd ought to be Ador'd.

As for Publick *Edifices*, either Courts of Juſtice, or Places for *Shews* and *Feſtivals*, or for the Advantage and Decoration of a City, 'tis certain the *Greeks* and *Romans* ſurpaſt all other Nations in the Grandeur and Magnificence of their Buildings. There's very little of the *Greek* Edifices remaining; but what is to be ſeen in ſeveral Parts of *Italy*, ſufficiently ſhews what the *Roman* Building was. They had three ſorts of Priſons; the one for looſe, debauch'd People; the other for Bankrupts and inſolvable Debtors; and the third for ſuch as had been guilty of Capital Crimes. Among the moſt conſiderable of Publick Edifices, may be reckon'd *Stone-Bridges*, on account of the Difficulty of carrying on Maſon's Work in the Water. There are five Things to be obſerv'd in Building them. 1. The Buttings of the Borders. 2. The Piles, whoſe Foundation is in the Water. 3. The Arches. 4. The Supporters. 5. The Pavement.

The Piles ought to be equal in Number from one End of the Bridge to the other. Their Thickneſs ought not to be leſs than a *Sixth* of the Void of the Arch, nor more than a *Fourth*. Their *Front* is generally *Angular*, and ſometimes alſo *Semicircular*. But in the ancient Bridges, the *Angles* of Defence, or *Spars*, oppos'd to the Current of the Water, are almoſt always *Right*, thoſe ſort of Angles being ſtronger than *acute*, and leſs liable to Deſtruction.

The ſtrongeſt Arches are thoſe whoſe Vault is an entire Semicircle.

As for the Supporters, the Height and Ornaments, they are left to the Diſcretion of the Builder.

The Pavement ſhould be of good Stone; and as People are to paſs to and fro moſt upon the Bridge, ſo the Paving muſt be manag'd accordingly.

Palaces ſhould be built according to the Grandeur and Magnificence of the Princes or Great Lords to whom they belong; and the Houſes of Private Men alſo according to their Employments and Eſtates.

Solidity, Convenience and Beauty are the three principal Things to be minded in *Building*. As to the Ornaments, they muſt be ſuited to the Diſpoſition of the Place, and the Expence propos'd as the *Builder* thinks fit.

Of Things Neceſſary in Building.

THE principal Materials in building are *Timber*, *Sand*, *Stones* and *Earth*. For of Earth *Bricks* are made, as alſo *Pantiles*; and of Stone *Lime*.

The beſt Lime is made of Marble, or of the hardeſt Stone; for the harder the *lib.* 11. *c.* 5. Stone, the fatter and more gluttinous will the Lime be. *Vitruvius* ſays, Lime made of the hardeſt Stone is beſt for Maſon's Work, and that made of ſpungy Stone propereſt for Plaiſtering.

In all Work under Water you muſt make uſe of Lime burning hot and juſt taken out of the Kiln, with the Flints and Sand of the River, or a Cument made of broken Tiles; for this Mortar will ſo conglutinate with Lime, that all the Stone-work will be one ſolid Maſs. *Phil. de Lorme* writes, that Lime is known to be good when 'tis very heavy, and ſounds like an empty Pitcher when 'tis ſtruck; or being *wetted*, its Vapour and Smoak are very thick, and preſently riſe high, and in tempering it, it ſticks to the Beater.

According to this *Architect*, the beſt Way to make excellent Mortar, *lib.* 1. *c.* 17, is to heap it together as ſoon as it comes out of the Kiln, in what Quantity you pleaſe, in a ſmooth Place two or three Foot deep.

It muſt afterwards be cover'd all over equally with good Sand about a Foot or two deep; then throw Water upon it, and that in a great Quantity every where to moiſten the Sand ſo well, that the Lime which is under it may infuſe and diſſolve without Burning. If the Sand cleaves in any Place, and makes way for the Smoak, that Place muſt be immediately cover'd with new Sand, to hinder the Vapours breaking thro' it; for the Sand being thus moiſten'd, and the Lime well cover'd, it turns to a Maſs of fat Subſtance, which, when it is broken open, two, three, or ten Years afterwards, will reſemble a Cream-Cheeſe. This Matter will be ſo fat and gluttinous, that the Workman will be hardly able to ſtir it with his Beater; and having eaten up a good quantity of Sand, will make an excellent Mortar for Cruſting and Plaiſtering of Walls, for Stuck and Painting in Freſko. For the Colour keeps better upon Mortar made after this manner, than on that made of new Lime, which makes the Plaiſter cleave and chap, and changes the Beauty of the Colours.

As to Sands there are ſeveral Sorts of different Natures and Goodneſs. Some of them are more profitable, and bind better with Lime than others. And ſome are ſo fat and excellent, that one may put five, nay ſeven Parts to one Part of Lime. Others are ſo bad and dry, that there muſt be almoſt as much Lime as Sand. The one is proper for Walls above Ground, the other for Foundations; ſome for Plaiſtering; ſome for Pottery; as particularly a very brown Sand, work'd up for that uſe at *Rome*, which does wonderfully well: 'Tis call'd *Pouzzolan*, from the Pits where 'tis dug. It hardens ſo when 'tis work'd, and grows to ſuch a ſolid Body, and knits itſelf ſo admirably together, that 'tis of itſelf capable of forming Vaults.

In many Parts of *France*, the beſt Sand is the Terrene, which is there call'd *Sable de Cave*, Cellar-Sand, becauſe 'tis dug up in the Earth, and has a Grain almoſt as big as *Pebbles*, making a noiſe when 'tis handled. That which brings Earth up with it, is not of ſuch uſe. There's Sand of divers Colours, as White, Yellow, Red, and Black. You may know the Goodneſs of them, by putting them on Cloth; and if it does not dirt it, nor ſtick to it, as Earth commonly does, then the Sand is good. *Vitruvius*, and *Phil. de Lorme*, have treated of this more amply.

It muſt be obſerv'd, that all ſorts of Water is not good to temper Lime and make Mortar. That which is temper'd with Sea-water, is worth nothing; for when it is work'd, 'tis not dry'd, but with great difficulty, nor conglutinates, nor binds itſelf with the Stone. The Water of Lakes and Marſhes, are as bad, being two foul; River-Water, Rain-Water, Spring-Water, are the propereſt for this Uſe.

When any Stone-work is done in the Water, a Cement made of broken Bricks, or Tiles, with Lime juſt taken out of the *Kiln*, is beſt, as I have already obſerv'd: You firſt put Piles of good Oak, the Bark taken off, which muſt be driven down as deep as you can, with a void Space as big as that which is fill'd. The Void is fill'd with Coal, and above the Piles are plac'd Beams, of eight or nine Inches, which are nail'd down on the Piles, cut to an equal Height: On the Beams are plac'd Planks of five Inches thick, and this makes the Platform, or Floor. In ſome Countries Wool is put between the Piles and Planks. *Pliny* ſays, the Foundations of the Temple of *Epheſus*, were good Piles with Coal and Wool. On this Platform the Work is carry'd on with hard Stone, according to its Nature and Quality.

Lib. 86. 14.

The Walls of Buildings are made after different Manners; ſome with great Free-Stones; others with Rubbiſh; others with Flint; others with Bricks, diſpos'd Chequer-wiſe, in Angles, or as the Builder's Fancy directs him.

The Ancients made a ſort of Coffers with Planks of the thickneſs they would have their Walls to be, and fill'd them with Mortar and all ſorts of Stones. This way is proper for raiſing of *Dikes* and Works under Water: Little Stones, too hard, and too ſmooth, are not proper to receive the Mortar. Some are of Opinion, that the *Grez* is the worſt, and ſhould not be made uſe of by Maſons, in Flint or Rubbiſh-work. As to great Squares of *Grez*, they are to be ſeen in abundance of Buildings, and are very Beautiful and good; but then the Stone muſt be Peak'd and made rugged; otherwiſe 'tis too ſlippery. In great Edifices, the greateſt and hardeſt Stones ſhould be us'd, to render them the more Beautiful and more Solid. The *Greeks* and *Romans*, who aim'd as much to make their Buildings Durable, as Fine and Magnificent, in their Publick Works us'd the hardeſt Stone, and in great pieces; as may be ſeen by the remains of Buildings, which were of Marble, and other as rich and ſolid Stone in *Greece* and *Italy*.

A greety ſort of Free-Stone.

Of all Stone, Porphyry, which the *Greeks* call *Porphyrites*, is the hardeſt: 'Tis of a browniſh Red, and full of little white Spots: 'Twas brought from *Ægypt* to *Rome*. 'Tis thought to be more tender in the Quarry, and that it hardens in the Air, the Sun and Froſt; for when 'tis expos'd to the Weather, tis much more difficult to cut.

There are ſeveral pieces of *Porphyry* at *Rome*, ſome of which were work'd with the Chizel, ſome with the Saw, and others by little and little, with the Emerald. One of the moſt conſiderable Pieces, is the Tomb; which is ſaid to be that of *Conſtantia*, the Emperor *Conſtantine*'s Daughter, in St. *Agnes* Church, without the Walls of *Rome*. 'Twas formerly a Temple dedicated to *Bacchus*; on which account this Tomb is commonly call'd *Bacchus*'s Tomb; as alſo for its being adorn'd with ſevreal Children, mingled among the Vine-Leaves and Bunches of Grapes, all of *Baiſſe Taille*, and wrought with a great deal of Labour on ſuch a hard Stone. In the Church of St. *Denis* in *France*, is the Font which King *Degobert* brought from *Poictiers*, and is ſaid to have been the ſame in which S. *Martin* was Baptiz'd. There are alſo in the Palace of the *Tuilleries*, among the Kings and Antiquities, a Palace, and the Buſts of twelve *Roman* Emperors in *Porpyhry*.

'Tis a long time ſince the Art of working in *Porphyry* with the ſame Facility and Perfection which the Ancients did, has been loſt, Workmen not knowing how to temper their Tools as they did, nor even what Tools were made uſe of in ſuch difficult Work. When the *Italian Sculptors* would work up ſome old pieces of Pillars that are now found out, they uſe only a Copper Saw without Teeth, and with Emerod Duſt and Water, which they pour upon it, they at laſt cut it with great Patience. 'Tis true, ſeveral Excellent Artiſts have from Time to Time, endeavour'd to diſcover how the Ancients work'd in *Porphyry*, but almoſt without any Succeſs. *Leo Baptiſt Albert* made the moſt Trials, and carefully ſought after a Temper for his Tools: And tho', as he ſaid, he found that Goat's Blood was the beſt of all his Experiments, yet that Temper was not of any long duration; for tho' it takes away ſomething of the Stone in working, yet it was ſo hard, but that the *Chizel* rather ſtrikes out *Sparkles of Fire*, than *Splinters of Stone*, which made other Workmen try other Ways to work it, ſome with Wheels and Emerod, others with great Hammers, with Diamond Points of good Steel, and temper'd with Goat's Blood. By ſtriking on the Porphyry with theſe, by ſmall Strokes, they made it at laſt Round or Flat, tho' not without much Pains and Difficulty; and they could not for a long time reach ſo far as to form any Figure of it.

In the Year 1555. Duke *Coſmo* of *Medicis* having found ſome Pieces of *Porphyry* Stone among ſome old Marble, had a great Mind to have a Baſon for a Fountain made of it; and to make the Work the eaſier to the Perſon he choſe for it, he diſtill'd certain Herbs, and extracted from them a Water, which temper'd the Tools that it gave them an extraordinary Hardneſs. By this means, one *Franciſco Tadda* made a Baſon for a Fountain, of two Fathom and a half Diameter; and cut alſo a Foot to his Baſon. Finding the Secret the Duke communicated to him was a rare Invention, he try'd it on other Works; in which he ſucceeded ſo well, that he made three Ovals; in one of which, he repreſented a *Head of Chriſt in a Demi-Relievo*; and in the other two, *Duke Coſmo of Mecicis, and the Dutcheſs his Wife*. He perform'd it ſo well, that the Hair of the Head, in which 'tis very difficult to ſucceed, were manag'd ſo Artfully, that nothing better is to be met with among the Works of the Ancients. This *Tadda* did ſeveral other Pieces afterwards; but 'tis probable the

Secret dy'd with the Duke and him; for in our Times, there are none who work in Porphyry. There has lately been found out in *France*, the Secret of cutting it with an Iron Saw, without Teeth, and with wet *Grez*, after the ſame manner as Marble is cut; and with the ſame Saw to make Mouldings: Nay, thoſe that found out this Contrivance, pretend by Rounding, to cut the whole Circumference of a Porphyry Pillar. 'Tis true, we cannot now make many Eſſays in this ſort of Stone; for the *Quarries* being loſt, there remain only ſuch *Antique* Pieces, as are diſcover'd among the Ruins. 'Tis not amiſs to obſerve, that the *Porphyry*, which has endur'd the Fire, breaks and ſplinters eaſily when 'tis Wrought; and tho' it has not loſt all its Natural Colour, 'tis nevertheleſs very much diminiſh'd, having not that Vivacity, nor ſuch a ſhining and beautiful Brightneſs, as when it has not been in the Fire: Not that the Fire makes it the ſofter; for if you put a piece of it into a *Kiln*, it does not only not Melt, but grows even the harder for it, and hinders, in ſome meaſure, the melting of the other Stones that are about it.

After the *Porphyry* Stone, comes the *Serpentine*, which the *Italians* call *Serpentino*, and the *Greeks* *Ophis*. 'Tis of a dark Green Colour, with yellow Streaks, which run along the whole length of the Stone. Tho' it is little leſs hard than *Porpyhry*, yet it breaks more eaſily, and is not ſo difficult to be Wrought. It comes from *Ægypt* and *Greece*, but no great pieces of it are found, for there is no piece of Work above three Fathom length, to be met with; ſome Columns of leſs Bigneſs are to be ſeen; as alſo Tables, and pieces of Pavement, ſome Heads, but no entire Figure. 'Tis wrought in the ſame manner as Porphyry. *Boot* pretends the Ancients give the Name of *Ophis* to all ſorts of Marble, and even Alabaſter, let 'em be of whatever Colour they would, provided they had any Spots or Streaks, diſpos'd and mark'd like the Skin of a Serpent: That 'twas not the particular Colour of the Stone which caus'd the Name of *Ophis* to be given to it, but the diſpoſition of the Streaks and Spots that's obſerv'd in it. He adds, *Diaſcorides*, as well as *Pliny*, holds there are ſeveral ſorts of Stones call'd *Ophites*.

Lib. 2. *ch.* 227.

There's a ſort of them in *Germany*, which the ſame Author terms *Zeblicius Ophites*, and of which he tells a great many Wonders. Vaſes are made of it, but 'tis not more durable than common Alabaſter, which being of no uſe in the *Structure* of Buildings, ought not to have a Place among the other Marbles, of which I treat.

There's a ſort of Stone, that in Colour is not unlike the *Ophis*, only the Green is more lively, and a little Yellowiſh, with ſome black Spots of a ſquare Figure, and different Sizes, and ſome a little White. The *Italiians* call this ſort of Stone *Cipollacio*, perhaps, becauſe its Green Colour is ſomewhat like that of a *Leek*. 'Tis not ſo hard as the *Ophis*, and is dug in many Places: Great Pillars, and other ſuch Works, are met with in it, but no Statues. This Stone is Sawn and Wrought, and Poliſh'd like the *Porphyry* and *Ophis*. In the Garden of the *Vatican* at *Rome*, is a Nitch of this kind of Stone, Deſign'd by *Michael Angelo*. 'Tis probable, that 'twas ſome of it, which being found in *Ægypt*, in the Reign of *Auguſtus* and *Tiberius*, was, for that Reaſon, differently call'd by the Name of thoſe two Emperors *Auguſtum*, and *Tiberium Marmor*.

There's alſo another hard Stone in the Mountains of *Verona*, *Carrara*, and ſeveral other Places in the Dominions of the Great Duke. The *Italians* call it *Miſchio*, becauſe 'tis the mixture of ſeveral Stones, which are as it were, congeal'd together, and by the Water and Weather, extreamly Cold, turn'd into One. This Stone takes a fine Luſtre, and is dug in great Pieces: Its Colour enclines a little to the Purple, with white and yellowiſh Veins: Nay, there's an Infinity of Colours in it; for it ſeems as if Nature delighted to vary this ſort of Stone in all Places where 'tis found, even in the ſame Quarry. Thoſe that come from *Ægypt* are more hard, and their Colour is more lively than thoſe that come from *Italy*. 'Twas of this kind of Stone that the Inhabitants of *Chio* built the Walls of their City, whoſe Beauty was admir'd by all the World: On which *Cicero* ſaid, They " would have been much more worthy, had they " been built of *Travertin* Stone, it being no great " Wonder they ſhould be built with the Stones of " their own Country.

There's a very hard and rugged Stone with black and white, and ſometimes yellow Spots, like that which is call'd *Syenites*, on account of the *Syenis* of the *Thebaides*; or as others Read in *Pliny*, *Stignites*, becauſe of the little black Spots, with which it is mark'd. The *Italians* term it *Granito*, and Stones of it are dug in *Ægypt* to a prodigious Bigneſs. Of this Stone are the Obeliſks, Spires, and a vaſt Numbers of Columns and other Works, ſtill to be ſeen in *Rome*, the Hardneſs of which, have reſiſted the Fire, and other Injuries of Time. 'Twas for this Reaſon the *Ægyptians* made uſe of it, to eternize the Memory of their Great Men; noting their Actions by Characters, which they Engrav'd on Edifices, or Pyramids, with which they Adorn'd their Tombs.

Several have thought, that theſe huge Maſſes at *Rome*, were contriv'd with wonderful Art, and form'd of Marble Splinters, melted and mingled together, not being able to comprehend how they were able to bring them by Sea from the diſtant Provinces; and 'twas plain they were not cut in *Italy*, where there are no Stones of that Nature. But to clear this Matter, you need only ſee what *Pliuy* Writes, *Lib.* 7. *c.* 9.

Another ſort of *Granito* was brought from *Ægypt*, of a Greyiſh Colour, inclining to Green, ſpotted with little black and white Spots, and very hard. This *Granit* is met with in ſeveral Parts of *Italy*, but the greateſt Pieces have been dug in the Iſle of *Elbe*, where the *Romans* had continually Men at Work in the *Quarries*. From thence were taken the Columns of the *Portico* of the *Rotunda*, which are very fine, and of an extraordinary Bigneſs. When this Stone is wrought in the *Quarry*, 'tis much more Tender and eaſie to be Cut, than after 'tis taken out, tho' it is almoſt always neceſſary to make uſe of the *Pecker*, the Point of which muſt be the ſame as of that for working in *Porphyry*, and the Teeth very Cutting.

'Tis alſo from *Ægypt* and *Greece* that is brought a ſort of Stone very black, call'd now a-days *Parangon*. The Ancients, according to *Pliny*, term'd it *Baſſalles*; and *Ba-*

l. 57. *c.* 7.

ſanus, from Βακανίζω, that is, *diligenter Examino*, becauſe Gold and Silver are try'd by rubbing them on this Stone. There are other Kinds of it, the Grain of which is different, and the Black not ſo deep. Perhaps they are thoſe which are call'd *Lapis Lydius*, and *Lapis Obſidianus*. The Ancients made Statues of *Sphynxes*, and other Animals in them, as is to be ſeen at *Rome*. This ſort of Stone is very hard to cut; but when wrought is very Beautiful, and of an admirable Luſtre. 'Tis dug at *Carrara*, in the Great Duke's Territories, and in *Flanders*.

Boot. de Gan. Lap. lib. 2. *c.* 27.

In *Greece*, and almoſt all over the *Eaſt*, is found a ſort of White Marble, a little Yellowiſh. 'Tis very Tranſparent, and was in ancient Times made uſe of, inſtead of Glaſs, for the Windows of Baths, Stoves, and other Places, where the Wind and Rain ſhould not enter. *Vaſari* writes, that in his Time there was a Church at *Florence*, the Windows of which were fill'd with it, inſtead of Glaſs, and yet the Church was very Light. By this means the Ancients defended themſelves againſt the Cold, and gave Light to their Chambers. There are alſo other ſorts of Tranſparent Stone, and of all Colours. They are call'd *Lapides Speculares & Selenites*.

Plin. lib. 6. *c.* 22. *Boot. l.* 2. *c.* 225.

In the ſame *Quarries* where this White Marble is dug, there is another ſort without any Vein, but of the ſame Colour; the Thread and Grain of which are very Fine. Of this formerly were the fineſt Statues made, and all the Ornaments of Edifices; ſeveral Pieces of it, perfectly Fine, have been diſcover'd, as thoſe great Statues and Houſes that are ſtill at *Montecavallo*, and ſeveral other Figures, which are known to be *Greek*, both by the Grain of the Marble, and the Manner of the Work.

The Faireſt of all White Marble, is that call'd *Parium Marmor*, either becauſe 'twas dug in the Iſle of *Paros*, or becauſe the Sculptor, *Agoracritos*, was a Native of this Iſle, who firſt cut the Statue of *Venus* in White Marble. The Ancients call'd the fine White Marble *Lichnitis*; for that, according to *Varro*, 'twas hewn in the Quarry by the Light of Lamps. This, and the Like ſort of Marble, are cut with the common Tools.

Boot. lib. 1. *c.* 267. *de lap. & Gem.*

There are ſtill ſeveral other ſorts of Marble dug in the Mountains of *Carrara*, ſome Black, others inclining to Grey, others mixt with Red, others that have grey Veins, and thus of divers Kinds. There's one ſort which the *Italians* term *Cipollini*, and others *Saligni Campanini & Miſchiati*. The greateſt Plenty is of a very White Marble, of the Colour of Milk, which is excellent for Figures. There's a certain Place, which the *Italians* call *Le Cava del Polvacio*, where the Marble has leſs Spots, of what we call *Emeril*, and of thoſe Kinds which they term *Noccioli*, and which commonly are found in very great Pieces. Beſides, that theſe Knots give a great deal of Trouble to the Workmen, they cauſe a great deal of Deformity in the Statues, when finiſh'd. But that which is taken out of *Pietra Sancta*, where was the Wood of the *Feroman* Goddeſs, according to *Ptolemy*; or, according to others, the Temple of *Hercules*, has more Firmneſs, yeilds more to the Chizel, having what the *Italians* call *Marbidezza*, and the Poliſhing of it is finer than that of any other Marble. 'Tis true, in ſome of them we meet with thoſe Veins of *Emeril*, which often break the Tools.

The Marble which the *Italians* call *Cipollini*, has another ſort of Grain; the Colour inclines to Green; the *Veins* are greater in Number, but not ſo ſtrong. It is not proper for *Statues*, but ſerves for *Pilaſters* for great *Tables*, and other Pieces of Work, as may be ſeen in the Hall of *Antiques* at *Louvre*. 'Tis dug up in other Places beſides *Carrara*.

The Marble which the Workmen call *Saligni*, reſembles Congelations; for 'tis a little leſs Tranſparent, and has a certain Brillant, like that which appears in Salt. 'Tis hard enough to make Figures of it, becauſe its Grain is very great and rough; and in wet Weather it gives, and Water drops from it like a kind of Sweat.

As for the Marble call'd *Campanini*, it takes its Name from its tinkling lik a Bell, when 'tis wrought. It has a very ſharp Sound, is naturally hard, and ſplits more eaſily than the reſt; 'tis found at *Pietra Sancta*. There's alſo a Black Marble, with large Yellow Veins; they call it *Portoro*, becauſe its Veins reſemble Gold. Several different ſorts of Marble are taken up in ſeveral Places of the Appenine Mountains.

In *Spain* alſo is dug a Marble, the Ground of which is Yellow. They give it the Name of *Brocatelle*. 'Tis eaſy to work, and takes fine Poliſhing.

Since Monſieur *Colbert* was made Superintendant of the Buildings, there have been diſcover'd in *France*, by his Care and Order, ſeveral ſorts of *Marble* of different Colours, eſpecially near the *Pyrenees*. 'Tis likely the *Romans* heretofore dug up Marble hereabouts; for we may perceive in the Quarries that Stones have been taken thence; and ſince they are not to be met with in *France*, they muſt have been tranſported elſewhere. There's a Place near St. *Beat*, on the Borders of the *Pyrenees*, a League from *Catalonia*, whence a Piece of Marble was dug up, fourſcore and ten Foot long, as may be gueſs'd by the manner of the cutting of the Mountain: And yet none has thought of ſearching for Marble in theſe Parts. Some private Men have brought away ſome little Pieces of various Kinds; but the Sieur *de Fromont* was the firſt that dug up one that was conſiderable. He diſcover'd the beſt Quarries in the Year 1664. and took up, by Order of Monſieur *Colbert*, Columns of twenty Foot high, the Stone very hard, and the Colour admirable. An infinite Number of other Pieces have been already wrought at the *Louvre*, the *Tuilleries* and at *Verſailles*, which are ſo much the more to be eſteem'd, by how much the Colours are Lively and Extraordinary.

The chief Places where theſe Marble Stones are dug, are near St. *Beat*. There's one Quarry call'd St. *Martin*, where the greateſt Pieces are found. The Marble is a ſort of a Fleſh Colour, with Red Veins and White Spots. 'Tis eaſy to work; and we might get there, with Eaſe, Pieces of what Bigneſs we pleas'd. Out of the other *Quarries*, in the ſame place, is dug *White Marble*, which comes near that of *Genoa*; and were it not, that what the Workmen call its *Pouf* is too hard, and that 'tis a difficult Thing to make Figures of it, it would be preferrable to the Marble of *Genoa*; for whatever Figures were made of it, would be more Beautiful than thoſe made of the *Genoeſe* Marble. In the Valley near the Town of *Campan*, is another Quarry, where great Pieces of *Green* Marble are taken up, as alſo *White*, *Red* and *Fleſh* Colour. Of this Marble are part of the Works I have mention'd to be at *Louvre*, and at the *Tuilleries*, and the Pillars of 20 Foot that are in the King's Magazine; the Workmen call it *Campan Marble.* There are ſeveral other *Quarries* in the ſame Valley; but as the Marble is not ſo fine as what I have ſpoken of, ſo People have not been at the Pains to dig it.

In the *Golden Vale* near *Serancolin*, there's a *Quarry* of *Marble* of an *Iſabella* Red Colour, as alſo of an *Agat.* 'Tis call'd *Serancolin.* Pieces of 9 and 10 Foot long have been dug there; the Beauty and Luſtre of which were extraordinary, as may be ſeen by that in the Chimneys of the *Tuilleries.* Greater Pieces might be taken up, if the Mountain was not ſo difficult of Acceſs, and Men could come at it ſo as to dig the Marble in its Center. A League from this *Quarry*, near the Village of *Echet*, which is farther in *France*, is another Quarry of *Black* and *White* Marble, which does not give place to the fineſt *Antique* Marbles. The King has had Pieces from thence of 20 Foot long for Pillars.

Three Leagues from St. *Beat*, near the Village of *Barbaſan*, is a *Quarry* of Marble of different Colours; the Ground Black, with White Veins and Spots mingled with Yellow Veins, reſembling ſeveral Flint Stones congeal'd and joyn'd together. The Artificers call it *Breche* and *Sauveterre*, becauſe 'tis found near the Village of *Sauveterre*. Pieces of above 20 Foot in Length have been brought from thence to make Pillars. This Marble is very hard, and the Poliſhing wonderfully Fine.

In *Languedoc*, near the Town of *Coſne*, is a White and Carnatian Marble, of which ſome Pieces dug up there for Columns, have been 20 Foot long. And near this Quarry are ſeveral other Quarries of different ſorts of Marble.

Near *Roquebrue*, 6 Leagues from *Bezieres*, is another Quarry of Red and White Marble, of great Hardneſs and fine Luſtre. Pieces of 30 Foot long might be taken up there.

A League from *Roquebrue* is a Quarry of Marble, of a Colour equal to that of *Agat*, of which Tables are made; but 'tis difficult to be met with, lying among the Rocks, and only certain Veins of it are now and then diſcover'd. The Sieur *de Fromont* before-mention'd, by Order of Monſieur *Colbert*, ſent Monſieur *Miſſon* to ſearch after ſome *new Quarries* in the *Pyrenean* Hills, and in *Languedoc*. He diſcover'd one near *Narbon*, the Ground of which is of a Violet Colour, having great Yellow Spots mingled with other little White Spots. 'Tis very hard, and looks Beautiful, when Poliſh'd. This Marble varies in Colour; for in ſome Veins the three Colours are mingled differently one with the other, the ſtrongeſt with the weakeſt.

Near St. *Baume*, in *Provence*, there's a ſort of *Marble* that does not fall ſhort of the *Brocatel* of *Spain*. And near *Moulins*, in the *Bourbonnois*, is found Yellow, Red and Blue Marble, of which great Pieces may be got. 'Tis hard to work, and its Poliſhing is very Fine.

The Marble that's dug in *Flanders* comes from about *Namur* or *Dinant.* The latter is the Beſt. 'Tis very Black, and Finer than that of *Italy*. Three Leagues from *Dinant*, near *Charlemont*, are alſo *Quarries* of *White* and *Red*, and *Black* and *White* Marble. Near *Avennes*, at a Village nam'd *Rance*, is dug Black and Red Marble; and Black and White not far off, near *Barbancon.*

A Bold Marble is that whoſe Grain is very Fine, and which ſplits eaſily. Its Tenderneſs is a Sign of its good Quality, and that 'twill take a fine Luſtre; not but that there's ſome hard Marble, which takes alſo a beautiful Poliſhing; however the greateſt Part of it does not poliſh ſo well.

The Way of digging Marble in *Italy*, and cutting it from the Mountain, is to hew out all about the Piece by main Force, with Tools made ſharp at the Point. But now a-days, we in *France* ſaw off the Piece in the Quarry, and in the Rock, of what Bigneſs we would have it. Some of theſe Saws are 23 Foot long. 'Twas thus the Sieur *Miſſon*, who had the Secret of ſawing off Pieces of Marble in the Rock with great Saws, made to turn as he pleas'd, by his Induſtry dug out the Marble at *Sarancolin* in as great Pieces as he thought fit; whereas before one could have it only in Bits, becauſe of the Delicacy of that Marble, and its Difficulty to get it from the Mountains.

There's a certain Toughneſs in the White Marble, which proceeds from a Mixture of Copper, or ſome other Metal. Theſe are what is call'd the *Emeril*, and what makes the little black Spots in ſome Parts of the Stone. Other tough Places, like Knots found in Timber, are alſo met with in this and other ſorts of Marble. Theſe Knots are not eaſier to cut than Porphyry, and cannot be faſhion'd without a Pecker. Our Artificers call 'em *Clouds*.

All Marble is almoſt of an equal Weight, which is about 200 pound a Cubical Foot. But it muſt be obſerv'd, that the Boldeſt Marble, and that whoſe Grain, as I have ſaid, is Fineſt, is lighter than the other, and there will be above 10 pound a Foot difference in the Weight of it, tho' it ſeems to be moſt ſmooth, and moſt cloſe, and that there are even void Spaces and Openings in the other Marble.

When this bold Marble is working, 'tis very apt to ſplit and crack, unleſs when 'tis loaden you put a Matter leſs hard, ſuch as a ſoft Stone upon it. But thoſe who would put other Marble on it, without placing a Plate of Lead, or ſome Mortar between, will be in Danger of ſpoiling the Marble; for the Pillar that's undermoſt runs a great Riſque of Cracking. It being the Nature of Marble to break, or whatſoever touches it above or below will crack, unleſs ſomething is plac'd between.

The ordinary Stones made uſe of in Building are different, according to different Countries. In *Italy*, particularly at *Rome*, they employ a great deal of *Trevertin*. The beſt of this Kind is found on the Banks of the *Terveron*, and near *Tivoli*. 'Tis very hard; and of this Stone the Ancient *Romans* built their greateſt Edifices, as the *Coliſee*, and ſeveral other Buildings, the Remainders of which are to be ſeen at this Day.

The *Italians* have another ſort of blackiſh Stone, which they term *Piperno*, or *Preperigno*: 'Tis dug in the Neighbourhood of *Rome*.

There's a white Stone very much us'd at *Venice*; 'tis eaſie to cut. That call'd *Serena*, is very common and much us'd at *Florence*, but it does not hold well in the Water; it ſhould be put in dry Places, and cover'd from the Wet. They have another ſort, call'd *del Fiſſato*, which is hard, and a good Defence againſt the Weather; as is alſo that Nam'd *Pietra forte*, very difficult to Hew, on account of its extraordinary Toughneſs. There's alſo a blackiſh Stone dug in the Quarries at *Lavagna*, on the Coaſt of *Genoa*; 'tis proper only for Pavements, and to cover Houſes as we do with Slate.

If we in *France*, ſays *Felibien*, have not ſo much Marble to adorn our Edifices with as they in *Italy*, to make amends for it, we have a vaſt number of different Stones, much finer, and more proper for Building, than thoſe I have before mention'd: There is hardly a Province but excellent Stone is found in it, particularly in the Neighbourhood of *Paris*: It ſeems as if Nature had from the Beginning, deſign'd to provide for the Occaſions of that Great City, ſince every thing neceſſary for Building is to be met with on the Spot, or is brought thither ſo conveniently, that there is no Place in the World where all ſorts of Materials for Edifices are more eaſily to be had; all the Sand and the greateſt Stones that were employ'd in the Foundations of the *Louvre*, were brought no further than from St. *Cloud* and *Meudon*, five Leagues from *Paris*.

There are three ſorts of *Quarries* near *Paris*, thoſe of *Cliquart*, *Boubanc*, and *de Liais*; the laſt is the beſt and hardeſt, and defends itſelf againſt the Injuries of the Weather, and is therefore propereſt to be made uſe of without Doors. The *Cliquart* is alſo proper to be plac'd in the Out-ſide, provided it has any thing to cover it. The *Boubanc* is hard, but ſhould lie in Cover as much as poſſible.

The *Liais Ferault* does not burn in the Fire, and is therefore made uſe of for Hearths, Chimneys, and Furnaces.

There are good *Quarries* of *Free-Stone* from behind the *Chartreux* to *Vaugirard*. The Stone call'd *Liais*, is not ſo good for Building as that behind the *Chartreux*, but its *Rubble* is better.

The *Liais* at the *Chartreux* is drawn up at a Hole ſix Foot broad, and fourteen Fathom deep: The Vaults of the Quarry is ſix Foot high; and from this Bed of *Liais*, all the preſent Works at the *Louvre* are ſupply'd. 'Tis a very hard white Stone, and comes near Marble; for which reaſon it receives a ſort of Poliſhing with *Grez*, particularly that of *Senlis*, which neither Froſt, nor any other bad Weather, can ſpoil.

Beſides theſe *Quarries*, which furniſh the greateſt part of *Paris* with Stone, there are thoſe of *Arcueil*, *Ivry*, of the Vale of *Facon*, of St. *Maur*, of *Paſſy*, of *Charenton*, of *Cloud*, of *Monteſſon*, of *Leu*, of *Seran*, of *Troſſy*, of St. *Maximin*, of *Cæſar*'s *Camp* and *Senlis*. *Free-ſtone* is generally ſold at *Paris* by the Load, each Load conſiſting of five Squares, that is, of about fifteen Foot of Stone: 'Tis alſo bought by the Foot only. Formerly 'twas ſold by the Cart-load, carrying ten Squares.

Libage Stone, is when there's ſix or ſeven to a Load: Quarter Load is one or two Stones; theſe ſorts are us'd for the Foundations of Great Houſes; as for Little, they make uſe of *Rubble* only, which is meaſur'd by the Cubical Fathom, containing two hundred and ſixteen Foot.

The Stone of St. *Leu* and *Vergele*, is ſold by the Ton, containing fourteen Cubical Feet. The Ton was formerly two Meaſures, and every Meaſure ſeven Cubical Feet.

That of *Leu*, is ſoft to the Chizel, but it grows hard in the Air. That of *Vergele* is harder, and does not Poliſh ſo well. The *Vergele* Stone is that which is taken up above the Vaults of the *Quarries* at St. *Leu*, and thereabouts: They are ſometimes thrown down, and often fall down by Accident. They ſerve commonly for Kays on Rivers and Vaults of Bridges and Caves, and other ſubterranean Places.

That of *Senlis*, which is made uſe of at the *Louvre*, comes from a Quarry that's pretty Extraordinary: 'Tis about a Mile from the Town. There's but one Bed of about ſixteen or eighteen Inches high: The Quarry is very deep; the Height of it from the Area to the Vault, is but two Foot and a half. Thus, 'tis very difficult to enter it, 'tis ſo low: And, as the Nature of the Stone is ſo very hard, the Quarry-men are forc'd to Work lying along. This Stone is not eaſie to come at.

The Stone of St. *Cloud* affords very large Pieces: Some of thoſe us'd at the *Louvre*, weigh 20000 pound Weight: They are dug up at a *Quarry*, call'd the *Quarry of the Grez*. On the Left Hand, going from St. *Cloud* to *Verſailles*, its Vault is ſix, ſeven, ten and twelve Foot high. The Stone of the White Bed, is only employ'd on great Buildings; Stones of eighteen Foot long, and three broad, or more, if one would, may be taken from thence.

The two Great Stones with which the *Fronton* of the *Louvre* was cover'd laſt Year, were dug up below *Meudon*, and were but one Stone in the Quarry, which was cut in two, each of them making fifty two Foot in Length, eight Foot in Breadth, and eighteen Inches in Thickneſs. Theſe Stones are very hard, and very much of the ſame Nature of the *Liais*.

Sept. 1674.

The Stone of *Monteſſon* is dug out of a Quarry lately Diſcover'd, at the Village of *Monteſſon*, three Leagues from *Paris*. 'Tis very Hard and White, the Colour falling very little ſhort of that of Marble: The Baluſters of the Stair-caſe at the *Tuilleries* are made of it.

There's alſo a Stone call'd *Plaſter-Stone*, which is not good to Build with, but ſerves to fill up the Foundations of Ordinary Houſes: In Great Edifices 'tis never made uſe of; it rather Softens than Hardens; but when 'tis Melted, every one knows how uſeful it is in all ſorts of *Architecture* and *Maſonry*.

The ſorts of Stones that are made uſe of at *Paris*, have *Layes* in them, which are not met with in other Places, nor in all ſorts of Stone; for this Reaſon, care muſt be taken that they are not put in Front, nor the *Layes* in Joint, unleſs it be in

Entabletures, which are not uncover'd: *Layes* ſhould not be put in theſe Stones, being of that Nature, that they ſeem to be compos'd of ſeveral *Plates* or *Leafs* of a Book. Thus they loſe their Strength, when they are not put one upon another; and theſe Leaves are flat and downwards; for when they are upright, they cannot ſo well reſiſt the Weather, and will be apt to ſcale, excepting however the *Liais* of *Senlis* and *Paris*, that never ſcale.

It muſt be further obſerv'd, That if the greateſt part of the Stones I have ſpoken of, be not plac'd Flat-ways, and wrought ſo as they grow and are found in the *Quarry*, they are apt to Cleave, and one of them wrong put, is enough to endamage a whole Building. 'Tis for this Reaſon, all ordinary Stone, even the hardeſt, cannot defend itſelf againſt the Injuries of the Weather, like *Marble*, which has no *Lay*, or *Leaf*; eſpecially if the former lies expos'd, and put in the form of a Pyramid, for Rain and bad Weather will then ſoon ſpoil it: Nevertheleſs, it keeps very well in Buildings, when 'tis cover'd with Cornices.

Notwithſtanding this, there are ſome Places, as I have already hinted, where the Stone has no *Lay* nor *Leaf*, and are almoſt as hard as Marble. The Church at *Chartres*, which is one of the Largeſt and Oldeſt in *France*, is Built of that ſort of Stone, on which the *Saw* has no effect, but it is always cut with the Mallet and Chizel. 'Twas dug for the moſt part, in a Quarry two Leagues from the City, near a Village call'd *Berchere l' Everque*. There are alſo other Quarries at *Var*, and at *Praſville*, the former a League; the latter four Leagues from *Chartres*. The Stone is as hard as that at *Berchere*, but plainer; the Grain more ſmooth, and the Colour a little more Brown. There's Stone alſo near *Caen*, which takes a fine Poliſhing. That at *Vernon* is very hard, and the Grain fine: Its only Fault is, that 'tis Flinty and Stringy. The Caſtle of *Gaillop* was built with it. The Stone dug at *Tonerre* is extreamly White and Fair, and eaſie to Cut. That of which the Church of *Amiens* is built, is Excellent; and indeed all over *France* there are as good Materials for Building, as in any Country of the World.

The *Work-men*, who work under the Direction of the *Architect*, are Firſt, Thoſe that belong to the *Maſonry*: And of theſe, the *Maſons* are the Chief; their Employment is to make Mortar, to raiſe Walls from the Foundation to the Top; to form Vaults, and put the Stones to the Uſes deſign'd by thoſe that have the Management of the Building. When great Stones are made uſe of, there are Artificers call'd *Appareilleurs*, Preparers, who Mark them according to their Deſigns, and give them to the Stone-cutters. The Ornaments of *Sculpture*, are made by the *Sculptors*, as directed by the *Architects*.

In Great Yards, as at the *Louvre*, beſides Maſons, Preparers, and Stone-cutters, there are Layers, who lay the Stone, Labourers, who carry *Leavers* to help unload the Stones from the Cart, and put them on the *Gauntry* to be Cut; Bardeurs, who haul the Stones along on little Cars; Labourers that wait upon the Maſons and bring them Gravel; Goujats, Boys, that carry Mortar on Trays; Prickers, whoſe Buſineſs is to ſee the Work-men mind their Work, to keep an exact Liſt of their Names, and prick down ſuch as do not come at the Hour; Drivers, Fellows that drive the Cart, &c. drawn by Cattle; Craners, thoſe that make Holes in the Stones, and place the Hooks to Crane them up when they are wanted.

The Tools neceſſary for *Stone-cutters* and *Preparers*, are a Tray, a Trowel, a Rule, a Compaſs, a Bevel; ſeveral ſorts of Plains, Chizels, Mallets, Saws, Martlets, and the like.

The *Sculptors* in Stone make uſe of the ſame Inſtruments as the *Sculptors* in Marble, or Wood, of which I ſhall ſpeak hereafter.

Beſides theſe Tools and Hand-Inſtruments us'd in Building, there are others to raiſe Burdens of heavy Things, and guide great Pieces; without which, it would be impoſſible to go through with any conſiderable Undertaking.

In *Mechanicks* there are five Principal Inſtruments, that may be term'd Regular; the Strength of which is very well known; as the *Leaver*, the *Ballance*, the *Wheel* with its Axis, the *Pully*, the *Wedge* and *Vize*; the two laſt being reckon'd as one.

Beſides theſe *Machines*, there are in *Architecture* mighty Engines, to Strike, to Lift, to Drive; as the Ram, the Mallet, and the like. Other Movers are alſo employ'd; as Men, Cattle, Wind and Water, Weights and Wheels; and indeed every thing that acts by Percuſſion.

The *Leaver* is ſo common an Inſtrument, and of ſuch great uſe, that every one knows what it is. Under the word *Leaver* is comprehended the Croe, and other ſorts of Leavers made of Iron Bars, to move any Weight. The *Leaver* ought to be conſider'd as a Right Line with three Principal Points, That on on which the Thing to be mov'd is plac'd; that which keeps it up; and the Hand or Power, that moves the *Leaver*. The different Diſpoſition of theſe three Points is what gives ſtrength to the *Leaver*, and cauſes the moving a greater or leſs Weight, with more or leſs Facility.

As for Example; If the Diſtance between the Hand that holds the *Leaver*, and the Place that keeps up the the ſaid *Leaver*, be ten times as great as the Diſtance between that Place and the Weight to be rais'd, Ten Pound of Strength will ſuſtain One hundred Pound of Weight: As the Strength augments, or the Weight diminiſhes, the Burden is mov'd; for the Leaver is like a Balance, the Center of which is in the Beam. Thus the Inequality of the Diſtances, is what gives more or leſs force to the Power, and cauſes the Burden to be mov'd with more or leſs Facility. The ſame Reaſon that gives force to the *Leaver*, gives Motion and Weight to the Balance, which is of different Make, according to the different Uſes that 'tis put to. And tho' it very often goes under different Names; as *Statera*, *Libra*, &c. yet the turning on an Axis is what gives the Weight. That which the *Latins* call *Platera*, had but one Scale: That which they call *Libra*, had two.

As for Wheels, Pullies, Wedges, Vizes, and the like, they are ſo Common, that we ſhall leave the French *Author in his Deſcription of them, and ſhould have done the ſame as to the* Leaver *and* Balance, *but that there's ſomething more Curious in what he ſays of them, than in what he has ſaid of the reſt of theſe Tools and Machines.*

Cuſtom has prevail'd ſo far in the late War, that almoſt all the Terms of Military Architecture us'd by us, *are borrow'd; for the* French *and the* Engliſh *have lately had ſo much occaſion to make uſe of 'em, and meet with 'em ſo often in the Publick Prints, that 'twill not be improper to Explain them; as alſo to Treat a little of Military Architecture in General. Tho' the* French *cannot reaſonably pretend to be a Match for us in the Buſineſs uf the Field; yet in Fortification a long Experience has given them the Advantage, and 'tis no Shame for us to confeſs it. Let our Enemies have the Glory of knowing how to hide themſelves better than we: And let us learn from them, as much as may be for our Purpoſe, to defend ſmaller Numbers againſt greater, and to know how to reach them behind a thouſand Fortifications. We ſhall therefore proceed with the before-mention'd Author, Monſieur* Felibien, *and Tranſlate as much of him on this Subject, as may ſerve to give the Reader ſufficient Light into it.*

Of Military Architecture: *Or*, Fortification.

THE Principal End of *Architecture* in General, being to Regulate and Direct, as we have already obſerv'd, every thing relating to the Structure of Publick Edifices, ſuch as Temples, Palaces, Halls of Juſtice, Private Houſes, Streets, Squares, and other ſuch Places; it cannot be queſtion'd but that Fortification is not only a very uſeful, but one of the moſt important Parts of this Art, ſince its Deſign is the Preſervation of a State, in reſiſting mighty Armies, and a powerful Enemy, with a ſmall number of Men.

When we conſider *Fortification* as a part of Architecture in General, we call it *Military Architecture*; and the Difference between this and the *Civil* conſiſts, in that the latter tends only to the Ornaments of Building; whereas the former has nothing in view, but to make Walls ſtrong, and able to reſiſt the Injuries of the Weather, the Shot of Cannon, and diſpoſe them in ſuch a manner, with reſpect to all their Parts, that there ſhall be no Place in the whole Circumference of the Walls, but what ſhall be ſeen, be well Flank'd, and well Defended.

Tho' Men began in Immemorial Times to encompaſs Cities with Walls, with ſtrong Towers, yet the Word *Fortification*, and the Art which it ſignifies, are not old. It was not very much practis'd, till after the uſe of Cannon, the terrible Effects of which oblig'd Men to alter and add ſeveral Things to the ancient Structure of the *Walls* of *Cities*. Theſe Alterations were thought ſufficient to form a new Art, call'd *Fortification*, becauſe of the great Force with which it ſupplys thoſe that are in a Town, to defend themſelves againſt their Enemies.

The Architects who apply themſelves particularly to this ſort of Architecture, are term'd *Ingeniers*. The firſt of them, who wrote upon Fortification, conſider'd as an Art by itſelf, were two *Italians*, *Rameli* and *Cateneo*. The next was *Iean Erard*, Ingenier to *Henry* the *Great*, and *Lewis* XIII. *Simon Steven*, Ingenier to the Prince of *Orange*, *Marolois*, the Chevalier *de Ville*, *Lorini*, the Count *de Pagan*, and ſeveral others more Modern, have contributed very much to augment this Art, and bring it to its preſent Perfection.

Of all theſe Authors the Count *de Pagan* has made the fineſt Diſcoveries in *Fortification*, and laid out the moſt ſolid Rules; I ſhall touch lightly upon them, my Deſign being only to give a Sketch of the Arts of which I treat.

All *Fortifications* are directed by Lines and Angles, to which different Names are given, according to their different Uſes. I ſhall not trouble myſelf with the Etymology of each Term, but explain it by its uſe.

Places fortify'd *a La Modern*, conſiſt only of Baſtions and Courtains, and ſometimes Half-Baſtions, according to the Ground; Cavaliers, Falſe Brays, Ditches, Horn-works, Crown-works, Glacis, Redans, Counter-guards and Tenailles.

There are other acceſſary and moveable Parts, which will be added in the following Definitions, as alſo the Subdiviſions of the Parts I have mention'd.

A Baſtion is compos'd of *Faces* of ſimple Flanks, after the *French* and *Dutch* Manner; of cover'd Flanks, after that of Count *Pagan*, and the *Italians*; of Caſemats, Orillons, of a Flankt Angle, Centre du Baſtion, the Angle of the Shoulder, Capital Line, Gorge, *&c.*

The principal Angles are the Angle of the Figure, the Angle of the Center, the Flanking Angle, the Flankt Angle, the Angle *de L' Epaule*, the Angle of the Flank and the Diminiſh'd Angle. All theſe Angles are Saillans or Rentrans, Viſible or Inviſible. The *Saillans* Angles are thoſe that advance towards the Country, the *Rentrans* thoſe that retire towards the Town or Fort.

The Flankt Angles, the Angles *de L' Epaule*, and thoſe of the Baſtion, are Viſible, as well as thoſe of the Half-Moons, the Angles of the Figure, of the Center. The flanking and diminiſh'd Angles are Inviſible, and ſerve only for the Structure.

A Definition of all the Parts of a Fortify'd Place, and firſt of the Lines that Compoſe it.

A *Fortify'd Place* is a Place well flank'd, and well cover'd.

A Citadel is a little Fortreſs that commands a great City, and has no Inhabitants, but its Garriſon of Soldiers.

Fortins, or *Forts de Campagne*, or *Sconſes*, are Forts rais'd in the open Country, and disjoynt from any Town. They are made uſe of only on certain Occaſions for a Time; and as they are generally ſmall, the Outſides of the Polygone are leſs than a 100 Fathom, that is, leſs than the Diſtance from one Baſtion to another.

Caſtle is a Place fortify'd, *a l' Antique*, after the ancient Manner, encompaſs'd only with Walls, Ditches and Towers, without any *Rampart*.

Donjon is the Name of an Antique Fortreſs, to which our Citadels ſucceeded. 'Tis commonly a great Tower or Platform in a Caſtle for the Garriſon to make their laſt Retreat to.

Reduit is any Advantagious or Entrench'd Place in a Fort, Caſtle or Town, againſt the Sedition of the People, or Enemies of the State.

A Cloſe Town is a City encompaſs'd with Walls.

A Regular Place is one whoſe Sides and Angles are equal.

An Irregular Place is one whoſe Sides are unequal, in Part or in Whole.

Every Figure takes its Name from the Number of its Angles; from whence come the *Greek* Words *Trigon*, *Tetragon*, *Pentagon*, *Exagon*, *Eptagon*, *Octogon*, *Enneagon*, *Decagon*, *Endecagon*, *Dedecagon*, *Polygone*; which is the ſame thing as to ſay, 3,4,5,6,7,8,9,10,11,12, or ſeveral Angles or Baſtions.

Baſtions are great Bodies of rais'd Earth, ſupported by Walls of Turf diſpos'd Point-wiſe, and advanc'd by Saillant Angles from the Body of the Place, the Parts of which are two Faces, and two Flanks.

Courtain is a Line or Wall between the Baſtions.

Faces of a Baſtion are two Lines, which form the ſaillant or flank'd Angle from the ſaillant Angle to that of the Shoulder.

Simple Flanks are Lines that run from the Angle of the Shoulder to the *Courtin*, and are the chief Defence of the *Ditch* and the Place.

Open Flanks are thoſe which are Viſible.

Retir'd Flanks, or *Covert Flanks*, is that exterior Part of 'em which advances to ſecure the innermoſt Parts; or rather Platforms of the Caſemat, which lie hid in the Baſtion.

Orillon is a ſmall Rounding of Earth, lin'd with a Wall rais'd on the Shoulder of thoſe Baſtions, which have Caſemats to cover the Cannon in the Retir'd Flank, and prevent their being diſmounted by the Enemy. There are alſo other ſorts of *Orillons*, properly call'd *Shoulderings*, which are almoſt of a ſquare Figure, and term'd *Epaulements*.

Caſemats are Vaulted Batteries, made one upon another in that part of the Flank of a Baſtion which is next the Curtin. The Cannon is lodg'd there. But, ſays *Felibien*, they are little us'd now, the Batteries of the Beſieges often burying the Artillery of theſe Caſemats in the Ruins of the Vaults; beſides the Smoak is very Troubleſome.

Places High, Middle and Low, are Retir'd Flanks in the Form of Steps, one behind another.

Flank Raſant is the Point from whence the Line of Defence begins from the Conjunction, of which, with the Curtin, the Shot only razes the Face of the next Baſtion.

Flank Fichant is that from whence a Cannon playing, fires directly in the Face of the oppoſite Baſtion.

There are the Right Flank, Right Raſant, the Flank Right Fichant, the Second Flank, the Oblique Flank, the Flank of the Curtine, the Second Flank, or Fire of the Curtine, are only to be met with in Places with Flanks Fichant, and in that Part of the Curtine which diſcovers the Face of the oppoſite Baſtion.

The Line of Defence is the Line drawn from the Angle of Defence to the Point of the Baſtion, and properly the Courſe of the Ball of any ſort of Fire-arms, eſpecially Musket-ball, according to the Situation it ought to have to defend the Face of the Baſtion.

Line of Defence Fichant is that which is drawn from the Angle of the Curtine to the flank'd Angles of the oppoſite Baſtions, yet ſo as not to touch the Face of the Baſtion. This muſt never exceed 800 Feet, which is reckon'd the Diſtance of a Musket-ball will do Execution.

Line of Defence Raſant is that which being drawn from a certain Point of its Curtine, razes the Face of the oppoſite Baſtion.

Radius's are Lines drawn from the Center of the Figure, and ending at the Angle of the Figure, either External or Internal. Theſe are alſo term'd *Demi-diameters*

The Capital Line is the Line drawn from the Angle of the Baſtion to the Angle of the Figure Interior, which is the Center of the Baſtion.

The Center of the Baſtion is the Point where the two Demi-Gorges meet.

The Gorge of the Baſtion is nothing but the Prolonging of the Curtines from their Angles, with the Flank to the Center of the Baſtion, where they meet. When the Baſtion is flat, its Gorge is a Right Line, which terminates the Diſtance comprehended between two Flanks.

The Exterior Side of the Figure or Polygone, call'd alſo the Caſe is an Imaginary Line, which is drawn from the flankt Angle of a Baſtion to that which is oppoſite to it.

The Interior Side of the Figure is the Line which goes from the Center of one Baſtion to the other, and is compos'd of two Demi-Gorges and the *Curtine*, the latter taking in the greateſt Part of it.

Rampart is a Heap of Earth rais'd about the Body of any Place to cover it from great Shot, and conſiſts of ſeveral Baſtions and Curtines, having its Parrapet, Platform, Interior and Exterior Talus, a Stone-Wall, call'd a *Chemiſe* when lin'd, and a *Berm* when 'tis not.

Platform is a Place prepar'd on the Ramparts for raiſing of a Battery of Cannon. It ſhould be Horizontal, with a little bending towards the Outſide, for the Recoil of the Cannon.

Talus is the Slope allow'd to ſuch a Work, whether it be Earth or Stone, that it may have the more Strength to ſupport the Weight of the Rampart.

Berm is a little Space or *Retraite*, three, four or five Foot wide, according to the Height left without, between the Rampart and the Scarp of the Ditch, to receive the Earth that falls in. 'Tis never us'd but in Earth Works.

Chemiſe is a Wall with which a Baſtion, or any other Bulwark of Earth, is lin'd at the Solidity of the Wall, from the Talus to the Stone-Row.

Counter-Forts, or *Eporons*, are Parts of the Wall, perpendicularly joyn'd to the Principal, diſtant 20 or 30 Foot from one another. They may be advanc'd as much as you pleaſe in the Platform,

form, and are ſeldom made uſe of now-a-days, but in great Heights.

Parapet is an elevation of Earth or Stone upon the Rampart, five or ſix Foot high, conſiſting of Banques, to cover the Cannon and Men from the Enemy's Shot; it is only to defend the Soldiers againſt Musket-Ball; any Thickneſs is ſufficient: But for defence againſt great Shot, it ſhould be eighteen or twenty Foot Broad, to be Ball Proof, if of Earth, and ſix or eight, if of Stone. Every *Parapet* has its Embraſures and Merlons, Banques and Glacis: Embraſures and Merlons are only made where there's Cannon. Embraſures have Port-holes through which the Soldiers fire on the Beſiegers, either in the Country, or the Ditch; and Merlons are heaps of Earth or Stone, between theſe Embraſures. The Ancients call'd 'em Battlements, and ſhot their Arrows through 'em before Muskets were in uſe: And becauſe the Top of the *Parapet* is ſhelving, 'tis term'd the Glacis.

Banquet is a Step a Foot and half high behind, and at the bottom of the *Parapet*: On this the Soldiers ſtand to diſcover the Country, and fire on the Enemy; they deſcend when they are to Charge, there's but one on the Rampart, becauſe the Men are Cover'd enough on account of its Height: But in Cover'd Ways there are two or three.

Chemin des Rondes is a Space left for the Rounds to paſs between the *Parapet* and the Wall, that they may diſcover the Foot; but becauſe they have but a Parapet of a Foot thick, which in Sieges was ſoon beaten down by the Artillery of the Beſiegers. 'Tis rarely not made uſe of.

Guerittee or *Centry-Box*, is a little place of Shelter or Lodgment, to defend againſt the Weather, where the Soldiers Lodge a-Nights, when upon Duty: There are commonly three at each Baſtion, at the flank'd Angle, and the two Angles of the Shoulder, at the Gates, and in the middle of the Courtines, when they are long.

Cavalier is an Elevation of Ground on the Platform of the Rampart, towards the Angle of the Curtines and Flanks, or on the Battery, to lodge the Cannon to ſcour the Field.

Corps de Garde is a Lodgment for a good Body of Foot in ſome Poſt. From hence Centries are Detach'd and chang'd twice or thrice in a Night. There are *Corps de Garde* at the Gates, at the *Gorges* of the Baſtions, and at the Foot of the Rampart.

Fauſſe-Braye is a Space left at the Foot of the Rampart or Wall, and is made to defend the Approach to the Counterſcarp, and to hinder the Ruins of the Batteries from falling into the Ditch: It ſhould be thirty Foot wide in all its Circumference, for the Cannon to have room to Recoil. It has a Parapet Cannon-proof, to defend the Paſſage of the Ditch. This part of Fortification is not us'd, ſince it has been found by Experience, that when the Enemy is lodg'd in the Counterſcarp, over againſt the flank'd Angle it is not Tenable, the Beſiegers diſcovering from thence all that's below the Faces of the Baſtion: It may be proper for Flanks and Courtines.

Ditch is a Place dug between the Town and the Field, from whence the Earth is fetch'd to raiſe the Rampart and the Eſplanade of the Covert-Way,

Canelle is a little Ditch, in the middle of the Great one, and is kept full of Water, or Mud, if it can be done, with Quickſet-Hedges and Buſhes all along, to prevent Suprizes.

Reveſtement is the Wall on the ſide of the Place, either to ſupport the Fauſte Braye, or the Rampart only.

Poſtern is a Falſe Gate, made conveniently in the Angle of the Flank and the Courtine, for ſecret Sallies by the Ditch.

Caponnieres are Cover'd Lodgments, or Trenches, in the bottom of a dry Ditch, to lodge the Soldiers.

Battery is a Place where Artillery is cover'd and put in a condition to fire on a Platform of thick Planks, plac'd on Joyces, behind a good Parapet Ball proof, with Embraſures for the Cannon to go through. Field Batteries are encompaſs'd with Ditches, when expos'd to the Enemy's Inſults.

Mine is a ſubterranean Chamber run along under the Ramparts, or under the Face of the Baſtion, in which the Miners go by Oblique Ways, and Turnings and Windings: Powder is put there, in Quantity according to the Height and Weight of the Body to be blown up.

Counter-Mine is properly an Interior Gallery, Vaulted three Foot in Depth, and ſix in Height, made in the Wall all round the Place.

'Tis alſo a ſubterranean Paſſage, made by the Beſieg'd in ſearch of the Enemy's Mine, to give Air to it, or take away the Powder, or by any other Means, to fruſtrate the Effect of it, tho' it ſhould even happen to be forc'd by the Beſiegers.

Fougate is a ſmall Mine dug in the form of a Well, in a Place ready to be gain'd by the Enemy; who having made themſelves Maſters of it, 'tis ſprung like a Mine, by means of a *Saucidge*, which is a long piece of Cloth, the Sides ſewn in form of a Gut, as large as to contain a Tennis-Ball. This is dip'd in Pitch or Tar, and fill'd with Powder to ſerve as a Train to ſet Fire to Mines, Fougades, and Bomb-Cheſts.

Sappe is a Work which may be carry'd on ſeveral Ways; by Undermining, or deep digging with Pick-Axe and Shovel, at the Foot of a Work, to overthrow it without Powder. The uſual Way now is, to dig a deep Trench far into the Ground, and deſcend by Steps from Top to Bottom, by which means, the Men are cover'd Side-ways; and to ſave 'em from Danger on the Top, Madriers, or ſuch-like Planks, are laid acroſs it on branches of Trees cloſe bound together, and Earth thrown over all, to ſecure 'em from Fire. When a Covert-Way is well Defended by Muſquetiers, the Beſiegers muſt make their way down into it by the Sap.

Definitions of Out-Works.

Out-Works are all ſorts of Works diſjoyn'd from the Body of the Place. They are of ſeveral Kinds and Figures, according to the Ground and the Situation of Places; the Names of 'em as follows.

Counterſcarp is that ſide of the Ditch which is next the Camp, or properly the Salus which ſupports the Earth of the Covert-Way; tho' by this Term is often underſtood the whole Covert-Way, which is Parapet and Glacis; and 'tis thus to be underſtood, when it is ſaid, *The Enemy Lodg'd themſelves on the Counterſcarp.*

Half-Moons are ſaillant and flank'd Angles, which are commonly form'd on the *Angles Rentrans* on the Counterſcarp, overagainſt the middle of the *Courtines.* They are alſo plac'd before the Points of the Baſtions according to the Ground, and to cover the Hornworks. They have but two Faces, and are on all Sides encompaſs'd with Ditches. They may be made either with Flanks, or without 'em, as well as Ravelins, of which ſome are joyn'd to the *Courtines* in Ancient Fortifications, and ſome are disjoyn'd. Formerly Half-Moons were at the point of the Baſtion, and ſo call'd, becauſe they are roundiſh as they grow larger behind: Thoſe that were in the Courtines, were call'd Ravelins; but now the Term of Half-Moon is apply'd to all Triangular Works.

Covert-Way or *Coridor,* is a Space of four or five Fathom Broad, running all round the Place and Half-Moons. Lately Covert-Ways have been made ſeven or eight Fathom wide: It has a Parapet rais'd on a Level, together with Banquets and Glacis; which from the Height of the Parapet, ought to follow the Parapet of the Place, till 'tis inſenſibly loſt in the Field. It has alſo a Foot-Bank.

One of the greateſt Difficulties in a Siege, is to make a Lodgment on the Covert-Way, becauſe the Beſieg'd generally Palliſſade it along the middle, and Undermine it on all Sides.

The Eſplanade or *Glacis* of the Counterſcarp, is nothing elſe but the Parapet of the Covert-Way, and all the Ground that's loſt in the Field.

Crown-Works are certain Works advanc'd towards the Field, to gain ſome Hill, or riſing Ground, being compos'd of a ſpacious Gorge and two Wings that fall on the Counterſcarp, near the Faces of the Baſtion, inſomuch that they are Defended by them, and preſent on the ſide of the Field an entire Baſtion between two Demi-Baſtions, whoſe Faces look towards one another. Theſe Works have their Half-Moons: They are rais'd alſo to defend the Head of a Camp when 'tis Intrench'd.

Horn-Works differ only from Crown-Works, in that they preſent only to the Field two Half-Moons, terminated alike by two Wings: Theſe are alſo plac'd overagainſt the *Courtines,* according as there's occaſion of 'em.

Tenailles are properly Works like the Horn-works; they differ commonly in this only, that inſtead of two *Demi-Baſtions,* they have nothing in Front but an *Angle Rentrant,* between the ſame Wings without Flanks and the Sides are Parallel.

Counter-Gardes are Parallel Triangular Works, or Baſtions, which cover them between the Ditch and the Counterſcarp; they have their Rampart, their Parapet, their Ditch, and Covert-Way, and are only defended by the Half-Moons or Ravelins, which cover the Courtines. All the Difference between Half-Moons and *Counter-Gardes,* is, that the former are Broader and Longer.

Redans are Works made in the form of the Teeth of a Saw, with *Saillans* and *Rentrant* Angles, to the end that one Part may defend another. They are commonly rais'd at the Parapets of the Covert-Way, and on that ſide of a Place which looks towards a Marſh or River.

Lodgment is when the Counterſcarp, or ſome other Poſt, is taken from the Enemy, and the Aſſailants Lodge and Entrench themſelves there, to hinder the Enemy's recovering it.

Trenches of Approach are Oblique Ways by which the Beſiegers approach a Place without being ſeen: Or Oblique Lines, as little expos'd to the Works of the Beſieg'd as poſſible. Theſe Trenches have their Parapet every where on the ſide of the Place, with two *Banquets,* and ſometimes Redoubts at their Saillant Angles, to ſuſtain the effort of Salleys.

Boyaux's are winding Trenches without Angles, as the *Turks* make 'em. Theſe Curv'd Lines are one before another, and all Parallel to the Face, which the Place Beſieg'd preſents, as was ſeen at the Siege of *Candia,* where this Term became firſt in Vogue.

Lines of Circumvallation are Entrenchments drawn all round a Place that is to be Attack'd, to prevent Succours being thrown into it: They are Lines flank'd at the length of a Musket-ſhot, either with Redans, or other ſmall Works, or by Forts rais'd in the Field at the moſt conſiderable Ports.

Lines of Contravallation are made within thoſe of Circumvallation, and with a Ditch on the ſide of the Place where the Gariſon is ſtrong; when the Beſiegers would Starve it, or cover the Army without from the Inſults of the Enemy's Salleys.

Profil is the Imaginary Section of a Plan or Place with Right Angles, to mark and exactly repreſent all the Heights and Breadths of the Ramparts, Parapets, Walls, Talus, Ditches, Covert-Ways, and *Eſplanades,* which *Ichnography* does not do, marking only the Lengths and Breadths.

Definitions of the Angles of Fortification

Angle of the Center is that which is made in the Center of the Place, by the meeting of two Neighb'ring Radius's, drawn from the Angles of the Figure.

Angle of the Interior Figure is that which is made in the Cetner of the Baſtion, by the meeting of the two Interior ſides of the Figure.

Angle of the Polygone or Exterior Figure, is that which is made by the meeting of the two Exterior Sides of the Polygone.

The Flank'd Angle is the Point of the Baſtion, compris'd between the two Faces. We may alſo ſay, the Flank'd Angle of a Half-Moon.

The Flanking Angle is that which is made by the meeting of the two Lines of Defence *Raſant*: That is, the two Faces of the Baſtion prolong'd.

The Angle of the Shoulder, which Name ſeems odd in *Engliſh*; but having met with it in a Noted Author, we prefer it to the *French,* is that which is made by the Lines of the Face and the Flank.

The Diminiſh'd Angle is that which is made by the meeting of the Exterior Sides of the Polygone, and the Face of the Baſtion.

The Angle Saillant is that which advances in Point towards the Field.

The Angle Rentran, or Re-entring, is that which preſents its Point to the Place.

Explanations and Definitions of ſeveral Machines and Inſtruments belonging to Fortifications and Sieges.

There are two ſorts of Bridges, the one term'd *Ponts Dormans*, and the other *Ponts Levis*, or Draw-bridges. The former, which are fix'd, are not ſo Convenient as the latter.

There are alſo *Ponts a Bacules*, which riſe on the one Side, and fall on the other, in the Form of a Pit-fall. There's a ſort of *Portcullis*, term'd a *Bacule*, made like a *Pit-fall*, with a Counter-poiſe, and ſupported by two great Stakes, uſually plac'd before the Corps de Gardes advanc'd near the Gate. *Pont a Fleches* are a ſort of Bridges which riſe and fall entirely, having their Movements on the ſide of the Gate, and the other End hanging by Chains of Iron ſupported by *Beams*, the Motion of which raiſes or abaſes them.

After the Draw-bridge and the Gate, there's commonly a Counter-Gate, made of Pieces of Wood ſet a-croſs in ſquares, with Iron Points at the bottom. Theſe Counter-Gates are call'd Herſes or Sarraſins, and are let down when the outward Gate has been forc'd with the Petard. 'Tis alſo made uſe of to prevent Surprizes in the Day-time, or otherwiſe.

Orgues, or *Port-Cullices*, are great Pieces of Wood Iron'd at the End, and hung as *Herſes*, differing only in this, that the Pieces of Wood in Herſes are faſten'd together, and in Orgues are looſe; ſo that they cannot be all broken at a time, as Herſes may.

Barriers are great Stakes, ſet up at 8 or 10 Foot diſtance from each other, and about 4 Foot high, with *Tranſoms* or overthwart Rafters to ſtop ſuch as would ruſh in with Violence. They are generally plac'd at the firſt Avenues of a Town, at the Eſplanade, the Half-Moons and Paſſages for Horſe and Waggons. Some turn on a Pivot.

Moulinetts are what we call *Turn-Styles*. They are often ſet up near the Out-works of fortify'd Places, at the ſide of the Barriers, thro' which People paſs on Foot.

Cheval de Frieſe is a large ſquare Joyſt, about 10 or 12 Foot long, in whoſe Sides are three Ranges of Wooden Pins, with Iron Spikes, at the End of 'em. It ſerves for a Barrier to an Avenue when balanc'd Horizontally on the middle of a Stake, ſo that it may be open'd or ſhut. The chief Uſe of it is to put a good Number together in thoſe Places, where there's reaſon to apprehend a Surprize from Cavalry, as well in the Field, as the Avenues to a Town that's Beſieg'd, and at a Piſtol-ſhot from the Cover'd Way, to receive thoſe that ſally and ſtop the Enemy's Horſe and Foot.

Chauſſe-Trappes, or *Coltropps*, are Iron Inſtruments with four Points, two Inches long, in the Form of Stars, made ſo, that throw 'em which way you will, one Point always falls upwards. They are uſually ſcatter'd up and down in thoſe Places where the Inroads of Horſe are fear'd, at Breaches, in Ditches, *&c.*

Gallery is a Cover'd Paſſage with good Plank, Muſket-Proof on each ſide of it. The Top is ſometimes cover'd with Turf, or Earth, to hinder the Effect of the Enemy's Artificial Fire, as 'tis call'd. Galleries are frequently made uſe of in the Moat already fill'd with Faggots and Bavins, to the end that the Miner may approach ſafe to the Face of the Baſtion, when the Artillery of the oppoſite Flank is diſmounted. They are not now much in Vogue: *Felibien* ſays, *Nos* Francois *ne s' amuſent plus gueres à toutes ces Ceremonies*, We *French* no longer amuſe ourſelves with theſe Ceremonies. How many of their fine Military Reflections has the Laſt War made Ridiculous, as well as this.

Mantelet is a Covering made of Madriers, or thick Planks, which are put up againſt a Wall *Pentwiſe*, when Saps or Mines are to be carry'd on. It ought to be Muſket-Proof by the Sides, but ſtronger a top, to defend the Sappers or Miners againſt the great Stones which may be thrown down upon 'em. It is alſo cover'd with Raw Hides, that Artificial Fire may not burn it. 'Tis made uſe of on other Occaſions. There are ſeveral ſorts of Mantelets; ſome cas'd with Tin, and ſet upon little Wheels to be driven before the Pioneers.

Blindes are two or more Pieces of Wood ſet upright, and on the ſame Line, at ſix or eight foot diſtance, with Tranſoms from the Head of the one to the Head of the other. There muſt be two Parellel Rows on both ſides of the Trench, to ſupport the Bavins laden with Earth. They are uſeful in Places *enfiladed*, either by Neceſſity, or the Ingenier's Miſtake; and when in Attacking an Enemy's Place, we muſt firſt deſcend into, and croſs a Bottom. For in ſuch a Caſe the Beſiegers lie open to the View of the Beſieg'd. If they are not cover'd with Blindes, or Chandelieres, made of two upright Stakes to ſupport Planks laid a croſs one another, or Faſcines, by means of Pins faſten'd into the Stakes; they are different from Blindes, in as much as the former are made uſe of for *Fore-Coverings*,and *Chandeliers* for *Top*.

Gabions are large Baskets, made of Oſier Twigs, deep and round, which are plac'd upright and fill'd with Earth. Between two of theſe is a Cannon for Battery. There are a ſmaller ſort, which are put on Parapets; and in the Trenches and other Places, to cover the Musketeers. They are plac'd ſo cloſe to one another, that but one Muſket can be put between two of them.

Palliſſadoes are Ranges of Stakes, pointed and planted at half a Foot diſtance, with a Tranſom, that binds them together; they are four or five Foot above Ground, and commonly put on the Eſplanade without the Glacis, as alſo near Baſtions and Curtines, and along the Cunette.

Fraiſes are Ranges of ſharp Stakes fixt in Bulwarks, made of Earth on one ſide of the Rampart, a little below the Parapet. They preſent their Points ſloping towards the Ditch, and ſerve to prevent Scalades and Deſertion.

Rules to be obſerv'd in raiſing a Fortification.

THE greateſt Part of the *Italians*, and the Chevalier *de Ville*, will have the flank'd Angles above the Exagone to be always 90 Degrees, and conſequently the Flanking vary on the contrary; the *Dutch* make no Baſtions of Right Angles, but at Decagones and above, and acute Angles at all Polygones below. By which means their Works, eſpecially the Curtine, have more Flank; but making their Ditches parellel, it thence happens that the Flanks which are on the Eyes of a Place, do not ſee the Ditch entirely at the Face of the Baſtion, where Places are attack'd, becauſe the *Rentrant Angle* of the Counterſcarp takes away the Defence of the Flankt Angles, which ought to be Subject to the Flankings. For, according to the Doctrin of Monſieur *de Pagan*, Flanking Angles ought to be invariable; and as to the Flank'd, they being obtuſe above the Exagone, and acute below, 'tis of no Importance, whether 90, 100 or more Degrees, provided they are well defended, and well flank'd.

There can be no Second Flank without diminiſhing the true Flank. A ſixth Part of Diminution, or a fourth at moſt, is ſufficient, becauſe Cannon cannot be mounted there on account of the Obliquity of the Parapets and its being expos'd to Field Batteries, and in as much as two Inch Plank, defends the Paſſage of the Ditch from Musket-ball, which is the Time when the *Second* Flank is wanted.

The Exterior Side of the Polygone ought not to be leſs than 100 Fathom, nor more than 200, becauſe the Line of Defence ſhould not exceed 150 Fathom. The flankt Angles muſt not be leſs than 60 Degrees, which is what may be given to Places with four Baſtions; and it is of no Conſequence, whether they are very obtuſe or not. The *Italians* follow this Maxim, and put Caſemats on the Flanks.

The largeſt Flanks are beſt; they ought to be 12 Fathom, when the Exterior Side or Baſe is but 100, and 24 Fathom; when 'tis 200, the half of that Diſtance ſerves for the *Orillon*, and the other half for the Cover'd or Retiring Flank, which conſiſts of two or three practicable Places behind, and above one another in the Form of Steps in the Bottom of the Demi-Gorge. If you make three, there muſt be 36 Fathom in Flank, which ſhould be ſeen only by the oppoſite Counterſcarp, and the Breadth of the Ditch, which is 15 or 16 Fathom broad. This makes but the third Part of the Flank oppoſite to the Enemy's Batteries, the 12 Fathom of the Orillon, which is not to be minded ſo much as *Retir'd Places*, becauſe 'tis more expos'd, and may be batter'd from other Places beſides the Counterſcarp. And becauſe but a third Part of the Cannon can be mounted on the Counterſcarp, as on the three Places and the Orillon, 'twill be very hard to paſs a broad, deep Ditch, well defended. This is the moſt important Part of a Fortification, and the Paſſage the moſt difficult Action of an Attack; and yet we ſee, as ſoon as the Beſiegers are Maſters of the Out-works, the Beſieg'd Capitulate, and the Body of the Place is not to be Defended, on account of the Imperfections of Simple Flanks, which are eaſily render'd uſeleſs by Batteries.

The ſofteſt Matter is proper for Parapets, but not for Ramparts, for being only ſupported by *Chemiſes* of Turf, their Talus muſt be ſo large, that it renders them acceſſible, and eaſily to be inſulted, as it happen'd in 1672. to the moſt Part of the Places the *French* King took on the *Rhine* and *Iſſel*. From theſe particular Rules a General one may be inferr'd, That there ought not only to be no Place that is not well flank'd, but that all theſe Defences every where ſhould be equal, and the leſs Places there are to defend the Fortification, is the better for it.

Thoſe Parts of the Fortification that are near at its Center, ought to be bigger than thoſe that are farther off, and ſhould ſucceſſively command them. Of all the Out-works, none is ſo good as a Half-Moon, becauſe being defended by the two Baſtions which it covers, one may, as has been often experienc'd, recover it from the Enemy, by the help of Fire from the Place, which renders the Lodging there very difficult and dangerous.

Crown-works, Horn-works and *Tenailles* are not ſo eaſily to be recover'd, becauſe they are only defended by themſelves, and the Enemy's are cover'd, and find a good Lodgment ready made to their Hands; wherefore they ſhould never be made uſe of, but when the Nature of the Ground requires it.

There's a great Diſpute among Ingeniers, whether a dry Ditch be better than one full of Water. The following Reaſons are alledg'd by one Side and the other.

A dry Ditch has the Advantage that it may be defended by Hand, in making ſecret Salleys by Poſterns, killing the Miners, and hindring the raiſing of Galleries, which cannot be done when the Ditch is full of Water. The Soldiers defend there the Half-Moon and Cover'd-Way to Extremity, becauſe they can throw themſelves into the Ditch by ſliding down the Talus of the Counterſcarp; and they may with the ſame Eaſe ſuccour the Out-works, without being oblig'd to go all round the Place by the Cover'd-Way. Theſe Reaſons are very Strong. The following are what is ſaid for Ditches full of Water.

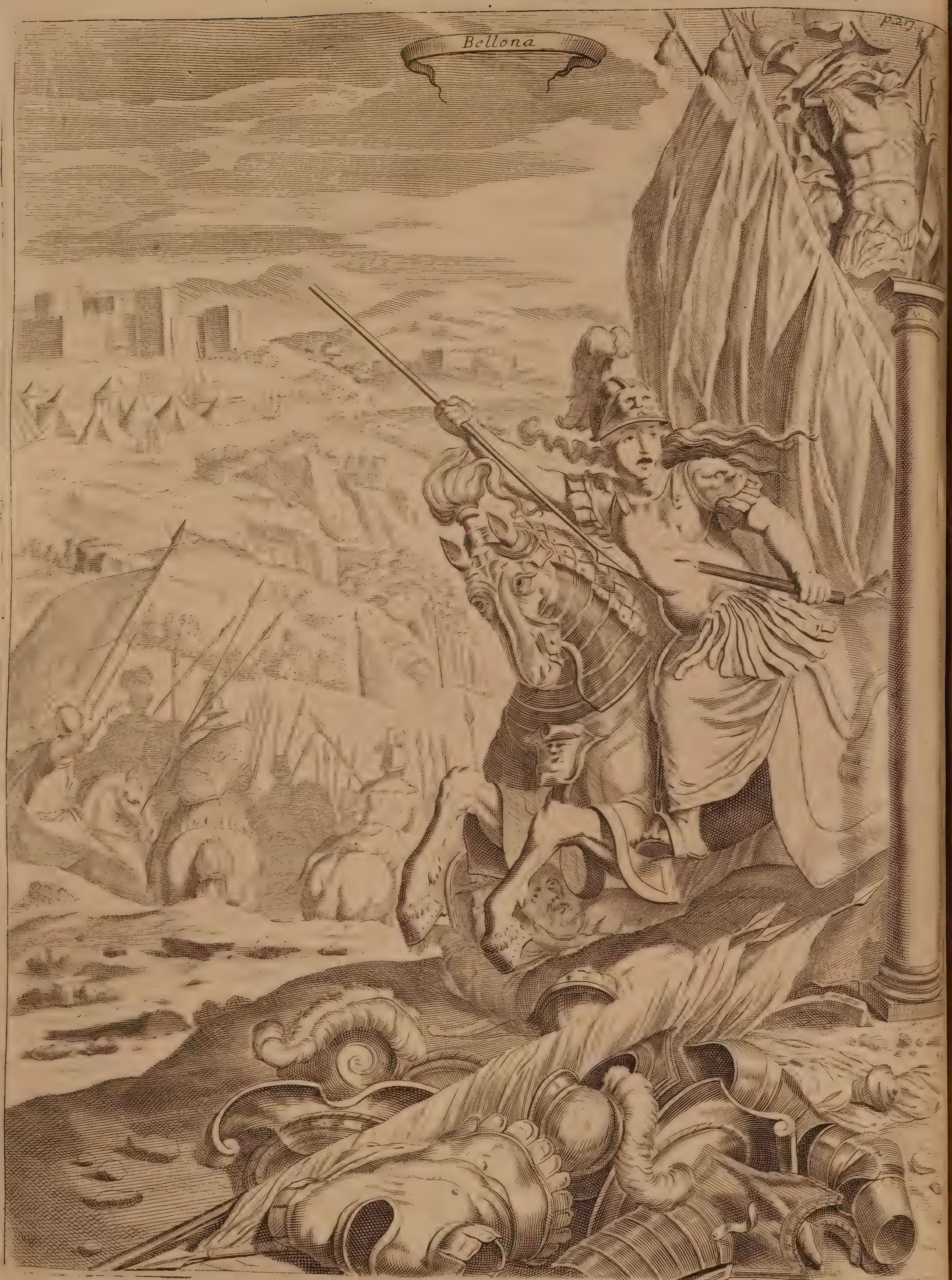
The Enemy can't paſs Ditches full of Water, but by Galleries or Cauſeys, which are long in Raiſing; nor of a Breadth nor Front ſufficient for a great number of Men to go on the Aſſault.

No Mines can be carry'd along under thoſe Ditches, which is done when the Artillery of the Flanks cannot be diſmounted. And if Men are repuls'd in an Aſſault, they cannot retire to the Right nor Left to make a new Mine, becauſe of the Water in the Ditch.

Places with ſuch Ditches are ſafer againſt Surprizes and Scalades than when Ditches are dry. But then in Exchange the Beſiegers cannot in the former countermine the Cover'd-Way to blow up the Lodgment the Enemy has made there, nail down the Cannon deſign'd for battering the Flanks, and hindring a Deſcent into the Ditch, when the Eſplanade is broken thro'.

So that as toDitches Places would be very ſtrong, if they could be fill'd or empty'd according to Occaſion and Neceſſity, as at *Roſes*. And for want of this Advantage, which is very rare, ſome are contented with a good Paliſado'd Cunette, deep and full of Water in the middle of a dry Ditch.

WAR.



To the Worshipfull John Cutts of Arks
in Essex & of Childerly in Cambridgshire Esq.

This Plate is humbly Dedicated by Richard Blome.

WAR.

The Introduction.

THE Art of *War* is ſo noble and neceſſary a Study for all Gentlemen as well as Soldiers, that would fit and prepare themſelves to be Inſtruments for the Glory of their King, and Safety of their Country, that without it they muſt be uſeleſs at Home, and altogether Strangers to Battles and Tranſactions Abroad. How was it poſſible for a handful of *Greeks* to Conquer moſt of *Aſia*, and ſubdue that mighty *Perſian* Empire, more likely to have given the Law to *Europe*, than to have receiv'd it from ſo ſmall a Part, and People of it; but by being exceedingly their Superiors in Military Arts and Diſcipline: Having for the Education of their Youth, their *Tactici*, or Publick Teachers; and their *Gymnaſias*, or Publick Schools; by which means the *Grecian* Youth were ſo accuſtom'd to Military Exerciſes, that it was a Reproach and Ignominy to any that had not learn'd to handle their Arms; and (as ſome relate) they were ſo train'd up in their Schools, that they were Fed and Lodg'd as if they had been actually on Duty in the Field; which, doubtleſs, was a Method worthy of Praiſe and Imitation; for thereby, in an Inſtant, they were able not only to form an Army of Soldiery, expert in the uſe of their Arms; but alſo to have it conſiſt of Men, accuſtom'd with the Dyet and Hardſhips of War.

The *Romans* (thoſe great Examples of Military Worth) altho' they had not ſuch Publick Teachers, or Schools to fit their Youth for Arms; yet we find they had their Field of *Mars*, whither the *Roman* Youth reſorted to the Practice of Military and Warlike Exerciſes; and we read, they were ſo ſtrict in the Choiſe of their Soldiers, that none could be admitted to, or attain the Dignity of one of the 24 Military Tribunes (altho' he was moſt in favour) that had not ſerv'd at leaſt five Years in the Wars; and none that had leſs favour could be a Tribune, before he had ſerv'd in the Wars 11 Years amongſt the Foot, or 15 amongſt the Horſe; whereby we ſee, none could be an Officer before he had been a long time a Private Soldier, judging him unfit to Command, who had not firſt learn'd to Obey: And their Great Care in this matter, we may learn from the prudent Diſtribution of their Tribunes in their *Legions*; that whereas the firſt *Legion* of a Conſular Army had four Tribunes, which might have ſerv'd in the Wars but 5 Years, yet it had two Tribunes which had ſerv'd 11, or 15 Years, and ſo in courſe for the remaining three *Legions*; whereby they diſtributed as near as might be the moſt knowing and experienc'd Tribunes in every *Legion*. Such was the Excellency of the *Roman* Military Diſcipline! War was the Policy of their Common-wealth, the Renown of their Families, the Glory and Employment of Private Men: It was a Diſhonour to their Great Men to be overcome, and for their Followers not to go as far as they: Their Soldiers went Singing to the Battle; and ſuch as ow'd their Safety to their Heels, were forc'd, thro' meer Shame, to rid themſelves with a Halter of their hated Lives. Thus they were endow'd with ſuch Noble Courage, for which they were Celebrated above any other Nation.

But why do we dazle our Eyes with the Splendor of either the *Grecian* or *Roman* Arms, or be ſo unjuſt to ourſelves, as to diminiſh or leſſen the Glorious Actions of this Nation, that thereby we might only flatter Antiquity? The *Engliſh* has fill'd their Hiſtories with Paſſages as truly Noble, as thoſe we read of, with ſo much Admiration in the *Grecian* and *Roman* Writers, and Foreign, as well as their own Hiſtories do them the right to tell the World, how not only Towns, but Provinces and Kingdoms have been the Reward of their Victories, as their memorable Exploits, famous Victories, and large Conqueſts in *France*, *Ireland*, *Cyprus*, &c. how they brought under *Cicily*, and carry'd the Terror of their Arms into *Aſia*: But withal, they bid us obſerve, that ſuch great and noble Actions were due to their great Knowledge in Military Arts and Diſcipline, acquir'd by unweary'd Induſtry and Pains, when their Youth were bred up in ſhame of Vice, and Boldneſs to undergo Peril for Virtue's ſake: For it is certain, as *Plutarch* ſpeaks of the *Lacedemonians*, in his Life of the *Theban General*, *Pelopidas*, *That it is neither* Eurotas, *nor the Place betwixt* Babyx *and* Gnacion (Rivers in and about the City *Lacedemon*, then famous for brave Soldiers) *that bringeth forth Valiant and War-like Men*. There is in moſt Men a kind of Fear that is born with them; few with *Hercules* in the Cradle dare encounter and ſtrangle Serpents. It is true, in ſome few Youths we may diſcover a certain kind of Greatneſs of Mind, that betimes by their forward and lively Spirits, and by ſome brave Excurſions of Mind, may give ſure Signs of their innate Courage; yet we muſt do ſo much right to Diſcipline, as to acknowledge, that Valour rather ſprings from that, than from any Prerogative of Birth; and thus that Man that hath been afraid at the very Name of *War*, when brought (as it were) to ſee and handle the Dangers thereof; and when he perceives, that Death is not certain in Battles, that but a few fall, when 'tis couragiouſly Fought, and that his Fears have often deceiv'd and fool'd him, now dares be one in the hardeſt Service, and can meet the moſt threatning Dangers boldly and chearfully, obtaining that by Experience, which he never had by Nature. Where Courage is Natural, Diſcipline muſt have the refining and ordering of it, before it be Genuine and True. And it is certain, where Courage is not innate, Diſcipline, when apply'd, never fails to produce it. The *Thebans* (which till the Day they obtain'd the Victory againſt the *Lacedemonians*) had no Reputation of Valour; yet by Exerciſe and Uſe of Arms, under their Experienc'd and Skilful Generals, *Epaminondas* and *Pelopidas*, are too hard for the brave *Spartans*, who before were accounted the moſt Valiant People of *Greece*.

It is not to be doubted, but that the old *Engliſh* Valour is ſtill the ſame, altho' it were to be wiſh'd, that Young Gentlemen, and Perſons of Quality, were more inclinable, in imitation of the Noble Performances, and Illuſtrious Exploits of their Anceſtors, to acquaint themſelves with Military Exerciſes, and Manly Employments, that by their acquir'd Knowledge, joyning with their Genius, they may be an Ornament to a worthy Poſterity, in being ſerviceable to their King and Country, like that brave and reſolute *Spartan*, *Iſadas*, in a Juſt and Honourable War, whenever they ſhall be call'd to the Field.

And can there be any greater Encouragement to ſet about the Practice of this ſo Great and Noble a Study, than to be bleſs'd with a General to your Armies, and an Admiral to your Fleet, in the Perſon of a King; and of as Active a Temper, and Warlike Spirit, as either the *Greeks*, *Alexander*, or the *Roman Cæſar*, who has Courage to lead you as far as your's dare follow; and wiſe Conduct to raiſe the Glory of this Nation as high as you can wiſh; and who (without doubt) will take notice of ſuch as endeavour to render themſelves thus fit for his Service.

I do not deſign in this ſmall Treatiſe to ſpeak of the handling of Arms, nor of the ſeveral Poſtures and Motions taught the Soldiers, nor of the divers ways of Exerciſing a Troop or Company; ſince there is in the *Engliſh* Language ſo many Printed Books on this Subject: And that which would make one the leſs Curious in doing it, is, becauſe (tho' there be a great many fine Things taught in theſe Particulars, which are graceful to the Sight, and makes Soldiers the more ready) yet when they come in earneſt to Fight, few of them are practis'd but to keep their Ranks even and cloſe, their Files right, to Fire nimbly, to Charge boldly, to be watchful of the Word of Command from their Officer, and to be exactly Obedient to it.

I ſhall only diſcourſe a little of the 3 Principal Heads in the Art of *War*, viz. *Marching*, *Incamping*, and *Imbatteling* an Army; which, if rightly underſtood, with the following Treatiſe of *Fortification*, of *Defending* and *Beſieging* a Town; the Ingenious Soldier will find them very uſeful Inſtructions to him in divers Occaſions.

Of Marching an Army.

BEfore the Army comes to their Rendezvous, in order to March, the General ſends an Officer with ſome Horſe to the Neigbouring Villages, to have a ſufficient number of Guides of thoſe moſt knowing of the Country, and Ways, he deſigns the Army ſhall march, and to bring them to his Quarters, which muſt be always near the General's, and there kept, eſpecially if Men not thorowly known, and to be truſted. To this Officer the General gives the Title of the *Captain of the Guides*. Having (upon the diligent comparing of their Informations) reſolv'd on the Way to march, after the *Reveil* is beaten, all the Waggoners and Men that attend the Baggage are to take up their Horſe and Oxen, and make ready to load. The Vag-Maſters (whoſe Duty is to Mend the Ways, and Conduct the Baggage) are to come to the Quarter-Maſter General of the Army, to receive his Orders. And being inſtructed in the Way the Army is to March, he is to provide himſelf Guides, and to Aſſemble together all the Baggage of the Army, whoſe Colours they muſt follow, and March according to the Rank of the Regiment they belong to, and according to the Place the Brigade is order'd to March in, whether in the Van, Body or Rear.

After the Army is form'd into as many large Squadrons and Battalions as the Ground or Field (where they are drawn up) will admit of, and according to their Number regulated into the Van, the Body and the Rear-Guard; all the Ordnance, Carriages and Baggage being drawn up on one ſide, ready to fall into their Places, as the Army marches off; The General gives Orders for the Van to begin their March, which for the firſt Day is always begun with his Regiment, and therefore is drawn up on the Right; and afterwards every Regiment is to take it by Turns, according to its Priority, being a General Officer's, and Antiquity being a Colonel's. Then he ſends out Guides and Light-Horſemen to diſcover the Ways and Paſſages, yet ſo that they always keep in ſight of the Van-Guard, that upon the Diſcovery of an Enemy they may give notice thereof in time. With the Van he orders the Carpenters of the Train, and moſt of the Pioneers to march for the Mending of ſuch Bridges that need it, or ſhall be judg'd inſufficient to bear the Weight of the Carriages, *&c.* and when there are bad Ways for the Horſe or Train, to Mend them againſt the Army comes up.

The Ordnance and Ammunition do ordinarily march in the Center, or Body of the Foot, as adjudg'd the ſecureſt Place from the Attemps of the Enemy; for if the Attack be in the Van, or Rear, or both, half the Army will be free from the Incumbrances of the Carriages, and will be ready to make Head where need requires; but ſometimes, as Neceſſity requires, ſome ſmall Field Pieces march in the Head of an Army, eſpecially when the Enemy is expected to fall on.

'Tis impoſſible to give a certain, or ſtanding Rule, for the moſt advantageous and ſafe Way of Marching an Army, ſince the Form muſt vary according to the Country you march in, or the Enemy you have to do withal; altho' you are to obſerve, whenever the Ground will allow of it, as in Marching over an Heath, or large Field, always to march in Battalia; and if the Army can't, yet at leaſt that the Horſe and Foot do march in as large Squadrons and Battalions as the Ground will admit of.

The March of an Army, as aforeſaid, being Compos'd in general of an Advanc'd Guard, the Main Body, and the Rear; yet ſeeing we frequently read, that upon ſuch Occaſions they mov'd in two, four, ſix or eight Columns, more or leſs, according as the Ground will allow, the

Column of an Army on a March ſignifies no more than a long Row of Troops following one another, the firſt and ſecond Lines, as they are incamp'd, make generally two Columns on a March, filing off either from the Right or Left.

The Chief Officer that Commands the Rear-Guard gives Orders that ſome Troops of Light-Horſe ſhall march within ſight of the Rear, eſpecially in paſſing over a Heath, Foreſt, or the like; but if the Country be Mountainous or Hilly, then the Light-Horſe may be commanded to march ſometimes in the Van, and ſometimes in the Rear of the Army, and to keep ſuch Watches and Centinels on the high Places, that the Enemy may not diſcover the Strength of the Army as it paſſes, or in what Order it marches.

In paſſing thro' narrow Ways, the Van-Guard is generally ſtrengthned with ſome Foot and ſome Ordnance drawn up before it, leſt the Enemy ſhould ſurprize it, and then march up by Defiles, and draw up as the Condition of the Place will permit.

In paſſing thro' a great Wood, there ought to be plac'd good ſtore of Horſes upon the Ways that lead into it, and to round and guard it very well on both Sides, to be ſecure from the Enemy's Ambuſcades; and if there be any plain or open Places in it, the Horſe are to over-ſpread them, and to be drawn up to ſecure the Paſſage until the Ordnance and Baggage are paſt, and the Rear brought up: And if after the paſſing the Wood the Army come into a plain Champaign Country, ſome Horſe are to guard the Way that comes out of the Wood, until they be drawn up again into large Squadrons and Battalions.

When an Army is to march thro' a Country where there are many Brooks and Rivers, Bridges are to be made, which is eaſily done, if there be good Ingeniers, Carpenters and ſtore of Workmen. Sometimes Bridges are made with empty Barrels and Hogſheads, laying Planks over them and faſtned together. The lateſt and beſt Invention for making Bridges, are the Pontons, being Boats of *Latin* of about eight Yards long, and two broad; the Form of which is a long Square, having a large Ring at each Corner. It's laid upon a Carriage when the Army marches, and drawn by five Horſes. Each Boat has an Anchor and Cable, and Baulks and Cheſts belonging to it. The Baulks are about 5 or 6 Inches ſquare, and about 7 Yards long. The Cheſts are Boards joyn'd together by Wooden Bars, about a Yard broad, and 4 Yards long: When there is occaſion for uſing theſe Boats, they are ſlip'd into the Water, and plac'd about 2 Yards aſunder, each faſtned with an Anchor, having beſides a ſtrong Rope which runs thro' the Rings, and is faſtned on each ſide the River to a Tree, or a Stake made very faſt in the Ground. The Baulks are laid acroſs the Boats at ſome Diſtance one from another, and the Cheſts upon them joyn'd cloſe; which makes a Bridge in a very ſhort time, for Horſe, Foot or Artillery to march over.

Now for the ſecuring the Bridges whilſt they are marching over, there ſhould be ſome Pieces of Cannon drawn up, and planted by the River-ſide, to annoy the Enemy, if they ſhould force their Paſſage over it; and when the Bridge is laid over, ſome Fire-Locks, Half-Pikes and Horſe ſhould march over to make good the other ſide, until all the Army with the Cannon and Baggage are come over. If the River be fordable, but rapid, and above Knee-deep, the ſtrongeſt Horſe, by Turns, are to ſtand in Files in the River, on the upper and lower Sides of the Ford, that the Foot may paſs the ſafer between them, the upper Files breaking much of the Rapidneſs of the Stream, and the lower ſaving ſuch of them that by the violent Current might be caſt down.

An Army is ſometimes all on a ſudden oblig'd to make a Counter-March, or to turn their March another Way than they intended, which may be occaſion'd by the Enemy's endeavouring to get betwixt them and their Garriſons, or may be done to diſappoint and amuſe them; but for a Battalion, 'tis ſaid to Counter-March, when being charg'd in the Rear they change the Front, by Marching thoſe that are in the Front, or File-Leaders, to the Rear, in place of the *Bringers-up*; whereas Ranks are ſaid to Counter-March, when the Wings of a Battalion inter-change Ground.

There are ſeveral other Caſes which muſt be provided againſt, as Emergencies happen, by the Care and Prudence of the Chief Commander, for which no poſitive Rules can be ſet down; but the Orders muſt be given on the Place, and proportionable to the Ground, the Enemy and the Occaſion.

Of Encamping an Army.

When an Army is to Encamp and Quarter, eſpecially not far from an Enemy's Country (altho' but for a Night) the General ſends out to view and inform himſelf of the Nature and Condition of that Place where they deſign to encamp, which muſt be a Place (if poſſible) in a plain Field, near Water; to which Place the Army being come, and that in good time by Day, the Quarters may be made near unto the adjoyning Villages, if there be any; and the Horſe lodg'd about them in the moſt ſuſpected places of Danger. To this end the Quarter-Maſter General is to go with the Camp-Mareſchal, that is upon Duty, to the appointed Camp; and being there come, he divides the Ground, diſtributing it to each Quarter-Maſter of the reſpective Regiments of Foot, and Troops of Horſe; then he takes up a Quarter for the General, in which he marks out the General Officers Quarters, and of all thoſe that have right to be there. An Army always incamps fronting the Enemy, and generally in two Lines, running Parallel, about 100 Yards diſtance, the Horſe and Dragoons on the Wings, and the Foot in the Center. Sometimes a ſmall Body of two, three or four Brigades is incamp'd behind the two Lines, and is call'd the Body of Reſerve. The Artillery and Bread Waggons are generally incamp'd in the Rear of the two Lines.

When an Army comes to be incamp'd near the Enemy, and that there is no River betwixt them, the General gives Orders to intrench his Army; and the greateſt part of the Troops muſt not go to Reſt, each Regiment placing a ſmall Guard at the Head of their Camp, Commanded by a Subaltern Officer, which is call'd the *Quarter-Guard*; and the Camp-Mareſchal that is upon Duty takes care to place the Main-Guard about a Mile beyond the Army towards the Enemy, chuſing for that purpoſe a Place from whence they may diſcourſe all round about them, and there the Guards muſt ſtay until 'tis Day; but when the Night approaches, they muſt draw near the Army, putting themſelves at the Head of the Foot. The Colonel that is upon the Guard orders another Guard to be more advanc'd than where he is, of about 20 Horſe, Commanded by a Quarter-Maſter; this Guard muſt be advanc'd a Muſket-ſhot from the Great or Main Guard, which conſiſts of Horſe, and is poſted a Mile and a half from the Camp towards the Enemy, on the Right and Left, by the Lieutenant, or Major-General of the Day, in a Place where they may ſee all about them. Beſides this Guard there muſt be made a Detachment of about 50 Horſe, Commanded by a Captain, to march all about, eſpecially upon the Ways that come to the Camp, that the Army may not be ſurpriz'd.

That which they call Piquet, or Piquet-Guard, is a certain number of Horſe and Foot, which are to keep themſelves in a Readineſs, in Caſe of an Alarm, the Horſe keep their Horſes ſaddled, and are booted all the time, in order to mount in a Minute. The Foot draw up at the Head of the Battalion, at the beating of the Tattou, but return to their Tents, where they hold themſelves in a Readineſs to march upon any ſudden Alarm. This forms a good Body, able to make a Reſiſtance, till the Army can be in a Readineſs.

The Army very frequently leaving, eſpecially, the heavy Artillery behind, when they ſet upon a March, uſually ſend a Detachment from the Camp to ſecure its coming up; they march in the Front and Rear of the Artillery, and muſt be ſure to leave nothing behind. If a Gun or Waggon break down, the Captain is oblig'd to leave part of his Guard to aſſiſt the Gunner and Montroſſers in getting it up again.

When the Artillery is brought up, the Quarter-Maſter General appoints a Place in the Rear of both Lines of the Army for incamping it; and this they call the *Artillery-Park*. It's drawn up in Lines; the Guns are in one Line, the Ammunition Waggons make two or three Lines, forty Paces behind the Guns, and thirty diſtant from each other. The Pontons and Tumbrils make the laſt Line, and all is ſurrounded with a Rope, which properly forms the Park. The Gunners and Montroſſers incamp on the Flanks, and the Conductors, Bombardiers, Ponton-Men and Artificers in the Rear. The *Corps de Garde* of the Artillery Guard is in the Front, and their Centries are round the Park. This is a forty eight Hour's Guard.

It is not found, that the *Romans* (who were the great Maſters in Military Acts and Diſcipline) ever us'd a Line about, or Intrenc'd their Camps, until ſuch time that they had vanquiſh'd *Pyrrhus*, King of *Epyrus*, lying always before in open Fields; but finding that Prince's Army Intrench'd, they lik'd it ſo well, that afterwards they did not allow themſelves to Encamp in Fields, altho' but for a Night, but in Camps Intrench'd; and it is almoſt incredible to read, in what little time they Intrench'd their Camp, and how laborious the Form of it was. So Excellent was their Military Diſcipline, their Soldiers being accuſtom'd to it by conſtant Practice, whence they ſoon found the great Advantages that attended it, together with the many Dangers, and Inconveniencies that before accompany'd the Neglect thereof; ſuch Entrenchments kept them ſafe, and freed them from Dangers to which their Army was always expos'd by Quartering in the open Fields and Villages, where, if the Enemy was awake, he would ſure every Night endanger the carrying or beating up ſome Quarter of it, whilſt on the other hand, being lodg'd in a Body, and within an Intrench'd Line, they were exempt from thoſe Inconveniencies; and to Aſſault an Army ſo Intrench'd, was held ſo daring and dangerous an Attempt, that we read of few that undertook it, and fewer that were ſucceſsful in it. And it is certain, that the *Romans* (as we find by reading their Hiſtories) ow'd as much of their Conqueſts to their Incamping well, as to their other excellent Military Diſcipline and Valour; and it would be almoſt endleſs to enumerate what Kingdoms and Provinces they kept in Obedience by their ſtanding Camps, having firſt weary'd out their Enemy by ſuch ſafe and beneficial Delays, and then on ſome great Advantages they would give them Battle, and ſo Defeat them.

The ordinary Dimenſions of an Intrench'd Camp: 8 Foot are for the Breadth of the Ditch round the Camp, the Depth 5 Foot, the exterior Height of the Earth thrown up 5 Foot, and the interior 6 Foot; altho' if need be, the Line may be rais'd higher, and thicker, and the Ditch deeper and broader. On this Line are to be made ſome ſorts of Works, as Redoubts, Baſtions, Tenails, *&c.* which are to flank and defend the Line, and are to be about the Diſtance of 720 Foot the one from the other, which is the Point-blank that a Musket doth Execution. The raiſing the Line and Works upon it, are to be diſtributed equally amongſt the Regiments of Foot that are not on the Guard, every Regiment taking, according to its number of Men, his equal Proportion, and every Diviſion of the Regiment relieving the other by Turns, until the Work is finiſh'd. Every 100 Soldiers are to have a Commiſſion'd Officer, a Serjeant and a Corporal to ſupervise them, that they loſe no time. If there be any Mooriſh Grounds, they may be ſet with Turn-pikes and Paliſadoes, which may be taken up when the Army decamps.

The manner of Incamping of Horſe and Foot is thus: For a Battalion conſiſting of 12 Companies, and 50 Men in each Company, there is to be allow'd 100 Paces. For a Squadron conſiſting of 3 Troops, and 50 Men in each Troop, 50 Paces.

From the Head of the firſt Line to the Head of the ſecond (if there be more than one Line) there is commonly allow'd 300 Paces, whereof 120 are for Incamping the firſt Line; ſo that there remains 180 Paces for the Diſtance between the laſt Tents of the firſt Line, and the Head of the ſecond, the 100 Paces being allow'd for the ſecond Line to draw up in; and there muſt be as much allow'd for the Front of the firſt Line to the ſaid purpoſe. It muſt be endeavour'd, as much as may be, that the ſecond Line be equal to the firſt, keeping the ſame Diſtance upon the Right and Left. All the Troops, and Companies of Horſe and Foot, conſiſting but of 50 Men apiece, are to be Incamp'd in one Row of Tents and Huts; but when the Troops and Companies conſiſt of more Men, there muſt be two or three. The Horſe are to be Incamp'd on the two Wings, and the Foot in the

Center. The General's Regiment is to have the Right, and the Colonel's Company the Right of the Regiment.

The particular Dimenſions of the Ground allotted to the Adjutant, or Quarter-Maſter, for the Encamping a Battalion conſiſting of 12 Companies, and each Company being Encamp'd in one File, is commonly 100 Paces, allowing 3 Foot for a Pace, which he is thus to divide.

The Streets are each to be of 6 Paces, which is in all 72 Paces; the breadth of each Tent 2 Paces, and ⅓ of a Pace, or 7 Foot; the Depth is according to the number of the Tents, and 4 or 5 Men to a Hutt, each Tent taking 2 Paces, the diſtance betwixt each, being uſually 2 ½ Foot: The diſtance of the Subalterns from the Soldiers, is 5 Foot: The great Street between the Captains and Subalterns, is ſometimes 15 Paces, and ſometimes 20. Behind the Captain's Hutt is their Equipage, and at a convenient Diſtance the Sutlers Encamp'd: The Pikes, Colours, and Muskets, muſt be plac'd at the Head of every Company; the Hutts of the Foot always to be open to the Streets, and thoſe of the Cavalry towards the Horſes Heads: And it is always to be obſerv'd, that every Evening after the Tattou is beaten, the Word is to be given; after which, none is to paſs along the Line that hath not the *Word*.

To conclude; The Quartering the Army at all times, (eſpecially when the Enemy is very near) ought to be in ſuch manner, as that the Soldiers may be ſooneſt in Battalia to receive them; that is, that ſuch Forces as compoſe the Wings and Body, may have only to go out of their Hutts and Tents, to be in the Figure you deſign to fight in; elſe in caſe of an Alarm, the Dangers will be many and great.

If an Army continues any time in a Camp, the Horſe will want Forage; ſo a Forage-Guard is appointed by the General, which is a Detatchment ſent out to ſecure the Foragers, and are poſted at all the Places, where either the Enemy's Parties may come to diſturb them, or they may be ſpread too near the Enemy, and be Taken. This is likewiſe call'd the Covering Party, and Marches directly the Night before the Foraging, that they may be Poſted in the Morning before the Foragers come. They conſiſt both of Horſe and Foot, and muſt ſtay at their Poſts till the Foragers be all come off the Ground.

Of Giving of Battle.

AS there is no Act of *War* ſo Great in itſelf, or in the Conſequences thereof, as Fighting, or giving Battle, the Advantages being eminent to the General that wins it, and the Prejudices many and conſiderable to him that loſeth it; ſo nothing ought to be more exactly Weigh'd, and judiciouſly Conſider'd, and hardly any thing more eſſentially to be Study'd by a General, than perfectly to know and lay hold on all the Advantages in the Day of Battle, and to know all the Diſadvantages to avoid them.

The Ranging an Army in Battle to the beſt Advantage, is a great Step to the winning the Victory; which depends not only on the Wiſdom and Skill of the General, the Nature of the Ground, and the Quality of his own Forces, but alſo on thoſe of his Enemy's, and on the Diſpoſition of him that Commands them. And although no certain or ſtanding Rule can be given, to anſwer all theſe Varieties, yet ſome poſitive Maxims may be ſet down, which if punctually obſerv'd, may beneficially anſwer all Occaſions that may fall out; for, we find, that even the Greateſt Captains of ancient Times (whoſe Military Knowledge and Practice the Moderns Extol and Value) have not ever obſerv'd one and the ſame Form of giving Battle, but vary'd as occaſion offer'd.

Cæſar, at that Memorable Battle fought on the *Pharſalian* Plains againſt *Pompey*, did quite alter the manner of the *Roman* Embattelling; for having found that *Pompey* exceedingly out-number'd him in Horſe, he cover'd one of his Flanks with a little River, and drew all his Cavalry to the other Flanks; among the Squadrons whereof, he plac'd Bodies of the beſt Infantry, and there he began to Battle; whereby, having all his Horſe on one Wing, and theſe accompany'd with ſelect Legionary Foot, he ſoon routed the half of *Pompey*'s Horſe that oppos'd all his; and then falling into the Flanks and Rear of his Enemy, won the Victory.

The Maxims are as followeth.

Firſt. To be firſt drawn up on the Ground the Army is deſign'd to Fight on, which is always attended with ſeveral conſiderable Advantages, as the Honour gain'd by being earlieſt on the Spot, which animates the Soldiers, and often daunts the Enemy, having thereby the Opportunity of poſſeſſing all the Advantages of the Ground, which are to be ſo exactly conſider'd, and the Field you fight in view'd ſo well, that when the Army is drawn up, the Order of it may not afterwards be alter'd, or the Ground chang'd; for all ſuch Mutations in the Face of an Enemy, are very Dangerous, giving them the greater Confidence, and the Army the leſs Courage, as being an Evidence to both of a great Failure in Conduct. Likewiſe, being firſt drawn up in the Field, the Army is in a Poſture to fall on, and rake the Enemy with their Cannon, whilſt they are drawing up, which Advantage, when it may be taken, is of great Uſe.

Secondly. That a General is never to omit in the drawing up of his Army, to diſpoſe of his Squadrons and Battalions, as that every one of them may come to fight again and again, if need require, before they are totally Routed.

It is alſo obſervable, That in a Battle, whoever keeps in Reſerve a Body of Men, that are not led to fight until all the Enemy's Squadrons have fought, rarely fails to get the Victory; and thoſe that have the laſt Reſerves, are very likely at laſt to be Victorious.

The *Romans* conſtantly fought their Infantry in their Lines, or Orders of Battle, the one behind the other; if the *Hoſtatii* were worſted, they fell between the Intervals of the *Principi*, and there Rallied again, whilſt the *Principi* advanc'd; and if both the *Hoſtatii* and *Principi* were Routed, they fell in between the Intervals of the *Triarii*, and if thoſe could not ſuſtain the Shock, the Day was loſt.

Thirdly. To have Expert, Valiant, and Vigilant Commanders, to be at the Head of the five groſs Bodies, of which an Army is uſually compos'd in the day of Battle; *viz.* the three *Tertias* of the

Infantry (which, as they March, are call'd the *Van*, the *Body*, and the *Rear*) and the two *Wings* of the Cavalry, and this in the ſecond Line as well as the firſt (the Diſtance between them being 300 Paces) ſince it is eaſier to Attack well, while all is in Order, than to recover a Diſorder, when once happen'd. With theſe Officers, 'tis of great Importance to have an able General of the Artillery, and that he have ſufficient Officers under him. That the Carriages, Ammunition, *&c.* be in good Order, and the Cannon early and well planted, as that the Shot may rake thwart the Squadrons and Battalions of the Enemy, which will not only do great Execution, but alſo diſorder the Bodies of the Enemy's Infantry and Cavalry.

Fourthly. Always place the beſt of the Soldiery in the Wings of the Army, and begin the Battle on that ſide of the Army which is Strongeſt, and the Enemy the Weakeſt.

This has been a very ancient Method, and ſeldom has been omitted, but to the loſs of thoſe that are guilty of ſuch Omiſſions; and the Reaſon is clear, becauſe the Troops on the Wings are not wedg'd in, as the Troops in the main Battle are, but are at liberty to make all the Advantages that by Accident, or the ill Conduct of the Enemy may be offer'd: And it cannot rationally be expected to fall upon the Enemy's Flanks and Rear, but by attacking them on the Wings, which muſt be done as expeditiouſly as poſſible, (without diſordering the Troops) while the reſt of the Army move as ſlowly as they can; and if the firſt Attack be ſucceſsful, then there is opportunity to fall into the Flank and part of the Rear of the Enemy, while the reſidue of the whole Army is marching to Attack them in the Front, which muſt be quicker in Motion, when they ſee the advanced Wing ſucceſsful. None are to ſpeak but the Commander in Chief, or the Major by his Order. In advancing againſt the Enemy in Battle, out of their Musket-Shot, the Captains and other Officers at the Head of the Battalions are all to march in a Line, with their Pikes in their Hands, two good Paces before the Soldiers, and are often to look behind them, leſt they ſhould inſenſibly get too much before the Body, and the Soldiers, by following too faſt, fall into Diſorder, at which time the Ranks are to be two great Paces diſtant, and the Files cloſ'd in ſuch a manner, that every Soldier may March at his Eaſe, and ſo Charge and Fire without preſſing one upon another, which ordinarily cauſeth breach of Silence in the Battalion.

When the Army comes within Shot of the Enemy, and the Musketiers march ready with their Pans guarded, inſtead of the Ranks being cloſed forward to the Sword's Point (which is uſual) there is the diſtance of one Pace to be allow'd between the Ranks, and then the whole Line of Captains and other Officers, are to retire each of them into the Intervals of his Files next after his Poſt, yet ſo as they may look to the Right and Left of the Battalions.

As ſoon as the Battalions come to 30 Paces diſtant from the Enemy, the Musketiers are to Fire, the manner of which Firing being order'd them before.

The Officers Commanding the Rear, are to obſerve that the Battalions keep Marching, to cauſe the Soldiers to cloſe forward eaſily, and without Noiſe and Confuſion; that the Pikes march even with the Musketiers; for if the Pikes be even on the Right and Left, the Battalion can't be diſorder'd by its March.

The Grenadiers (if any) are to be drawn up on the Right of the Battalions, and to augment them without intermixing with them, they being a ſeparate number of Men that are always to be ready for whatſoever ſhall be Commanded them.

The Commanders of the Battalions may be on Horſeback at the Head of them, by reaſon they are to be ſtirring to all Parts, to ſee that the Diſtances be obſerv'd; and above all, that none ſpeak except himſelf, or the Major by his Order, altho' he is to alight when the Musketiers make ready, and is to march with his Pike charged againſt the Enemy.

Fifthly. The laſt Maxim is, to prohibit and forbid under ſevere Penalties, the abſolute Chaſe, or Pillage, until the Enemy is totally Routed on all Sides; and then have thoſe Troops only to Purſue that are expreſly appointed for it, always having Squadrons to march after the Purſuers, as near, and in as good Order as if they were going to the Charge, that if the Purſu'd ſhould Rally and Face about, thoſe Troops and Squadrons may be ready to fall on, and break them a ſecond time. This is of ſuch Importance, that a great many Victories ſeemingly won, have in an Inſtant been loſt for want of due Care in theſe two Particulars, and therefore ought never to be omitted; for there is nothing that more Encourages flying Enemies to Rally and Fight again, than the ſeeming diſorderly Purſuit of them.

And if *Hannibal* the *Carthaginian* General, who was ſo excellent a Captain to win Victories, had but made this uſe of them during the ſecond *Punick* War againſt the *Romans*, having defeated them in four Great Battles at ſeveral Places, and ſo routed their Army, that it had been eaſie for him to have taken *Rome*, had he not (after being ſixteen Years in *Italy*) been forc'd to fly into *Africa*, overcome by *Scipio*, and been oblig'd to beg Peace of him.

The uſual, and I may ſay, inſeparable Concomitants of War, being Sickneſs, Wounds, and the like Miſeries, there is nothing in the World more neceſſary for an Army, whether Beſieging a Town, Encamping, or Fighting in the Field, than an *Hoſpital*, which ought to be provided with Phyſicians, Surgeons, Overſeers, and the like; as alſo all ſorts of Medicines, Drugs, and whatſoever elſe may be wanted, in great Quantities; as alſo Beds, Sheets, Coverlets, Shirts, and ſpare Linnen for Bandages. The Director of an Hoſpital ought to be a very Careful Juſt Man, and to ſee that the Men want nothing; for there are often very great Abuſes committed in theſe Places, becauſe they have every thing at Command, as the Wine, Brandy, Syrups, Bread, Butter, *&c.* which are often miſemploy'd. The Hoſpital ought to be furniſh'd with the beſt Phyſicians and Surgeons, that the Life of a Man, which has been expos'd for the Service of his Prince or Country, may not be loſt by an evil Operation of a bad Chirurgeon, when it may be preſerv'd by being well Dreſt. The Hoſpital is generally ſetled in ſome Town near the Army, where the Sick and Wounded may be conveniently carry'd to it; only a part of it ſtays with the Army, moves with it, and is call'd the Flying Hoſpital.

Of General Officers in an Army.

AN Officer in General, is a Perſon having a Command in the Army: Thoſe having Commiſſions from the Queen or General, are call'd Commiſſion'd Officers; which comprehends all from the General to an Enſign: Such as have no Commiſſions, but only Warrants from their Colonels, are call'd Warrant Officers; as Quarter-maſters of Horſe and Surgeons: Thoſe that have neither Commiſſions nor Warrants, are call'd Staff-Officers, as Serjeants, Corporals, Landpeſades, *&c.* An Officer ought to be endow'd with many good Qualifications; as Preſence of Mind, Judgment, to execute what he is Commanded to the beſt Advantage; Conception, to apprehend eaſily what he is to do; Complexion, to enable him to endure the Fatigues of War; Integrity, that whatſoever is entruſted to him, he may behave himſelf Honourably; Diligence, to execute every thing with Diſpatch; Secrecy in all Affairs of Conſequence, with which he is Entruſted; Conduct, to gain the Eſteem of his Superiors; no Preſumption or Obſtinacy, as being the Stumbling-block of ſuch as have too much Spirit.

General Officers are thoſe that Command a Body of Troops of ſeveral Regiments: The Captain-General, or General of an Army, is he who Commands in Chief, and is much the ſame in an Army as the Soul is in the Body: For, as all the Actions of the Body proceed from the Motions of the Soul; ſo great numbers of Regiments ought to do nothing but by Order of the General, who ought to be a Man of Courage and Conduct; to have great Experience; to be of good Quality and Liberal: His Valour makes him a Terror to his Enemies; and upon his Conduct depends the Safety of the Army; and therefore 'tis the greater Qualification of the Hero; ſeeing Bravery without Conduct hath often brought things to Extremity.

Now, a General's Conduct appears in eſtabliſhing his Magazines in convenient Places; in examining the Country; that he do not Engage the Troops too ſoon, without knowing which way to bring them off, and to ſubſiſt them, and in knowing to take the moſt Advantageous Poſts; either to Fight or ſhun a Battle at his Pleaſure. His Experience makes his Army have freſh Confidence in him, that they reckon themſelves ſure of Victory before they Engage. His Quality begets a greater Reſpect, and augments his Authority. His Liberality begets him Intelligence of the Enemy, their Strength, Deſigns, without which, he is in the Dark, and cannot tell how to take his Meaſures; wherefore he ought to give Encouragement to his Spies, and to have ſuch as he knows are more enclin'd to him than to the Enemy.

A General ought likewiſe to be naturally enclin'd to great Enterprizes, to be a Lover of Glory, and to have an Averſion to Flattery; to ſtrive to make himſelf Belov'd by every Body; by treating his Officers with Civility; hearing their Reaſons; praiſing and rewarding good Actions, and puniſhing Crimes: However, he ought, upon occaſion, to be Rigorous and Severe, in ſeeing his Orders punctually obſerv'd; otherwiſe Military Diſcipline would be loſt.

The Function of a General is to regulate the March of the Army, and their Encampment; to viſit the Poſts; to Command Parties for Intelligence; to give out the Orders, and the *Word* every Night, to the Lieutenant and Major-Generals: He chuſes the moſt advantagious Ground in the Day of Battle; makes the Diſpoſition of his Army; Poſts his Artillery; ſends off the Baggage to a Place of Security, and ſends his Orders by his *Aid de Camp*, where there is occaſion. At a Siege, he cauſes the Place to be Inveſted, Views, and Obſerves it; orders the marking the Lines of Circumvallation, Contravallation, and forming the Attacks: He often viſits the Works, and makes Detachments to ſecure his Convoys. The Charge of a General is of great Extent, and requires a particular Care; becauſe in him the Sovereign repoſes all the Care of the Army; of which, the Duke of *Marlborough* is Captain-General. A Mareſchal of *France* in the Field, is the ſame as Captain-General; and if there are two, or more of them in the Army, the Eldeſt Commands. Velt-Marſhal in *Germany*, *Brandenburg*, *Holland*, &c. is the ſame alſo with Captain-General.

Next under the Captain-General, or General of an Army, are the Generals of Horſe, and Generals of Foot; Commands that ought to be in the Hands of Perſons of ſingular Merit, who by their Birth, or good Qualifications, have render'd themſelves worthy of ſuch an Employ: They have an abſolute Command over all the Horſe and Foot in an Army, above the Lieutenant-Generals. *Richard*, Earl *Rivers*, is, at preſent, General of Her Majeſty's Horſe, and *Charles Churchil* Eſq; of the Infantry.

Before we come to treat of the Poſt of Lieutenant-General, we are to take notice of another Great Officer in *England*, that bears the Title of General; and that is *of the Artillery*, or *Maſter-General of the Ordnance*; which is one of the greateſt Employs in the Kingdom, being a Charge of great Truſt: It's generally beſtow'd on a Peer of the Realm; the Mareſchal Duke of *Schomburg*, and after him, *Henry*, Earl of *Romney*, had it in the late Reign, and now 'tis enjoy'd by his Grace the Duke of *Marlborough*. His Buſineſs is to manage all the Ordnance in the Kingdom, and he ought to know and conſider whatever may be uſeful and ſerviceable in the Artillery, and to diſtribute the Vacancies to ſuch as are Qualify'd for them. He has for his Aſſiſtance in that Employment, a Lieutenant-General, who Commands in the Abſence of the General; a Surveyor-General, Treaſurer, Clerk, Store-keeper, and Clerk of Deliveries; who are all call'd the principal Officers of the Ordnance.

There is likewiſe an Officer in the Artillery call'd Commiſſary of the Stores, who has the Charge of all of them, for which he is accountable to the Office: And another they call Commiſſary of Horſe, who is appointed to have the Inſpection of the Artillery Horſes, to ſee them Muſter'd, and to ſend ſuch Orders as he receives from the Commanding Officer of the Artillery, by ſome of the Conductors of Horſes, of which he has a certain Number for his Aſſiſtance; and whoſe Buſineſs it is to receive or deliver out Stores to the Army, to attend at the Magazines by Turns, when in Garriſon, and to look after the Ammunition Waggons in the Field: They bring their Account every Night to the Commiſſary, and are immediately under his Command. I ſhould have mention'd before another Officer of great Truſt in the Field, and that is the Comptroller of the Artillery, who is to inſpect the Muſters, makes the Pay-Liſts, takes Accounts and remaining Stores, and is accountable to the Office of Ordnance.

A Lieutenant General of the Army is a Charge of great Conſequence, requires Perſons of Courage and Conduct, and whoſe Ability and Fidelity has appear'd on ſeveral Occaſions. They ought not only to underſtand their own, but alſo the Buſineſs of a General, becauſe they are often entruſted with the Command of a Flying Camp, and ſometimes with a Part of the Army; the Number of Lieutenant-Generals is not limited; they are more or leſs, according as the Army is, great or ſmall; there is every Day a Lieutenant-General upon Command, who is call'd the Lieutenant-General of the Day: They Command the Wings of the Army in the Day of Battle, and at a Siege in the Trenches by Turns. They are to execute the General's Orders upon all Occaſions; ſome are appointed over the Cavalry, others for the Infantry, ſometimes on the Advanc'd Guard, others on the Rear Guard, and ſometimes they Command a Flying Army. They ought to be daily with the General to obey his Orders; they are each of them allow'd his Aid de Camp, and a Foot Guard mounted by a Subaltern, with a Serjeant and 30 Men.

Major-General is the next Poſt to that of a Lieutenant-General, and one of great Conſequence; and he who poſſeſſes it, ought to be Brave, Judicious, and a Man of Experience, in Marching and Incamping of Troops: When there are two Attacks on a Siege, he Commands that on the Left. His chief Buſineſs is to receive the Orders every Night from the General, or in his Abſence from the *Lieutenant-General of the Day*, which he is to diſtribute to the Brigade-Majors, with whom he is to regulate the Guards, Convoys, Parties and Detachments, and appoints the Place and Hour of their Rendezvouz. He is to know the Strength of each Brigade in general, and of each Regiment in particular, and to have a Liſt of all the Field Officers. Finally, He is in the Army the ſame as a Major of a Regiment in the Regiment, he is allow'd an Aid de Camp, and has a Serjeant and 15 Men for his Guard.

There is no Officer in the Army under a Major-General, that is allow'd an Aid de Camp, who is an Officer employ'd to carry Orders, and he but one only; wheras a Lieutenant-General has two, and the General as many as he pleaſes. It is a very Honourable Poſt for a Young Gentleman, who is oblig'd to a very conſtant Attendance, to be very well Mounted, and to be Diligent and Active.

The next General Officer to a Major-General is a Brigadier, who has the Command of a Brigade. Now an Army is divided into Brigades of Horſe, and Brigades of Foot; a Brigade of Horſe is a Body of 8 or 10 Squadrons; a Brigade of Foot conſiſts of 4, 5, or 6 Battalions. The Eldeſt Brigade has the Right of the firſt Line, and the ſecond the Right of the ſecond Line; the two next take the Left of the two Lines, and the Youngeſt in the Center. The Battalions which compoſe a Brigade obſerve the ſame Order.

The Eldeſt Colonel is generally the Perſon advanc'd to this Poſt of Brigadier; they roll in Duty amongſt themſelves, and he that is upon Duty is call'd *Brigadier of the Day*. He viſits all the Out-guards and Poſts of the Army, and at Night takes the Orders from the Major-General of the Day, and delivers them to the Majors of the Brigades, who muſt all attend at orderly Times: They march at the Head of their Brigades, and are allow'd a Serjeant and 10 Men of their own Brigade for their Guard.

The Office of Brigadier-General being too much for him to diſcharge exactly and conveniently himſelf, he appoints an Officer call'd Brigade-Major, to aſſiſt him in the Buſineſs of his Brigade, and acts in his Brigade the ſame as Major-General does in the Army: They chuſe the moſt Ingenious and Expert Perſons for this Poſt; they are to wait at orderly Times to receive the Word and the Orders which they carry firſt to their proper Brigadier, and afterwards deliver to the Adjutants of Regiments at the Head of the Brigade, where they regulate together the Guards, Parties, Detachments and Convoys, and appoint them the Hour and Place of Rendezvouz at the Head of the Brigade, where the Brigade-Major takes and marches them to the Place of General Rendezvouz. He ought to know the State and Condition of the Brigade, and to keep a Roll of the Colonels, Lieutenant-Colonels, Majors and Adjutants.

When a Detachment is to be made, the Major-General of the Day regulates with the Brigade-Majors how many Men and Officers each Brigade muſt furniſh; and they again with the Adjutants of the Regiments, how many each Battalion is to ſend, which the Adjutants divide amongſt the Companies. The Complement each Regiment is to furniſh, is taken by the Adjutant at the Head of each Regiment at the Hour appointed, and to deliver them to the Brigade-Major at the Head of the Brigade, who again delivers them to the Major-General of the Day, and he remits them to the Officer who is to Command the Detachment.

We come next to the Quarter-Maſter General, who is a conſiderable Officer in an Army, and ought to be a Judicious Man, and a Man of great Experience, and to underſtand Geography; and ſince 'tis his Function to mark the Marches, and Incampments of an Army, he ſhould know the Country perfectly well, all the Rivers, Plains, Marſhes, Woods, Mountains, Paſſages, Defiles, and even to the ſmalleſt Brook. The Evening before a March he receives the Orders and Rout from the General, and appoints a Place for the Quarter-Maſters of Foot and Horſe to meet him next Morning, with whom he marches to the next Camp; where being come, and having view'd the Ground, he marks out to the Quarter-Maſters the Ground allotted for each Regiment for their Camp. He chuſes the Head-Quarters, and appoints the Villages for the General Officers of the Army, where they ſhall Quarter: He appoints a proper Place for the Incampment of the Train of Artillery; he carries the Army a Foraging, and plants the Covering Party for their Security at all the Paſſes round them, and aſſiſts in diſtributing the Winter-Quarters to the Army.

This being the Office of Quarter-maſter General, and having mention'd juſt before, the Quarter-Maſters of Horſe and Foot; the firſt is a Warrant Officer, appointed by the Colonel; he is to take up the Ground for the Troops, and to Divide it, in allowing ſo much for each Tent; he receives the Orders; keeps a Liſt of the Troops; viſits the Stables, and takes care of the Arms: He marches in the Rear of the Troops, but in Camp his Tent is pitch'd in the Front: In Winter-Quarters he receives and diſtributes Forage to the Troops: Each Troop has a Quarter-Maſter.

As to a Quarter-Maſter of Foot, he is an Officer who takes care of Encamping the Regiment; for there is but one to a Regiment of Foot: His Buſineſs upon the March, is to attend the Quarter-Maſter General, to know where the Ground is for his Regiment, which he divides among the Companies.

Adjutant-General is a conſiderable Officer, whoſe Buſineſs it is to attend the General of the Field upon proper and neceſſary Occaſions, to receive his Orders; and then going to his Tent, the reſt of the Adjutants of the Army, whether Horſe or Foot, are duly to attend him there, to have 'em deliver'd them, to the end they may be communicated to the proper Perſons in each Regiment.

Another ſort of a General Officer is the Muſter-MaſterGeneral, but now uſually call'd Commiſſary of the Muſters; he is an Officer appointed to Muſter the Army as often as the General pleaſes, to know the Strength of each Regiment, and of each Company; to receive and inſpect the Muſter-Rolls, and to keep an exact State of the Strength of the Army.

Of Field-Officers.

Having done with General Officers and their Dependants, we come now to Field-Officers, and begin with a Colonel, who is a Commander in chief of a Regiment, whether Horſe, Foot, or Dragoons, and ought to be a Perſon of Authority; to aſſume an abſolute Command; to ſee that the Companies of his Regiment be full, and kept in good Order; that they be duly Exerciſed, and well Paid: He may lay any Officer in his Regiment under Arreſt, but muſt acquaint the General with it: A Colonel is not allow'd a Guard, but only a Centry from the Quarter-Guard. A *Maſter de Camp* in *France*, is he who Commands a Regiment of Horſe, being the ſame as a Colonel of Horſe: But *Maſter de Camp General* in *France*, is a Poſt different from this, being the ſecond Officer over all the Light-Horſe, and Commands in the Abſence of the Colonel-General.

The next Field-Officer is a *Lieutenant Colonel*, and the ſecond Officer in the Regiment, and ſhould be one who has Signaliz'd himſelf by ſome brave Action; a Man of great Experience, knowing how to Attack or Defend a Poſt, lead the Regiment to Battle, and how to make a good Retreat: He is to ſee the Regiment kept to their Exerciſe, and is to know the Qualifications of all the Officers of the Regiment: In the Colonel's Abſence he Commands the Regiment; his Poſt is on the Colonel's Left-hand, three Paces before the Captain's, where there is but one Battalion; but if the Regiment conſiſts of two, the Colonel Commands the firſt, and he the ſecond. Colonels and Lieutenant-Colonels are excus'd from Mounting the Guards, when the Regiment is in Garriſon.

A Major of a Regiment of Horſe or Foot is the next Officer to a Lieutenant-Colonel, and a Field Officer alſo: He is generally made ſo from Eldeſt Captain, and ought to be a very Careful and Vigilant Man: He is to take care that the Regiment be well Exercis'd, that they be drawn up in good Order at a Review, or upon the Parade, or any other Occaſion; to ſee it march in good Order, and to Rally it, in Caſe of its being Broke. He is the only Officer among the Foot that is allow'd to be on Horſe-back in time of Action, that he may be the readier to execute the Colonel's Orders, either in advancing or drawing off the Regiment.

A Major has an Aid-Major, or Adjutant, appointed for his Aſſiſtant, to eaſe him in his Duty: This Perſon receives the Orders every Night from the Brigade Major, which after he has carry'd to his Colonel, he delivers out to the Serjeants aſſembled in a Ring. If there be Detachments for Convoys, Guards, or Parties to be made, he gives the Number each Company muſt furniſh; he receives and diſtributes Ammunition to the Companies, keeps a Roll of the Officers to do them Juſtice in their Duty, and by the Major's Order regulates the Price of Bread, Beds, Meat, &c. to prevent the Mens being impos'd upon by the Sutlers: He muſt be Vigilant and Active. Each Regiment of Horſe has an Adjutant; and a Regiment of Foot has one for each Battalion.

Of Captains and Subalterns.

The next Officer in Degree to a Major, tho' no Field one, is a Captain, being a Perſon who in Field-Regiments, Commands either a Troop of Horſe, or Company of Foot: He ought to be very Careful and Diligent, to keep his Company full of Young Luſty Soldiers; to know their Names and Diſpoſitions, and what every Man is capable of; to viſit their Tents and Lodgings, to ſee what is Wanting; to Pay them well; to cauſe them to keep themſelves Clean and Neat in their Cloaths, Shoes, Stockings, &c. and to keep their Arms bright: He has power in his own Company, of making Serjeants, Corporals, and Lanſpeſades: He marches ſtill at the Head of his Company and Ranks, according to the Seniority of his Commiſſion. A Captain-Lieutenant is he that Commands the Colonel's Troop or Company.

As for thoſe Commiſſion-Officers in the Army, who come under the Denomination of *Subalterns*, they are Lieutenants, Sub-Lieutenants, Cornets and Enſigns. A Lieutenant of Horſe and Foot, is the Second Officer in the Troop or Company, and ought to be a very Intelligent Perſon, becauſe he Commands in the Abſence of the Captain, and therefore ought to be as well Qualify'd as he: When the Company is at Arms, he takes the Left of the Captain, but the Right if the Enſign be there: He marches the Company in the Abſence of the Captain; but when the Captain is preſent, his Poſt is in the Rear. When the Battalions march in Line of Battle, the Lieutenants take their Poſts at the Head of the Diviſions, according to their Seniority: He ought to inſpect the Serjeants and Corporals; to keep them to their Duty, and take care of every thing that is neceſſary to the Company; to ſee them Exerciſe; to cauſe them to keep their Arms clean and fit for Service; and to ſee that the Soldiers be provided with Powder and Ball.

A Sub-Lieutenant is an Officer in Regiments of Fuſiliers and Marines, where there are no Enſigns, having Commiſſion as Youngeſt Lieutenant, and paid only as Enſign, but takes place of all Enſigns, except the Guards.

A Cornet is the third Commiſſion Officer in a Troop of Horſe, or Dragoons: It's a very conſiderable Poſt: He Commands in the Lieutenant's Abſence. His principal Duty is to carry the Standard near the middle of the firſt Rank of the Squadron, and ſhould rather die than loſe it; for it is a great Diſhonour for a Squadron to loſe their Standard.

Enſign is an Officer of Foot that carries the Colours, being the loweſt Commiſſion'd Officer in a Company of Foot, ſubordinate to the Captain and Lieutenant. Is a very Honourable proper Poſt for Young Gentlemen. At his firſt coming into the Army he is to carry the Colours, both in an Aſſault, or day of Battle, and ſhould be no ways daunted with Danger; nor ſhould he quit his Colours but with his Life: He ſhould carry his Colours himſelf on his left Shoulder in entring into a Place; mounting the Guard; paſſing a Review, or going to Battle; but upon a March, may have them carry'd by a Soldier; tho' this is not practis'd in the *Engliſh* Army.

Having but juſt before mention'd *Standards* and *Colours*, which the Cornets of Horſe, and Enſigns of Foot carry; the firſt is a piece of Silk or Damask, about a Foot and half ſquare, on which is Embroider'd the Arms, Device, or Cypher of the Prince, or of the Colonel: It's fix'd on a Lance of about eight or nine Inches long, and carry'd in the Center of the firſt Rank, as aforeſaid; but in rainy or bad Weather, it has a Caſe of Leather over it to preſerve it: Whereas, the Colours are large Flags of Silk, fix'd on Half-pikes, carry'd by the Enſign; and when a Battalion is Encamp'd, they are ſtuck before the Front of the Battalion; but if the Battalion be in Gariſon, they are lodg'd with the Colonel, or Commanding Officer: They are never carry'd on Detachments, nor with the Battalion when it mounts the Trenches. Field Colours are ſmall Flags of about a Foot and half ſquare, which are carry'd along with the Quarter-Maſter General, for marking out the Ground for the Squadrons and Battalions.

Of Staff-Officers.

Having gone through with an Account of Commiſſion Officers, from the General to the Cornet and Enſign, the next and moſt inferior ſort of Officers of all in an Army, are thoſe call'd Staff-Officers, who have no Commiſſions, but are appointed by the Captain. The firſt of theſe is a Serjeant, whether of Foot or Dragoons, who carrys a Weapon call'd a Halbert; the Head of which ought to be a Foot, or fifteen Inches long; one End ought to be hollow to receive the Staff, but the other broad, Ribb'd in the Middle, Edg'd on both Sides, and drawing to a Point, like the Point of a two-edg'd Sword; on one ſide the Head is likewiſe fix'd a Piece in form of a Half-Moon, or Star, and on the other a broad Point four Inches long, a little crooked, which is very Commodious for drawing Facines, Gabions, or whatever Obſtacle elſe happens in the way: The Staff of the Halbert is about five Foot long, and an Inch and an half Diameter, made of Aſh, or other hard Wood. Halberts are very uſeful in determining the Ground betwixt the Ranks, for dreſſing the Ranks and Sides of a Battalion, and likewiſe in chaſtizing the Soldiers: The Serjeant carries it on the left Shoulder: His Perſon ought to be Vigilant and Active in his Buſineſs, and ſhould Read and Write, becauſe he is oblig'd to keep a Liſt of the Soldiers and their Lodgings, and to Viſit them often; they are in like manner to teach the Company the Exerciſe of their Arms, and how they are to keep their Ranks and Files: Their Poſt on a March, is on the Flanks, to cauſe the Company to march in good Order. A Serjeant of each Company is to be on the Parade at Night, to receive the Orders and the Word from the Adjutant, which he is to carry to his Captain and Subalterns: When the Adjutant comes, the Serjeants place themſelves in a Ring, which being according to the Precedency of their Companies, with their Hats on the Spears of their Halberts: And after he has given them the Orders, he whiſpers the Word to the firſt Serjeant, who gives it to the next, and ſo on, till it come to the Youngeſt, who gives it to the Adjutant; they acquaint the Officers that are to go next upon Duty; they viſit the Mens Arms, and diſtribute Ammunition to them.

A Corporal is an Inferior Officer, under the Serjeant in a Company of Foot: He is commonly an old Soldier; he receives the Word from the Rounds that paſs by the Grand Guard; he receives likewiſe the Word from ſuch as are ſtop'd by his Centries; and when the Guard is Reliev'd, he gives the Orders he had, to the Corporal that is to Mount, and ſhews him all the Poſts. He carries a Fuſee.

Next, and under the Corporal, is a ſort of inferior Officer call'd a Lanſpeſade, or Anſpeſade, who aſſiſts him in his Duty, and in his Abſence performs it: They are generally the moſt Vigilant and Brave of the Company; they have the ſame Pay only as a Foot Soldier; but a greater Allowance in *France*; they are excus'd from common Duty; they teach the New Soldiers their Exerciſe, and Poſt the Centries: Their Place on a March, is on the Right of the ſecond Rank.

Of Squadrons, Battalions, Troops, Companies, &c.

An Army conſiſting of ſeveral Bodies of Horſe and Foot, (otherwiſe known by the Names of Cavalry and Infantry) the ſmalleſt of Horſe and Dragoons, are call'd Troops, and conſiſt of about fifty or ſixty Men, ſometimes more, and ſometimes leſs; and a Regiment of Light-Horſe in *England*, conſiſts of ſix Troops, and ſometimes of Nine, (but of Dragoons uſually Eight in time of War.) A Squadron of Horſe, is uſually a Body compos'd of three Troops, making 150, and ſometimes 200 Men, when the Troops are larger than Fifty each, but never above that, becauſe a greater Number can never be advantagiouſly Poſted, nor have room to Act in narrow Grounds, as Woods, Marſhes, and Defiles. The Eldeſt Troop takes always the Right of the Squadron, the Second the Left, and the Youngeſt the Center: A Squadron is always drawn up Three deep, that is to ſay, in three Ranks, having the length of a Horſe, or rather more, between Rank and Rank. When the Army is Encamp'd, a Squadron of Horſe is allow'd thirty Paces for its Front, and thirty Paces Interval between one Squadron and another; and on a March, the Squadrons of the ſame Column, ought to keep a convenient Diſtance. As for the Foot, the ſmalleſt Regular Body, as I may ſay, is what they call a Company; that uſually conſiſts of fifty Centinels, three Serjeants, three Corporals, and two Drums, beſides the three Commiſſion Officers; but a Company of Guards is uſually about Eighty private Men. There have been frequent Diſputes among otherwiſe very Intelligent Perſons, about how many Companies of Foot make a Battalion; my Author, *Grillet* ſays, thirteen, of which one Company is always Grenadiers; and this Body of Foot is, or ought to be generally ſeven Hundred Men, not including Officers or Serjeants; ſo that thoſe Perſons reckon wrong, who alledge that every Regiment is a Battalion, ſeeing the

Number of Companies differ in them, tho' in *England* they are generally Thirteen, including always a Company of Grenadiers. But the firſt Regiment of *Engliſh* Guards has four Battalions; the Second, the Regiment of *Scotch* Guards, and the Royal *Scotch*, have each two Battalions. The Private Men are arm'd with Firelocks (Pikes being quite laid aſide) Swords and Bayonets. The Eldeſt Company takes the firſt Poſt next to the Grenadiers, who have always the Right of the Battalion, and the ſecond Company the Left; the Youngeſt has its Poſt always in the Center

Of the ſeveral Denominations of Private Soldiers.

The Soldiery, both Cavalry and Infantry, go under ſeveral Denominations, according to the different Arms they carry, or Duty they perform. A Musketier is a Foot-Soldier, arm'd with a Musket or Firelock, Sword, Bayonet, *&c.* But the Grand Musketiers in *France* are Troopers, who Fight ſometimes on Foot, and ſometimes on Horſeback, being uſually Gentlemen of good Families, are divided into two Troops, call'd the *Grey* and *Black Musketiers*, from the Colour of their Horſes.

Grenadiers are Foot-Soldiers, arm'd like the Musketiers, but have a Pouch to hold their Grenades; they are differently cloath'd from the reſt of the Battalion, and wear High Caps; each Regiment having a Company of them, which always takes the Right of the Battalion. In *Holland* each Company in a Regiment has five or ſix Grenadiers, which being drawn out together form a Company. The Grenadiers are generally the Talleſt and Briskeſt Fellows, and are always the firſt upon all Attacks; and when there is any Appearance of Action, each Grenadier carries three Hand-Grenades. The Horſe Grenadiers, which the *French* call *Grenadier Volant*, or Flying-Grenadiers, are ſuch as are mounted on Horſeback, but fight on Foot, and their Exerciſe is the ſame as the other Grenadiers.

Fuſiliers are Foot-Soldiers, arm'd with Fuſees, with Slings to ſling them; there are four Regiments in the *Britiſh* Army, which have always been call'd Fuſiliers, and go by the Name of the *Engliſh*, *Scotch*, *Iriſh* and *Welch* Fuſiliers; but now there are none but Fuſiliers abroad, ſince Pikes are quite laid aſide. The firſt Deſign of Fuſiliers was to guard the Artillery, for which end the Regiment of *Engliſh* Fuſiliers, now Commanded by the Lord *Tirawley*, were at firſt Rais'd to ſupply the want of Pikes. The Fuſiliers us'd to carry Turn-Pikes along with them, which in a Camp were plac'd along the Front of the Battalion, and on a March were carry'd by the Soldiers, each carrying one of the ſhort Pikes; and two by turns the Spar, thro' which they are thruſt, ſo that they were quickly put together.

As for a Dragoon, he is a kind of Amphibious Soldier, mounted on Horſe-back, but Fighting ſometimes on Foot, and ſometimes on Horſeback, as Occaſion requires. They are divided into Brigades, like the Cavalry, and are very uſeful on any Expedition that requires Diſpatch; for they can keep pace with the Cavalry, and do the Duty of Infantry. They generally incamp on the Wings of the Army, or at the Paſſes leading to the Camp; and ſometimes they are brought to cover the General's Quarters. They do Duty on the Generals of Horſe and Dragoons, and march in the Front and Rear of the Army.

We had none of thoſe ſort of Cavalry call'd Curiaſſiers, in the *Britiſh* Army, ſince the laſt Revolution; they are arm'd with Back, Breaſt and Head-piece, as moſt of the *Germans* are.

The Carbiniers are Regiments of Light-Horſe, carrying longer Carbines than the others, and are ſometimes us'd on Foot. There are none of them in the *Britiſh* Army, but the late Lieutenant-General *Windam*'s Regiment.

The Soldiery call'd *Guards*, are of two ſorts, Horſe and Foot; the firſt are Gentlemen, choſen for their Bravery and Fidelity to be entruſted with the Guard of the Queen's Perſon, and are divided into three Troops, each having a Colonel, two Lieutenant-Colonels, a Cornet-Guidon, four Exempts, Brigadiers and Sub-brigadiers, and 160 Private Men. But there is now a fourth Troop of Guards added, call'd the *Union-Troop*, with their Grenadiers, under the Command of the Duke of *Argyle*. The Foot-Guards are only the firſt and ſecond Regiment, appointed for the Guard of Her Majeſty and Her Palace.

Thus much for the Guards; we ſhall only add in this Place, that having very frequently found mention of the *Gens de Armes* of *France*, in the Courſe of the laſt War, and more eſpecially in this, we are to obſerve, that they are a Body of Horſe, divided into Independent Troops, ſo call'd, becauſe they formerly fought in Armour; they are part of the *French* King's Houſhold. Theſe Troops being Commanded by Captain-Lieutenants, the King and Princes of the Blood being their Captains. The King's Troop, beſides a Captain-Lieutenant, has two Sub-Lieutenants, three Enſigns and three Guidons. The other Troops, which are thoſe of the *Scotch Gendarms*, the Queen's, the *Dauphin*'s, the *Gendarm* of *Anjou*, *Burgundy*, the *Engliſh* and *Flemiſh* Guards, and thoſe of the Duke of *Orleans*, are call'd the ſmall *Gendarmery*, and have each a Captain-Lieutenant, Sub-Lieutenant, Enſign, Guidon and Quarter-Maſter: They carry a longer Standard than the Light-Horſe, divided into two Points a little rounded, generally adorn'd with ſome Device or Cypher in Embroidery, and a Fringe; each of theſe Troops has a Pair of Kettle Drums and two Trumpets. The *French* valu'd themſelves mightily upon the Goodneſs and Bravery of theſe Troops, beyond all others of their Enemies, which to their fatal Diſappointment they did not find to prove true in the Battle of *Blenheim* and *Ramellies*, where they were bore down by the ſuperior Valour and Weight of the Confederate Cavalry.

Of ſome other Particular Offices and Things belonging to an Army.

Tho' the Title of Waggon-Maſter General might ſeem to claim room among the General Officers, yet being of a much more inferior Dignity, we have rather choſen to bring him in here. This Perſon has the Ordering and Marching of the Baggage of the Army. On a Day of Marching he meets the Baggage at the Place appointed in the Orders, and Marſhals it according to the Rank of the Brigade or Regiment each Waggon belongs to, and marches it according to the Rout given him, which is ſometimes in one Column, ſometimes in two, ſometimes after the Artillery, and ſometimes the Baggage of each Column follow their reſpective Columns. Another Officer they have in an Army, call'd Captain of the Guides, whoſe Buſineſs it is to provide Guides for the Army, of which he ought to have always a ſufficient Number with him, that know the Country very well, to ſend out as Occaſion requires. Such as are to guide the Army on a March, for Convoys, Parties, Baggage, Artillery and Detachments; to provide which, he ought to have a Party of Horſe to go to the adjacent Villages, Caſtles or Forts to demand Boors, whom he brings to his Quarters, and keeps under his Guard, for fear they may make their Eſcape, till the Army come to another Gound, where he can be provided with others. He ought to underſtand ſeveral Languages, eſpecially that of the Country in which the Army is.

Provoſt-Marſhal is a neceſſary civil kind of an Officer in the Army, who is appointed to ſecure Deſerters, and all other Criminals; he is to go often abroad round the Army, to hinder the Soldiers from Pillaging: He regulates the Weights and Meaſures of the Army, and the Price of all ſorts of Proviſions. When the General calls a Court-Marſhal to try Offenders, which Court is compos'd of a Preſident, nam'd by the General, and of Twelve Members and a Judge-Advocate, who take an Oath to do Juſtice, according to their Knowledge, the Provoſt-Marſhal, after the Sentence is given and approv'd of by the General, is to put it in Execution.

Muſick of War.

DRUM is a Martial Inſtrument us'd by the Foot and Dragoons in Form of a Cylinder, hollow within, and cover'd at the two Ends with Vellum, which is ſtraightned or ſlackned at pleaſure, by the means of ſmall Cords and ſliding Knots. Some are made of Braſs; but they are commonly made of Wood. The Drum-ſticks are made of hard firm Wood, about 15 or 18 Inches long, tapering towards the Point, where there is a ſmall Knot, which, by beating againſt the Drum-head, makes the Sound, which varies as the ſeveral Occaſions require. As 1. To *beat the General*, is the Signal for the Army to make ready to March. 2. The *Aſſembly*, being an Order for the Soldiers to repair to their Colours. 3. The *March*, to Command them to move. 4. *To beat the Retreat*, is for the Army to keep to their Tents, and not to Fire till next Morning, for fear of alarming the Camp. This is done about Sun-ſet, at the firing of a Gun, call'd the Warning-Piece, after which the Centinels challenge, and the Piquet-Guard is reliev'd. 5. *The Reveille*, beat at Break of Day, to warn the Soldiers to Riſe, and the Centries to forbear Challenging. 6. *The Alarm*, to call the Soldiers to Arms, or notice of ſome ſudden Danger. 7. *To beat a Parley or Chamade*, to deſire a Conference with the Enemy. 8. *To beat a Call*, to advertiſe the Soldiers to ſtand to their Arms, when a General Officer is paſſing by.——Each Company of Foot has two Drummers, and a Battalion a Drum-Major, Commanding over the other Drums; their Cloaths are different from the Soldiers, being uſually lac'd with a Worſted Livery-Lace; their Poſt is on the Flanks, when a Battalion is drawn up; but on a March, betwixt the Diviſions.

A Trumpet is an Inſtrument of Wind Muſick, us'd more particularly in War; each Troop of Horſe has two Trumpets: It's made of Metal, moſt commonly of Braſs, but ſometimes of Silver. The Mouth of the Trumpet is always of Braſs, and is to be taken out and put in at pleaſure. He that blows the Trumpet is call'd the Trumpeter, who ought to be Vigilant, and a Man fit for Fatigue. The firſt Sound of a Trumpet before a March, is to *Boot and Saddle*, at which the Troopers get themſelves ready to Mount. This is ſounded when the Drums beat the *General*. When the *Aſſembly* is beat, then the Trumpet ſounds *to Horſe*, and they all Mount. The third is *to March*. The Trumpets alſo ſound a *Charge* in Day of Battle, and the *Retreat* at Night.

We come in the next place to the *Kettle-Drums*, which are two ſorts of large Baſins of Copper or Braſs, rounded in the Bottom, and cover'd over with Vellum or Goat's-Skin, which is kept faſt by a Circle of Iron, and ſeveral Holes faſtned to the Body of the Drum, and a like Number of Screws to ſcrew up and down, with a Key for the Purpoſe. The two Drums are kept faſt together by two Strops of Leather that go thro' two Rings, which are faſtned, the one before, the other behind the Pomel of the Kettle-Drummer's Saddle. They have each a Banner of Silk or Damask richly Embroider'd with the Sovereign's Arms, or thoſe of the Colonel, and are fring'd with Silver or Gold; and to preſerve 'em in bad Weather, they have each a Cover of Leather. The Drum-ſticks are made of Crab-tree, or other hard Wood, of 8 or 9 Inches long, with two Knobs at the Ends, which beat the Drum-head, and cauſe the Sound. The Kettle-Drum with Trumpets, is the moſt Martial Sound of any; each Regiment of Horſe has a Pair, and of late the Dragoons have likewiſe Kettle-Drums. The Train of Artillery have a very large Pair, drawn by two white Horſes.

The Kettle-Drummer takes his Name from the Inſtrument he beats: He ſhould be a Man of Courage, and of a good Mien, having a neat Motion with his Arms, and a good Ear; he marches always at the Head of the Squadron, and his Poſt is on the Right, when the Squadron is drawn up.

Hautboys are alſo Warlike Muſical Inſtruments, us'd among the Foot, and ſometimes by the Dragoons; but of theſe, and other yet leſs conſiderable Inſtruments, we ſhall ſay no more.

Utenſils of War.

Utenſils of War are all ſorts of Hand-Tools us'd in an Army, or at a Siege, of which we ſhall briefly give their Names and Uſes. And firſt a *Spade*, an Inſtrument for digging up the Ground, the Handle, or Shaft of which, is about 3 Foot long; the Head is all of Iron, the upper Part being flat for the Pioneer to ſet his Foot on to force it into the Ground; the Length of the Head is a Foot, or 15 Inches, and the Breadth 6, or 8.

A *Shovel* they carry along with the Artillery, to be deliver'd out to the Pioneers, who are to mend the Ways, or to work in the Approaches at a Siege. It ſerves to gather and throw up the Earth, which the Pickax and Mattock raiſe. It's made of a Shaft of about three Foot and an half long; and the Head of it, which is thin, and ſhod with Iron, is about 15 Inches deep, and 8 broad.

A *Pickax* is a Tool of no leſs Uſe, the ſame being carry'd by the Pioneers to dig up the Ground that is too hard for the Spade; They are of great uſe for mending the Ways, and in Fortification.

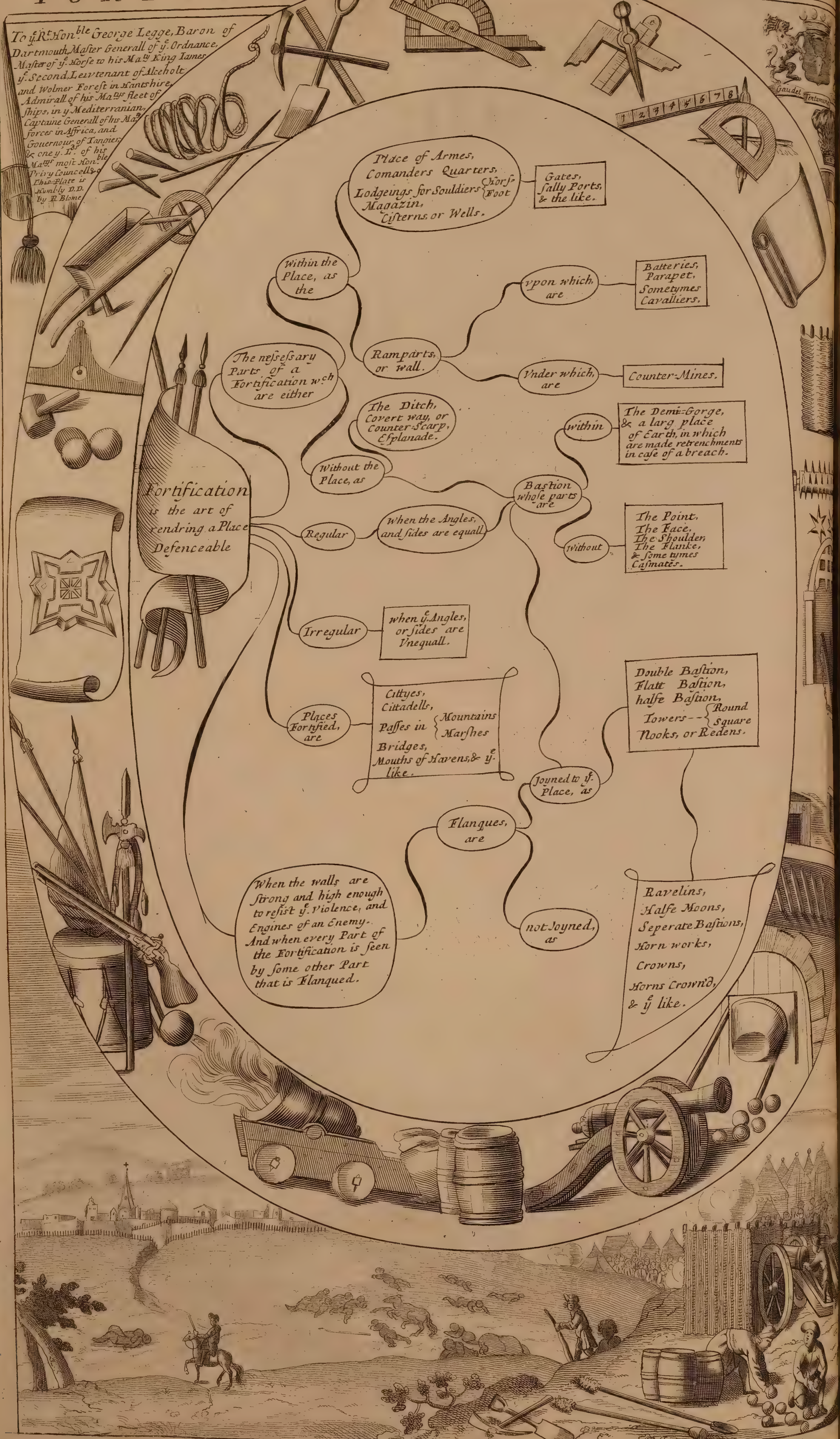
Axes are very uſeful in an Army for cutting Ways thro' Woods, for cutting Trees to make Bridges, for mending the Ways, and many other Uſes. Moſt of the Foreign Regiments of Foot, eſpecially the *Danes*, have ſix Carpenters with Felling-Axes, to march at the Head of each Battalion; and in the Artillery the Carpenters march with their Axes to mend any thing that may break down, and to help the Ways.

A *Small Ax* or *Hatchet* is alſo of uſe in an Army, with which the Pioneers go before to prepare the Ways, in cutting down Hedges, Buſhes, Stiles or Gates. The Grenadiers carry ſometimes each a

Hatchet

FORTIFI CATIO

To yͤ Rᵗ Honᵇˡᵉ George Legge, Baron of
Dartmouth, Maſter Generall of yͤ Ordnance,
Maſter of yͤ Horſe to his Maᵗʸ King Iames
yͤ Second, Leivtenant of Alceholt
and Wolmer Foreſt in Hantshire,
Admirall of his Maᵗʸˢ fleet of
ſhips, in y Mediterranian,
Captaine Generall of his Maᵗʸ
forces in Affrica, and
Gouernour of Tangier,
& one yͤ Lᵈˢ of his
Maᵗʸˢ most Honᵇˡᵉ
Privy Councell &c
~~This Plate~~ is
Humbly D.D.
by R. Blome



Fortification is the art of rendring a Place Defenceable
The neſseſsary Parts of a Fortification wᶜʰ are either
Within the Place, as the
Place of Armes, Comanders Quarters, Lodgeings for Souldiers { Horſ Foot Magazin, Ciſterns, or Wells.
Gates, ſally Ports, & the like.
Ramparts, or wall.
vpon which, are
Batteries, Parapet, Sometymes Cavalliers.
Vnder which, are
Counter-Mines.
Without the Place, as
The Ditch, Covert way, or Counter-Scarp, Eſplanade.
Bastion whoſe parts are
within
The Demi-Gorge, & a larg place of Earth, in which are made retrenchments in caſe of a breach.
Without
The Point, The Face, The Shoulder, The Flanke, & ſome tymes Caſmates.
Regular
When the Angles, and ſides are equall.
Irregular
when yͤ Angles, or ſides are Vnequall.
Places Fortified, are
Cittyes, Cittadells, Paſſes in { Mountains Marſhes Bridges, Mouths of Havens, & yͤ like.
Joyned to yͤ Place, as
Double Baſtion, Flatt Baſtion, halfe Baſtion, Towers -- { Round Square Nooks, or Redens.
Flanques, are
not Joyned, as
Ravelins, Halfe Moons, Seperate Baſtions, Horn works, Crowns, Horns Crown'd, & yͤ like.
When the walls are ſtrong and high enough to reſiſt yͤ Violence, and Engines of an Enemy. And when every Part of the Fortification is ſeen by ſome other Part that is Flanqued.
Gaudet Tentamine
1 2 3 4 5 6 7 8

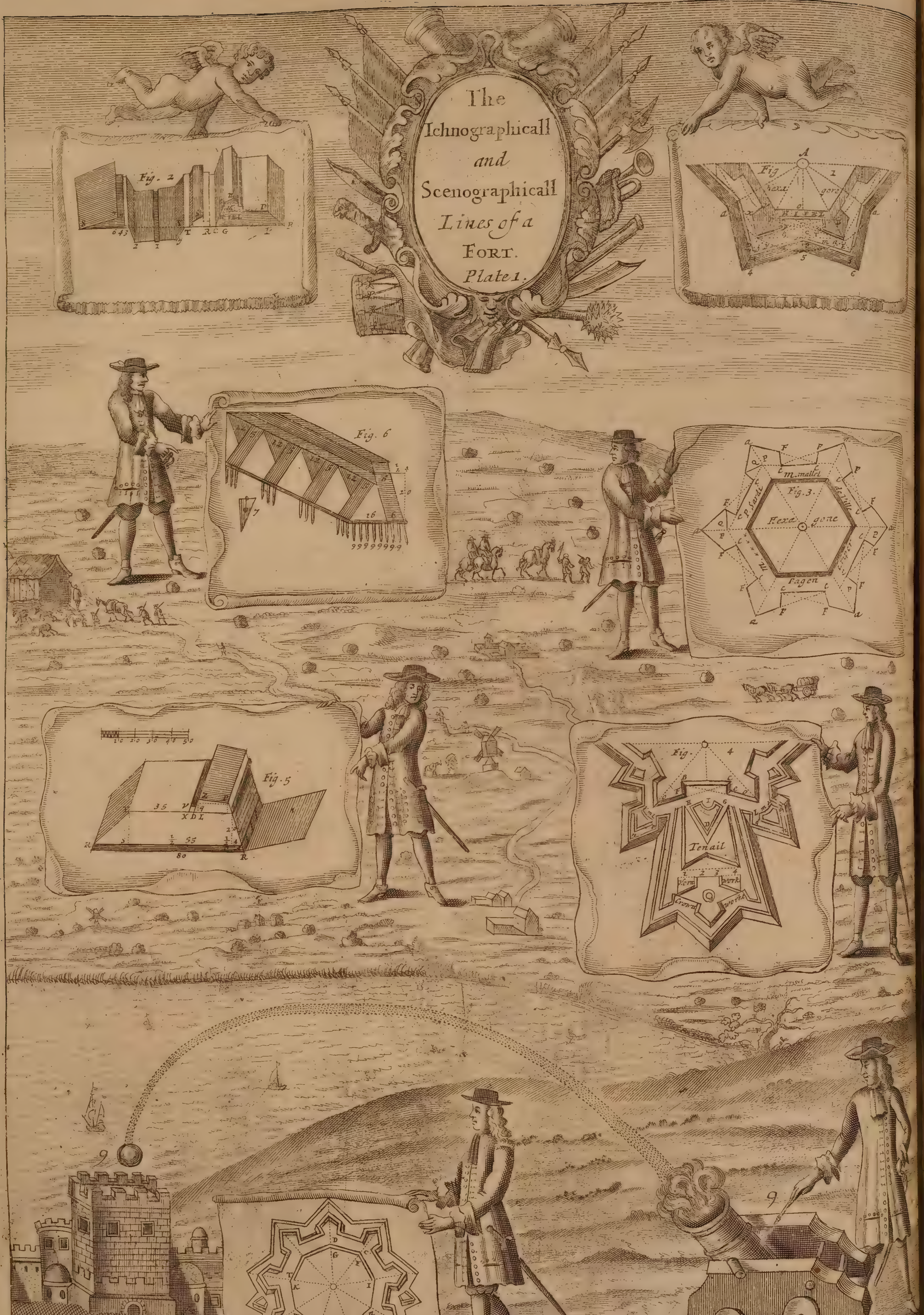

The
Ichnographicall
and
Scenographicall
Lines of a
Fort.
Plate 1.
Fig. 2
Fig. 6
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Fig. 3
m. mallet
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Fig. 5
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X D L
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Fig. 4
Tenail
Horn work
Crown work
Fig. 8
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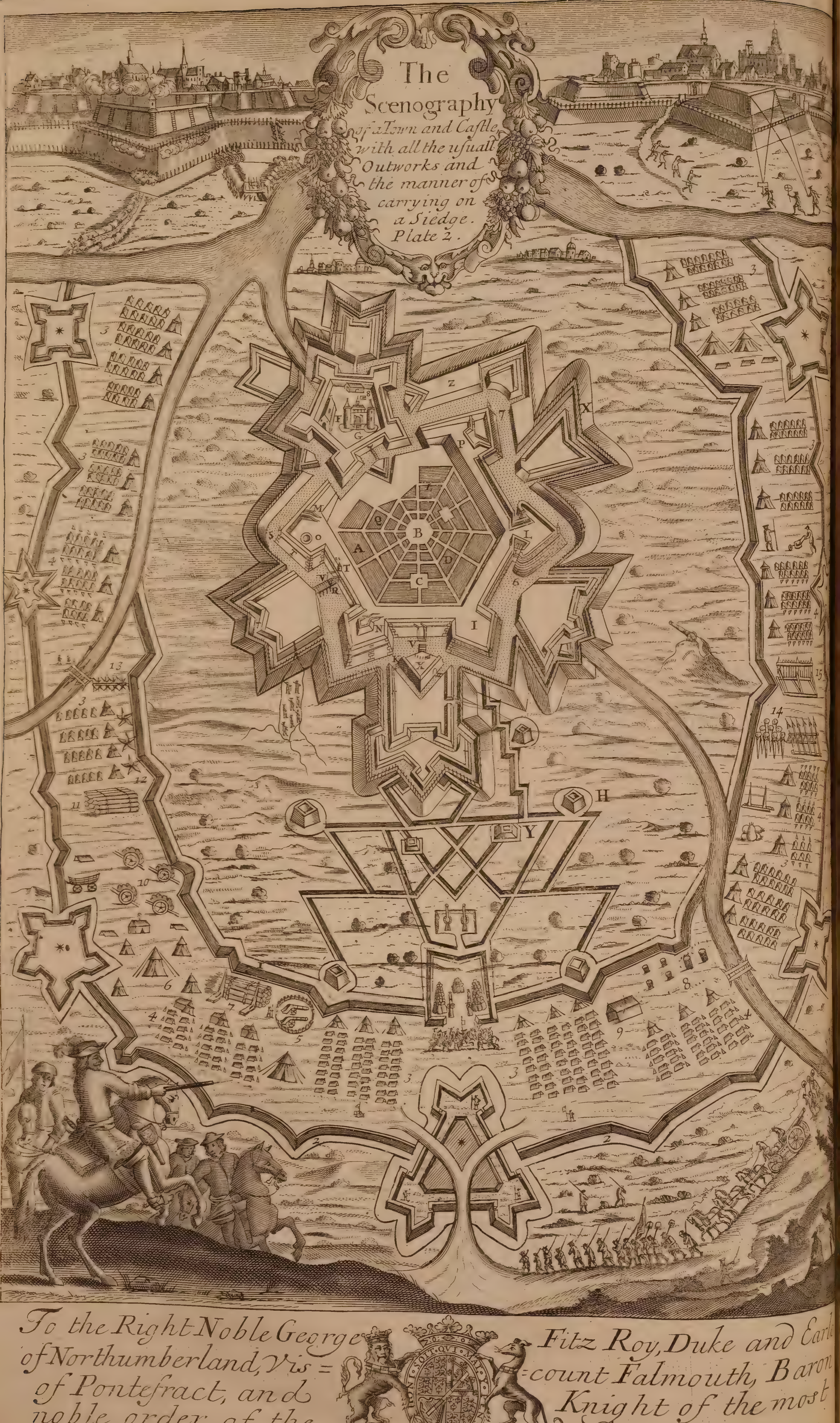

The Scenography of a Town and Castle with all the usuall Outworks and the manner of carrying on a Siedge. Plate 2.

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To the Right Noble George Fitz Roy, Duke and Earl
of Northumberland, Viscount Falmouth, Baron
of Pontefract, and Knight of the most
noble order of the Garter &c.a
This Plate is humbly dedicated by Richard Blome

Hatchet by his Side; and the *French* Dragoons, who have but one Piſtol, have each a Hatchet hanging at his Saddle-Bow, on the Right-ſide.

There are alſo *Bills*, being a ſort of Hand-Tools carry'd along with the Artillery for the uſe of the Army, for cutting Ways thro' Hedges, Woods, *&c.* and are much the ſame with our Hedge-Bills in *England.*

There being no Army can be ſaid to be Compleat, and well Appointed without Artillery, we ſhall add a few Inſtruments that are us'd about a Gun, and begin with what they call the *Ladle*, which is an Inſtrument wherewith the Powder is is put into the Piece. It's made of a Plate of Copper, bor'd in the Form of a half Cylinder, rounded at one End, the other being fix'd upon a long Staff. This, fill'd with Powder, the Gunner carries with his Left-hand under the End of it, to keep the Powder from falling out, till he enters it in the Muzzle of the Piece; when he has carry'd his Powder home to the charg'd Cylinder, he turns the Ladle that the Powder may fall out, and withdraws it. Ladles are fitted to the Bore of each Gun, and hold Powder ſufficient for the Charge.

Another Inſtrument appertaining to a Gun, they call a Rammer. It's a Piece of Wood fitted to the Diameter of the Bore, ſtuck upon a long Staff, and is us'd in ſetting home the Charge and the Wadding.

That which they call the *Sponge* of a Gun, is a long Staff put into a Rod of Wood, which is cover'd over with a Sheep-Skin, with the Wooll outwards, to ſponge and clean the Gun. As ſoon as the Gun has fir'd, a Montroſſer is ready with the Sponge, while another claps his Finger on the Vent to ſtop the Air, and ſtifle what Fire may remain in the Chamber; the Sponge, Rammer and Ladle, after the Gun is loaded, are laid under her between the Wheels.

The *Head-Hook*, or Work, is a ſmall Iron turn'd Serpent-wiſe like a Screw, and put upon the end of a long Staff, to draw out the Wad of a Gun, when ſhe is to be unloaded. The Wad is a Stopper of Hay or Straw forc'd into a Gun upon the Powder, to keep it cloſe in the Chamber; when it is home at the Powder, the Gunner gives it generally three Thumps with the Rammer.

That which is call'd the *Lynſtock*, is a ſhort Staff of Wood about three Foot, upon one End of which is a Piece of Iron, which divides in two, turning from one another, having each a Place to receive Match, and a Screw to keep it faſt; the other End is pointed, and ſhod with Iron to ſtick in the Ground. It's us'd by Gunners to fire the Guns; and failing of it, a Piece of cleft Stick to ſtick the Match, does the Buſineſs every jot as well.

Coins are Wedges of Wood us'd under the Breech of a Gun, by which a Gunner raiſes or falls the Muzzle of his Piece, till he point it exactly at the Object. Each Gun has three Coins belonging to her, and they are for the ſame uſe about a Mortar.

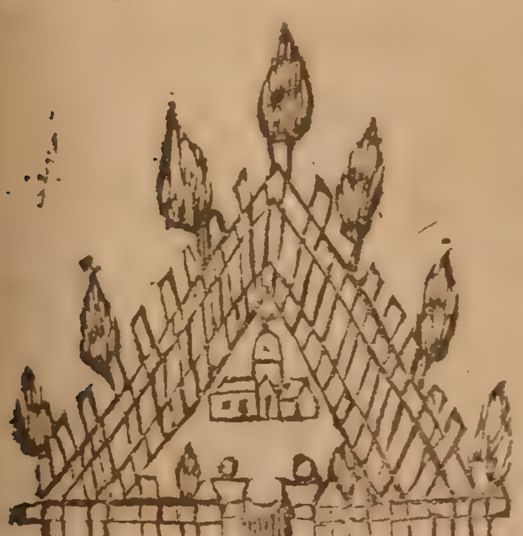
Another Utenſil is an *Hand-Spike*, being a Piece of Aſh, Elm, or other ſtrong Wood, 3, 5, or 6 Foot long, cut thin like an Edge at one End, that it may get the eaſier betwixt Things that are to be ſeparated, and under any thing that is to be rais'd. It's better than an Iron-Crow, becauſe its Length allows a better Poize.

FORTIFICATION:

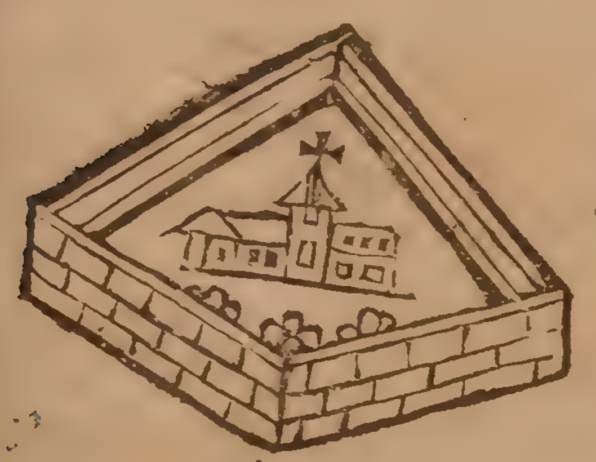
O R,

The Art of Rendring a Place Defenſible.

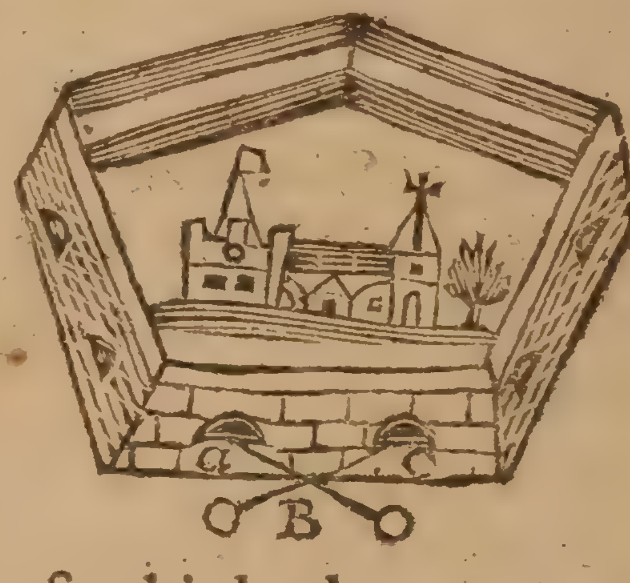
THAT as nothing is at once brought forth to Perfection in any *Art* or *Science*; ſo in this of *Fortification*. At the firſt beginning the People (as *Cæſar* in his *Commentaries* on the Wars with the *Gauls*, tells us; and as it is amongſt the *Indians* at preſent) were wont to ſurround their *Towns* with *Piles* driven into the Ground in manner of an *Impalement*, as by this *Figure* appears.



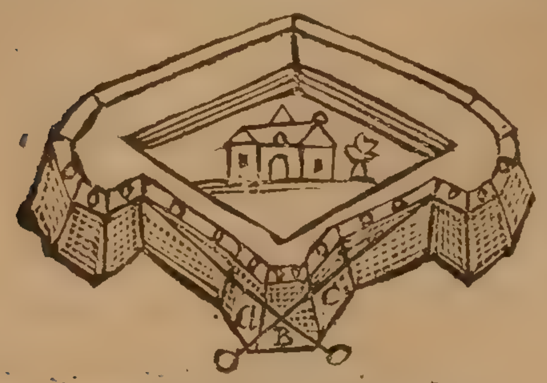
But when they found that the Fury of an attemping *Enemy* (as well as *Fire*) would ſoon deſtroy theſe *Wooden Retreats*, they began to build high and thick *Walls*, defending the ſame from the Top, by throwing down *Darts*, *Arrows* and *Stones* to annoy the *Enemy*, according to this *Figure*, as *Cartins* obſerves of the *Babylonian Walls*, which were 150 Foot high, and 32 Foot thick.



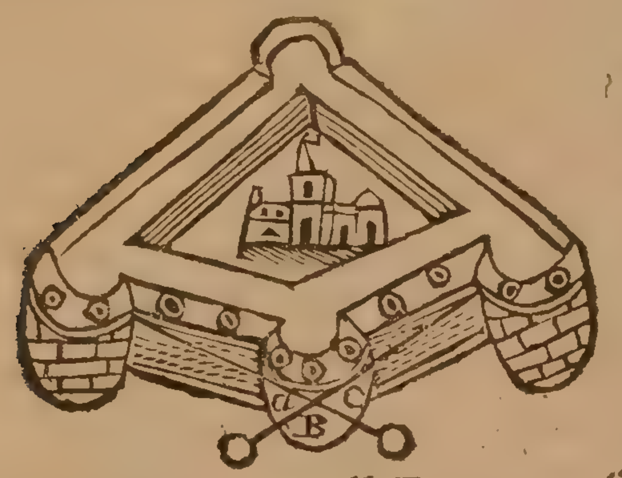
Experience, the trueſt Cenſurer in this Matter, finding the Imperfection and Diſadvantage of this ſort of Structure, that the *Defenders* ſtanding on the Top of the *Walls*, were no more ſafe from being expos'd to Danger, than the *Enemy* without; and that they could never hit or annoy them any more, when they were come near to the Foot of the *Wall*, unleſs they ſtood on the very Edge of it, where bowing themſelves to diſcover the *Enemy* at the Bottom, muſt be expos'd to the danger of Tumbling down; and therefore the *Beſiegers* being hidden, it was no hard matter for them to place there *Battering Rams*, and other *Engines* (then in uſe) to force down the *Walls*, and ſo get into the *Town*. For the remedying this, they were forc'd to make *Loop-holes*, or *Windows* below in the *Walls*, according to this *Figure*, out of which they annoy'd the *Enemy*.



But it was found, that at the *Enemy*'s approaching the *Wall*, they were ſecure betwixt theſe two *Loop-holes*, or *Windows*, within the *Triangle a, b, c,* according to this *Figure*; therefore they invented Square-flank'd *Towers*, parallel to the *Wall*.



The *Beſieg'd* finding the Fore-part of the *Tower* to be out of ſight, and the *Angles* eaſie to be Batter'd by their *Rams*; and there yet remaining a *Triangle a, b, c,* in which the *Enemy* was hid, they chang'd them to Round ones; by which means a Remedy was found againſt the moſt preſſing Force, threatned either by the *Rams*, or other Ancient *Engines*, which by their *Battering*, inſtead of looſing the *Stones*, forc'd them towards the *Center*, and made them ſtick cloſer together; and altho' there was a little *Triangle a, b, c,* according to this *Figure*, yet they could not unfaſten the *Stones* without great difficulty, and by adding a few *Windows*, all Danger (if any remain'd) was taken away.



Thus the ancient manner of *Fortifying* at laſt was in this Structure of round *Towers*, and ſo continu'd until about the Year of our Lord 1359, one BARTHOLDVS SCHAVART, a *German* Monk at *Cologne*, invented that admirable Compoſition of *Gunpowder*, which was ſoon after follow'd with that of the *Musket* and *Cannon*; ſo that by this means the manner of Waring was chang'd from the *Battering Rams*, to the *Thundring* of *Guns*; and the *Round Towers* (which were not altogether flank'd by the *Beſiegers Fire*) were turn'd into *Bulwarks* and *Baſtions*, with ſharp Points towards the *Campaign*, defending and flanking one another without the leaſt hidden Place to the *Enemy* to lodge themſelves in, having thick and ſolid *Ramparts* of *Earth* behind their *Walls*, to reſiſt the Violence of the *Enemy's Batteries*; the which are in uſe to this Day.

CHAP. I.

Of the Terms *and* Angles *relating to* Fortification, *Illuſtrated by the Letters of the Alphabet, as well on the* Ichnography, *or* Ground-Plot, *as on the* Orthography, *or* Profile; Scenography, *or* Perſpective.

Of Ichnography, *or* Ground-Plot Lines. Plate I. Fig. 2.

A, Is the *Polygone*, or a Figure made of ſeveral *Sides* and *Angles*.

B, D, is the *Radius*, or Diſtance from the *Center* of the *Polygone*, and repreſents the *Wall* that ſurrounds a Place.

A, a, is the Exterior Circumference, or *Polygone*, that paſſes by the Points of the *Angles* of the *Baſtions*.

V, X, F, G, H, is the *Plane* of a *Baſtion*, on which there is to be rais'd a thick and ſolid Maſs of *Earth*, ſometimes lin'd with *Stone*, or *Brick*: Their Uſe is to contain under Covert a ſufficient number of *Muſketiers*, and to plant the *Artillery* thereon to ſcour the *Campaign* and *Ditch* round; a Place to flank and defend the Body thereof, and by their Solidity the better to reſiſt the Force of *Mines*, and make *Retrenchments* behind *Breaches*, if need require; and they are to be large, that *Granadoes* do not much Execution on them.

Royal Baſtions are ſuch as are not able to reſiſt the Force of an *Army Royal*, being ſo call'd when there is a *Train* of *Artillery* brought into the Field to *Attack* the Place. *H, V,* is the *Gorge* of the *Baſtion*, or the Diſtance between the two *Flanks* of the *Baſtion*, and is the Ground where ordinarily the Beſieg'd make their laſt *Retrenchments*.

C, V, is the *Demi-Gorge* of the *Baſtion*, or the Diſtance from the *Angle* of the *Polygone* to the *Angle* of the *Curtain* and *Flank*.

C, F, is the *Capitol* of the *Baſtion*, or the Extenſion of the *Radius* betwixt the *Angle* of the Interior or Exterior *Polygone*.

F, G, is the Face of a *Baſtion*, or the Part the *Baſtion* that extends itſelf from the Point of the *Baſtion* to the *Flank*, and is the weakeſt Part in all the *Fortification*, becauſe of its being more expos'd to the *Beſiegers Batteries*; and being only defended by the oppoſite *Flank*, is the Place where the *Enemy* ordinarily make their *Breaches*, to which they paſs their *Galleries*, and where they generally make their *Mines*.

H, G, is the *Flank*, or the Line rais'd from the Extremity of the *Demi-Gorge* to the Face. This is the *Poſt* from which the *Beſieg'd* defend the *Curtain*, and the oppoſite *Flank* and *Face* of the *Baſtion*, ſcouring the *Ditch*, *Counterſcarp* and *Glacis*, and other Out-works, which is the reaſon why the *Beſiegers* endeavour by their *Batteries* and *Artillery* to ruin the *Flanks* at the beginning of a *Siege*.

H, is a *Cazemat*, and *Orillon*, which covers the *Cannon* in the *Flank* from being diſmounted at any Diſtance, and to this end obliges the *Enemy* to raiſe their *Batteries* almoſt under the *Beſieged's* Fire.

H, I, is the *Curtain*, or the part of the Side of the *Polygone* that is between the two *Demi-Gorges* of the two oppoſite *Baſtions*. This is the Part beſt defended in all the *Fortification*, being thus ſecur'd by the two oppoſite *Flanks*; and for this Reaſon the *Ports* and *Gates* of a *Town* are ordinarily made in the midſt thereof.

P, O, is the Plain of the *Rampart*, or the *Terraſe* of the *Town*.

P, Z, is the *Parapet* or *Breaſt-work*, that covers the *Musketiers* that are on the *Rampart*.

H, I, is the ſecond *Flank*, or that Part of the *Baſtion* which defends the Face of the oppoſite *Baſtion*.

H, E, is the *Line* of *Defence*, which extends itſelf from the *Angle* of the *Flank* and *Curtain*, to the Point of the oppoſite *Baſtion*, and is not to exceed the *Point-Blank* diſtance of a *Musket*'s Execution.

I, E, is the *Stringent Line* of Defence, which determines on the *Curtain* the Length of the ſecond *Flank*, the *Flanks* and the *Faces* of the *Baſtions*.

F, E, N, is the *Ditch* that goes round a Place, out of which the *Earth* is taken that makes the *Ramparts*.

R, T, M, S, is the *Counterſcarp*, or the Edge of the *Ditch*, that is towards the *Campaign*.

1, 2, 3, is the *Cover'd-Way*, or *Corridor*.

4, 5, 6, is the *Baſe*, or Largeneſs of the *Eſplanade*, or *Glacis*, or the *Parapet* of the *Cover'd-Way*.

Of the Angles. Plate 1. Fig. 1.

It is to be obſerv'd, that an *Angle* is mark'd by three *Letters*, and the middlemoſt always denotes the *Angle*.

C, B, D,

C, B, D, is the *Angle* of the *Center*, and is made by the meeting of two *Semi-diameters*, drawn from the *Angles* of the *Polygone* to its *Center*.

A, C, D, is the *Angle* of the *Polygone*, and is form'd by the meeting of two ſides of the *Polygone*.

X, F, G, is the *Angle* of the *Baſtion*, or *Flanked Angle*, and is made by the meeting of the two Faces of the *Baſtion*.

F, G, h, is the *Angle* of the *Shoulder*, made by the meeting of the *Face* and *Flank*.

C,H,I, is the *Angle* form'd of the *Flank* and *Curtain*.

Of the Orthography, *or* Profile, *with the* Scenography *and* Perſpective *of a* Fort. Plate 1. Fig. 2.

Engeniers uſe to repreſent the different Heights and Thickneſs of the Earth of a *Fort* by a Section, through the middle of the *Curtain*, which they call *Profile*.

B, B, is the *Horizontal Line*, on which the *Fort* is to be rais'd.

B, C, E, D, is the *Rampart*, or the *Solid Earth* round a Place.

B, C, is the *Baſe*, or *Foot* of the *Rampart*, the Diſtance between the *Ditch* and the *Town*.

D, E, the *Tarraplane*, or the upper Largeneſs of the *Rampart*.

F, D, is the *Interior Slope* of the *Rampart*.

E, C, is the *Exterior Slope*, or *Talum*, which ofttimes is lin'd with *Brick* or *Stone*.

N, O, E, is the *Parapet*, or *Solid Earth*, that is raiſed upon the *Rampart*, to cover the Soldiers from being expos'd to the Beſiegers Fire.

K, N, is the *Interior Height* of the *Parapet*, which is always the height of a Tall Man.

N, O, is the *Superior Slope*, or *Glacis* of the *Parpet*, on which the Beſieg'd lay their Muskets when they Fire towards the *Campaign*.

4, are the *Embraſures*, or *Cannon Ports*.

L, O, is the *Exterior Slope* of the *Parapet*.

P, H, I, is the *Banquet*, or *Foot-Bank*, at the foot of the *Parapet* towards the Town, on which the Muſketiers ſtand when they Fire.

C, R, is the *Plane* of the *Fauſſe-bray*.

R, S, T, is the *Parapet* of the *Fauſſe-bray*.

T, V, is the *Barm*, or little *Plane*, to hinder the *Parapet* of the *Fauſſe-bray*, which is always to be of *Earth* lin'd with *Turf*, from tumbling into the *Ditch*.

V, Y, X, Z, is the *Ditch*, or *Moat* that is round the *Fort*.

V, Y, is the *Scarp*, or *Slope* of the *Wall* next the *Ditch*.

2, is the *Cunet*, or little *Cannal*, in the midſt of the *Ditch*.

Z, X, is the *Counterſcarp*, or outward *Slope* of the *Ditch*.

Z 4, is the *Cover'd-Way*, and is that which Soldiers ordinarily call the *Counterſcarp*.

6, 7, 8, is the *Glacis*, or *Eſplanade*, or the *Parapet* of the *Cover'd-Way*, which ſlopes until it loſeth itſelf into the *Campaign*: On the Top of this *Parapet* there are *Paliſodoes* uſually Planted.

C H A P. II.

General Maxims to be obſerv'd in Fortification.

1. THat there be no Place or Work that is not *Flanked*, and Defended by another. This is evident from what has been ſaid already, and the common Practice of an *Enemy teaches*. For the *Beſiegers* ruining by their *Batteries* the *Parapets* and *Flanks*, as Diſmounting the *Beſieged's Cannon*, they have no other Deſign, than to make their *Miners* paſs the *Ditch*, where if they find any Place out of ſight of the *Beſieged's Fire*, 'tis eaſie for them in a little time, to make their *Mines*; and ſo by this means, betwixt a *Town Beſieg'd* and *Taken*, there is oft times no more than the difference of eight, or ten Days; for which Reaſon, the Emperor *Charles* the Fifth, improv'd the round *Bulwarks* of his Conqueſts into ſharp-pointed *Baſtions*.

2. That the great *Line* of Defence, or that which is near equal to it, *viz.* The Interior *Polygone*, exceed not 120 *Fathoms*, or 720 *Feet*, which is the *Point-blank* of a Muſket's Execution: For 'tis to be obſerv'd, that the Defence is to be taken from the *Muſket*, and not from the *Cannon*, ſeeing the *Cannon* require too many Men to manage them, conſumes a great deal of *Ammunition*, are eaſily Diſmounted, and with great difficulty Planted again, neither can they maintain a continual *Fire*. And it has oft times been obſerv'd, that *Engeniers*, to make the fewer *Baſtions*, and conſequently to ſpare a little *Mony*, have commited this intollerable Fault.

3. The greater and more ſpacious the *Gorges* and *Flanks* are (provided the reſt of the Works be not prejudic'd thereby) the better is the *Fortification*.

The *Gorges* ought to be ſo Large, that on both ſides of the *Flanks Cannon* may be Planted, that the Soldiers may go up and down to the *Baſtion*, in a good *Front*, without giving any Inconveniencies to thoſe that are at the *Flanks*: Likewiſe, there muſt be place to make *Retrenchments*, if neceſſity require.

The *Flanks* are the moſt conſiderable Parts of *Fortification*, and from which depends the Defence of the other Parts, as the *Curtain*, *Flanks*, and *Faces* of the oppoſite *Baſtions*, the *Ditch*, and *Counterſcarp*, &c. They are to be made ſo great as the juſt proportion of the *Baſtion* will admit of; for in making them too great, the *Capitols* will become too long, and by conſequence, the *Line* of Defence will exceed the *Port* of a Muſket, (which is againſt the ſecond *Maxim*); or in making them too little, the *Baſtions* will become obtuſe, and will entirely cut off the ſecond *Flank*, while we ought to have Conſideration for it.

4. That the *Angle* of the *Baſtion* be not much leſs than 60 *Degrees*, or much more than 90, for being leſs than 60, it is ſo ſlender, as eaſily to be batter'd down; and being greater than 90, it will be more large than is neceſſary, and ſhorten the ſecond *Flank*; and beſides it ſhall contain leſs Ground than the *Baſtion* of an *Angle* of leſs *Degrees*, built on the ſame *Gorges* and *Flanks*.

5. The greater the *Angle* is that is made of the outward *Polygone* and the *Face*, the greater is the Defence of the *Face*; for then the *Stringent Line* of Defence comes not ſo much upon the *Curtain*, and conſequently leaves the greater ſecond *Flank*.

6. All the *Works* ought to be *Cannon Proof*.

C H A P. III.

Of Regular Fortification.

IN the Conſtruction of *Regular Figures*, and how to Fortify them according to the moſt Modern ways uſed by the *Italians*, *French* and *Dutch*; with the Methods of ſome Modern *Authors*.

Equi-

Regular Fortification is that which is made upon *Equiangular* and *Equilateral Figures* deſcrib'd in a *Circle*; ſuch as a *Triangle*, *Quadrangle*, or Four-ſquare *Pentagone*, or Five-ſided *Figure* to a *Dodecagone*, or Twelve-ſided *Figure*; the *Baſtions* being ſo plac'd, that the Points of them are alike diſtant from the *Center*; the *Curtains* on one Length, and all the other *Lines* and *Angles* of one Form and Greatneſs.

Regular Figures are made by Calculating the *Angle* at the *Center*; which is by dividing 360, the number of *Degrees* a *Circle* is always divided into, and in which the *Regular Figure* deſcribed by the number of the Sides of any *Polygone*, or *Regular Figure* the *Fort* is to conſiſt of. The *Quotient* ſhews the *Angle* of the *Center*; as in this Example of a *Pentagone*, or Five-ſided Figure. By the Operation, the *Angle* of the *Center* is found to be 72 *Degrees*, and ſo of any other *Figure*. Then if with a *Protracter*, or a *Line* of *Chords*, you draw a *Circle*, and ſet off the *Angle* at the *Center*, as in the *Example* 72 *Degrees*, it will divide the *Circle* exactly into 5 equal Parts, on which ſtrait *Lines* drawn from one Point to another, gives the Sides of a *Pentagone*.

The *Protracter* is deſcrib'd in the Treatiſe of *Geometry*, viz. *Surveying*, and is nothing elſe but a *Semicirle* made on *Braſs*, or *Horn*, divided into 180 *Degrees*.

The *Line* of *Chords* is the fourth part of a *Circle*, or 90 *Degrees*, projected on a *ſtrait Line*, ſuch as are always upon any plain *Scale*.

The *Radius*, or *Semi-diameter* of a *Circle*, for which this *Line* ſhews the *Degrees*, is always repreſented by the Brazen Point at 60 *Degrees*, on the ſame *Line*, and if your *Compaſſes* you take from the *Line* of *Chords* 60 *Degrees*, and draw a *Circle* 72 *Degrees*, taken from off the ſame *Line*, will go 5 times exactly round the Circle; and ſo of any other *Figure*.

Of the Italian Method, according to P. Sardi.

This Author being Learned, and much Experienced in the Wars in his Time, has wrote much, and to good purpoſe; ſo that I chuſe him as the moſt approved of the *Italian* Authors. He makes the *Interior Polygone* 800 *Venetian* or *Geometrical Feet*, (which makes 921 of the *Engliſh*) the *Demi-Gorges* 150, and the *Flanks* alſo 150; ſo that the *Gorges* and *Flanks* are equal, and in *Engliſh Feet*, make 172 $\frac{1}{2}$ for each, which is betwixt a $\frac{1}{5}$ and $\frac{1}{6}$ part of the *Interior Polygone*: He raiſes the *Flanks Perpendicular* to the *Curtain*; and to ſet off the *Faces* and *Angles* of the *Baſtions* in a Square and *Pentagone*; he makes the *Line* of Defence fall on a $\frac{1}{10}$ of the *Curtain* in the *Hezagone* or $\frac{1}{4}$ Part; in a 7, 8, and 9 ſided *Figure*, on a $\frac{1}{3}$; and in all above on the Half. In this Example of a *Hexagone*, divide the *Curtain* into 4 equal Parts from *N*, which is $\frac{1}{4}$ of it; draw a *Line* by the Top of the *Flank*, until it cut the *Radius* prolong'd in the Point *a*, ſo you have the *Stringent Line* of Defence, the *Face* of the *Baſtion*, and the *Angle* requir'd, and ſo a *Polygone*.

To reduce this Conſtruction to the ſecond *Maxim*, you are to find the particular Meaſures by the Rule of *Proportion*, thus.

If 800 *Venetian Feet* give 150 for the *Gorge*, How much will 921 *Engliſh Feet* give? Anſwer, 172. Then again, If 921 *Engliſh Feet* give 172 for the *Gorge*, How much will 720 give? Anſwer, 134.

After this manner all the reſt of the Parts are found out.

Now to the Conſtruction. Plate 1. Fig. 3.

In the *Hexagone*, drawn as before taught, on the Side mark'd *P. Sardi* divides the ſide *P,P*, into 720 Parts, at 134, or *c, c*, make a Mark for the *Demi-Gorges*, ſet up *Perpendicular* to the *Curtain*; the ſame Meaſure for the *Flanks c, f*, and draw the *Faces* as before. Theſe Parts may be taken off from any *Sector*, or *Joynt Ruler*, or from any *Diagonal Scale* of an *Inch*. or $\frac{1}{2}$ an *Inch* divided into 100 Parts.

In a Book of *Military Architecture*, Entituled *Corona Imperialis*, written by this Author, he ſets *Cazemats* and *Orillons* on the *Flanks*: Of which in their Place.

Of the French Method, as it is by Maneſſon Mallet, *Author of the* Travaux de Mars. Plate 1. Fig. 3.

This Author obſerves the ſame Rules for the Conſtruction of all *Regular Figures*, as are here given in the *Example* of a *Hexagone*.

Having drawn the *Polygone P, P*, extend the *Semi-diameters* by the Extremities of the ſide of the *Polygone* mark'd *M. Mallet*; divide the Side *P,P*, into 3 equal Parts; ſet one of theſe Parts on the extended *Semi-diameter* or *Radius*, from *P*, to *A*, for the *Capitols*; take a fifth part of the *Polygone* for the *Demi-Gorges*, ſet it from *P*, to *C*, to make the *Faces* and *Flanks* draw the *Stringent Line* of Defence, from the *Capitol* to the Extremity of the *Gorge*, and raiſe the *Flanks* at an *Angle* of 98, or 100 *Degrees*, with the *Curtain*; where they cut the *Line* of Defence, determines the length of the *Flanks* and *Faces*, as *c, f*, and *f, A*; with the length of this *Face* you may compleat a *Polygone* all round, by Transferring it to other *Lines* of Defence.

This Author hath no ſecond *Flank*; he makes the *Stringent Line* of Defence, 120 *Toiſes*, or *Fathoms* (allowing 6 Feet to a *Fathom*) which is 720 *Feet*,

See Travaux de Mars *by this Author of* de Ville, *and* Furnier's *Method*. Plate 1. Fig 3.

They Divide the *Interior Polygone* into 6 equal Parts, and take one of them for the *Demi-Gorge* and *Flanks P, c, c, f*, both being equal, and at right *Angles* to the *Curtain*, for drawing the *Faces* of the Square, and *Pentagone*, lay a *Ruler* from the extremity of the *Gorge C*, by the Top of the *Flank f*, until it cut the *Capitol* in *A*; Theſe have no *Flanks*.

For the *Hexagone*, and all *Figures* above it, joyn *f, f*, by a *Line*; the *Capitol* will divide it into two equal Parts at *e*, as a *Center* draw the *Circle f, A, f*, at the Diſtance *a, f*, where it cuts the *Capitol* at *A*, draw *a, f*, for the *Faces*.

Theſe Authors make their *Interior Polygone*, or *Line* of Defence, 150 *Toiſes*, or 960 *Engliſh Feet*.

This Method is to be reduc'd to the ſecond *Maxim* by the former *Rules*.

See *De Ville's Ingenieur Perfait*, and *Furier's Architecture Military*.

Of the Dutch Method, as it is Abridg'd by the Emperor Ferdinand *the Third*; *with an Account of the Conſtruction of Fortifications at the* Grave *in* Holland. Plate 1. Fig. 3.

The *Dutch* have been as Famous for their Experience in *Fortification*, as their *Country* at preſent is for their Fortify'd *Towns*; and by their *Engeniers*, as *Dogen*, *Marolois*, &c. have fill'd the World full of their *Books*, and ways of Fortifying; although they might have ſav'd themſelves the trouble and laborious Pains, in Calculating the *Triangles*, and other *Mathematical Learning*, more for Curioſity than Uſe in this Matter. For which Reaſon, the Emperor

Ferdinand the Third, found out Rules approv'd of, by turning their *Fortifications* out of the way of Calculating *Angles* into *Lines*. He ſets down this univerſal way of drawing the *Lines* of any *Fort*.

'Tis to be taken as a *Rule*, That if the *Interior Polygone* be 66 of any Meaſure, the *Gorge* muſt be 15, the *Flank* 12, and the *Capitol* 24.

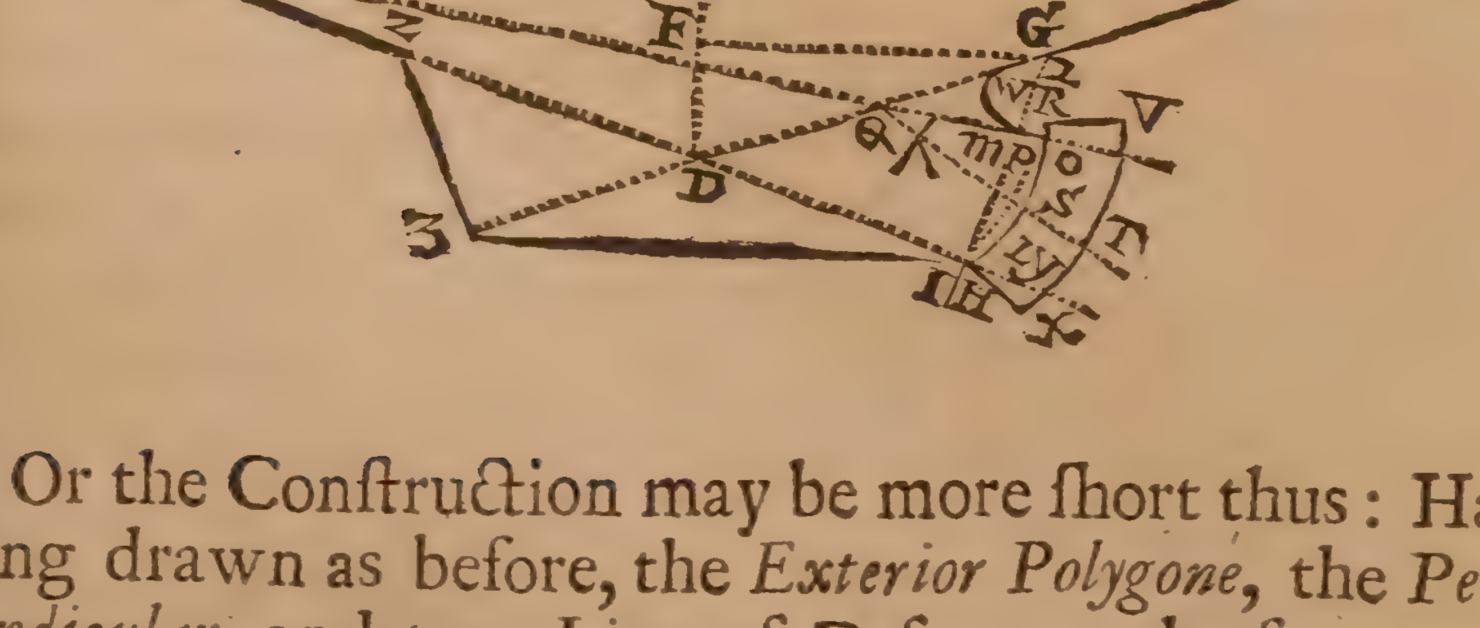
Now, in proportion according to the ſecond *Maxim*, if the *Polygone* be 720 Feet, the *Capitol* will be 261 Feet 9 Inches, the *Gorge* 163 Feet 7 Inches, the *Flank* 130 Feet 10 Inches, which is to be ſet at right *Angles* with the *Curtain*: Thus, by taking of theſe Proportions from the *Sector*, you may Fortify any Figure according to this Method.

This is an Abridgment or Epitomy of all the *Dutch Fortifications*, except the Square, which hath no ſecond *Flank*.

See *Schottus's Edition* of *Amuſſis Ferdinandea.*

The Conſtruction of the Fortification of the Grave, *according to Monſieur* Storf.

Having drawn the *Exterior Polygone A, B*, of 94 Rods, and divided it into two equal Parts in *C*, let fall the *Perpendicular C, D*, of 15 $\frac{2}{7}$ Rods, which is $\frac{1}{6}$ of the Exterior *Polygone*; then from the Points *A, B*, draw the *Lines* of Defence *a, e*, and *B, Y*, thro' *D*, infinitely; divide the *Perpendicular C, D*, into two equal Parts at *F*, by which draw *F, G*, *Parallel* to *A, B*, cutting the *Line* of Defence in the Point *G*, which determins the *Face A, G*. Then for the Point *F*, at the Interval *F, G*, deſcribe the *Arch I, H*, and from the Point *G*, at the diſtance of 15 Rods deſcribe *I L*, cutting the other in the Point *I*, which ſhall be the Extremity of the *Curtain*, and of the *Line* of Defence *B, I*: To trace the Circular *Flanks* and *Orillons*, divide the *Flank G, I*, into 3 equal Parts, one of which is for the *Orillon*, and the other two the length of the lower *Flank*. Let alſo *B, N*, be $\frac{2}{7}$ of the *Face B, Z*, and draw *N, O*, infinitely, by the Points *N*, and *M*, on which take *M, P*, of 2 Rods; then draw *I, P*, with the diſtance *I, P*; From the Points *P* and *I*, deſcribe 2 *Arches* cutting one another in *Q*, which ſhall be the *Center* of the low and high Circular *Flanks*; let the *Interval* of them be a *Rod*; draw *R, V*, *Parallel* to *M, O*, and at the *Interval Q, P*, or *Q, I*, draw the *Arch R, S, I*; and having taken *S, T*, of 5 Rods, draw the *Arch V X*, make *X, Y*, 2 Rods; ſo you have trac'd the two Circular *Flanks*. For the *Orillon* find the *Center W*, which is the half of *G, M*, and deſcribing the *Arch* of a *Circle*, at the diſtance of *W, M*, it comes to touch the *Face* prolong'd in the Point 2.



Or the Conſtruction may be more ſhort thus: Having drawn as before, the *Exterior Polygone*, the *Perpendicular*, and two *Lines* of Defence, take for every one of 69 Rods 3 Feet; take for the *Face* 25 Rods, and having drawn the *Flanks* at the Extremity of the *Lines* of Defence to the Extremity of the *Face*, the reſt you will find as before, or inſenſibly near.

The Method according to Count Pagen. Plate 1. Fig. 3.

This Author in his Retirement, after having been unfortunately ſhot in the Eye at the Siege of *Arras*, wrote a great many good Things on this Subject.

He takes a Method quite contrary to any that wrote before him; he works by the outward, or *Exterior Polygone*, and ſets his *Flanks Perpendicularly* to the *Lines* of Defence; he divides Forts into *Royal, Mean*, and *ſmall Royal*.

Royal, when the *Exterior Polygone* is 200 Fathoms, or 1200 Feet. *Mean*, when the *Exterior Polygone* is 180 Fathoms. And *ſmall Royal*, when the *Exterior Polygone* is 160 Fathoms.

The Example ſhall be for a great Royal. The Conſtruction is as followeth.

Divide the *Exterior Polygone A, A*, into two equal Parts at *M*, each being 600 Feet; on *M*, raiſe a *Perpendicular M, M*; take 180 Feet, or 30 Fathoms, and ſet it on the *Perpendicular* from *M*, to *T*; then draw *A, T, C*, for the *Lines* of Defence, from *A*, ſet at *A, F*, 60 Fathoms, or 360 Feet; from *f*, let fall a *Perpendicular* on the *Line* of Defence at *c*, or from *T*, ſet off 222 Feet, joyn *c, c*, for the *Curtain*; upon the Points *a, a*, ſet at the half of the *Angle* of the *Figure a, o, a*, as in the *Hexagone* 60 Degrees, that will determin the *Centero*; ſet off the *Gorge P, C*, and the *Capitol P, a*, which you may Meaſure on the ſame *Scale* with the reſt, and know the Length of them in Feet.

For the *Mean Royal*, work as before; Take 30 Fathoms, or 180 Feet for *M, F*, the Perpendicular, 55 Fathoms for the *Faces*, 32 Fathoms for *T, c*, or 192 Feet; the *Flanks* will be found to be 24 Fathoms.

For the *ſmall Royal*, take 30 Fathoms, or 180 Feet for the *Perpendicular M, T*, 50 Fathoms, or 300 Feet for the *Faces*, 27 Fathoms, or 162 Feet for *T, c*; the *Flanks* will be found to be 23 Fathoms, or 138 Feet, and are at right *Angles*, or 90 Degrees with the *Line* of Defence.

See Fortification de Pagen, *Printed at* Paris.

The Method of Monſieur * * * Plate 1. Fig. 3.

Having ſhew'd the ſeveral Ways and Rules for laying the fundamental *Ground-Lines*, according to the moſt conſiderable *Engeniers* of this laſt *Age*, I ſhall end this Chapter by giving an Account of the Method uſed by a famous *Engenier* Monſieur * * * in the building of ſeveral *Fortifications* beyond Seas, the which I ſuppoſe from the Advantages that attend it, it will commend itſelf.

You are to take the *Interior Polygone* of 720 Feet, or 60 Rods, (allowing 12 Feet to a Rod) according to the ſecond *Maxim* the Point *Blank* that a *Musket* doth Execution; a fifth Part of this you are to ſet off for the *Demi-Gorges*, which is 12 Rods, or 144 Feet; a ſixth Part to the *Flank, viz.* 10 Rods, or 12 Feet; theſe two together, *viz.* 22 Rods, or 264 Feet for the *Capitol*, there remains 36 Rods, or 432 Feet for the *Curtain*. See the Figure.

The Reaſon why I give a $\frac{1}{5}$ Part of the *Interior Polygone* to the *Demi-Gorge*, is; Firſt, That the *Line* of Defence may never exceed the Port of a Musket, which would happen, if I did but give a $\frac{1}{6}$ Part. Secondly, The *Gorge* being too ſhort, the Point of the *Baſtion* would become too ſharp, or the *Capitol* too ſhort; and by Conſequence the *Baſtion* too little; This Proportion is beſt for the *Pentagone, Hexagone*,

agone, and *Heptagone*, becauſe by theſe Figures we cannot have the *Flanks* greater, or the Defence better. But for the *Octogon*, 9, 10, 11, and 12 ſided Figures, the following Method is much better. There is given to the *Face* 29 Rods; to the *Flanks* 12, and to the *Curtain* 36. The Point of the *Baſtion* is 90 *Degrees*, then the other Parts, *viz.* the *Demi-Gorge*, the *Capitols*, the *Polygone*, *Interior* and *Exterior*, are found by calculating and forming *Triangles*.

This Method for theſe *Figures* is much the better, becauſe the *Flanks* become greater, and the *Angle* of the *Polygone* is greater, the *Gorges* become greater, the Interior *Polygone* longer; and conſequently a great deal of more Ground encloſed, than according to the firſt Method of Fortifying.

The *Flanks* ought to be Perpendicular to the *Curtain*, or very near it, to the end the Enemy may not make *Batteries* afar off, but be oblig'd to make them to ruin the *Flanks* juſt under the *Beſiegers* Fire, which will coſt them much Blood and Pain; and the Reaſon is evident: For in bringing them to fall Perpendicular to the Line of *Defence*, the *Flanks* are too much expos'd to the Enemy, and ſo diſcover'd to the *Campaign*, that the Enemy find all Advantages imaginable to raiſe many Batteries afar off, to batter and ruin the *Flanks* with their *Cannon*, which is an Enemy's chief Deſign in a Siege, that they may the eaſier approach the Town, and paſs the *Ditch*. That the Deſign of the *Flanks* are chiefly to ſcour the *Ditch* and *Counterſcarp*, to hinder the *Enemy* to paſs their *Gallery*, and make a *Lodgment*; the which ſeems very Reaſonable, ſeeing the Guns from the *Faces* of the *Baſtions* and *Curtain*, ſcour the *Campaign* more directly than the Guns from the *Flanks*; and 'tis found by the Account of *Sieges*, that an Enemy advanceth in a little time, very ſecurely in their *Trenches* to the *Counterſcarp*, wherefore, if the Guns be ſtill mounted on the *Flanks*, to diſcover them at their breaking the *Scap*; and that one or two *Batteries* at moſt, can be rais'd to Diſmount them, and that in ſo dangerous a Poſt too, to be under the *Beſiegers* Fire, it is certainly an Advantage not to be found, when the *Flanks* fall Perpendicular on the *Lines* of *Defence*.

CHAP. IV.

Of Out-Works, and their Uſes.

AS it is a great Advantage to a Place to be ſurrounded with a good *Ditch*, and good *Rampart* and *Walls*; ſo likewiſe it is a conſiderable Diſadvantage, when there is found low, or riſing Ground near the *Counterſcarp* of a Town, which may ſerve either for Lodgments to the *Beſiegers*, to facilitate the carrying on the Trenches, or for Advantage-Ground, to raiſe Batteries againſt the Town. For this Reaſon, *Engeniers* have invented divers ſorts of Works for the remedying theſe Faults; as, to take in the diſadvantageous Ground, to Elong the Enemy (and to hinder, by being low) their ſudden Approaches bp raiſing the *Campaign* almoſt with a *Horizontal Shot*, and ſpend their Time before they advance to the main *Works*, and force them to gain theſe *Out-Works* with as great Hazard and Loſs, as if they attempted the Fort itſelf; and after the *Out-Works* are loſt, it may be a new Work to them to approach the Town.

There are ſeveral ſorts of *Out-Works*, ſuch as *Ravelins*, *Half-Moons*, or *Demi-Lines*, *Horn-Works*, *Tenails* and *Crown-Works*; of which in order.

Of the Ravelins.

THere are two ſorts of *Ravelins*; the one with *Flanks*, and the other without.

The *Ravelins* with *Flanks* are ſet before long *Curtains*, when the two *Baſtions* can't Flank one another with Musket-Shot, and the *Curtain* not long enough to build a Plate *Baſtion* on the middle of it. Theſe *Ravelins* ſupply the defect of a *Baſtion*, not only to Cover, but alſo to Defend.

The making of theſe *Ravelins* is thus; Cut the *Ditch* Parallel with the *Curtain*, above which, ſet up a *Capitol* from 18 to 22 Rods; the *Demi-Gorges* from 10 to 12 Rods; the *Flanks* from 8 to 10 Rods; the *Ditch* round them; the Largeneſs of the *Flanks* going Parallel with the Face of the *Ravelin*, till it meet the *Ditch* of the Face of the *Baſtion* of the Place, to the end the two Flanks of the *Ravelin* may ſcour over all the *Ditch* before the Face of the *Baſtion*.

The other ſort of *Ravelins* conſiſt only of a *Capitol* and two *Faces* (as Fig. 4. Plate 1. the *Ravelin* A.) the *Capitol* from 12 to 18 Rods; the *Faces* are drawn towards the Shoulders of the *Baſtions*, that the *Ravelin* may be Commanded within, not only by the *Curtain*, but alſo by the two *Flanks*.

This Work is oft-times by the Soldiers call'd a *Half-Moon*: The chief Uſe of it is to cover the *Curtain*, *Bridge* and *Gate*, and is very often uſed in moſt Works. They ought to be lower than the Works of the Place, that they may be under the Fire of the Beſieged, in caſe the Enemy ſhould endeavour to Lodge themſelves there. Their *Parapets*, as thoſe of all Out-Works, ought to be Cannon-Proof; that is, about 18 Foot thick. Their *Rampart* ought to be half, or a Third of one of the Flanks of the Place, and the Breadth of the Moat half the Breadth of the Moat of the Place.

The ordinary way of making them is thus.

Take with the Compaſſes, the Extention of the *Curtain B, Q*; from the Points *B* and *Q*, make two *Arches* croſſing one another in *D*, the *Line* that paſſes through the middle of the *Curtain*; then from the Point *D*, draw Lines towards *E* and *F*, till they cut the *Counterſcarp* in *G* and *H*, joining *G I*, and *H I*, you have *Faces* and *Demi-Gorges*. The *Ditch* round this Work, as it is in all *Out-works*, is half the Breadth of the Great *Ditch*.

Becauſe theſe *Ravelins* are Weak, they may be made double, one within another, ſeeing the *Ditch* round them is Narrow, and the *Profile* Slight, and therefore ſoon Taken and Mined. The *Interior Ravelin* will ſerve for a good Retrenchment, being four Foot higher than the other: But both are to be Mined, leſt the Enemy find too great Advantage to make Batteries, and fill the *Ditch*.

Of the Demi-Lunes, *or* Half-Moons. Plate 1. Fig. 4.

The *Demi-Lune*, or *Half-Moon*, is a Work raiſed always before the Point of a *Baſtion*, and compos'd of two *Faces*, making a *Saillant Angle*, whoſe *Gorge* is turn'd like a Creſcent, or forming an Arch of a Circle.

The Conſtruction is, by prolonging the two *Faces* of the *Baſtions*: From the Point *O*, at the Diſtance of *O, K*, make the *Arch K, L*, where the *Faces* prolong'd out of the *Counterſcarp*, raiſe the *Capitol M, N*, of $\frac{2}{3}$ of the Face of the *Baſtion*; then drawing the *Faces* to the *Angle* of the *Counterſcarp I*, till it cut the Face of the *Baſtion* prolong'd at *P*, ſo you have the Flanks *K* and *P*, and the Face *N, P*, which are to be ſet off on the other ſide from *N* to *Q*, and from *L* to *Q*; the *Ditch* is to be Parallel to the *Faces* of the ſame Breadth with that of the *Ravelin*.

This *Work* is no more in uſe, ſeeing their *Faces* have but a weak Defence from the *Ravelin*, the *Enemy* may ruin them eaſily, and paſs without any Difficulty their *Ditches*, and ſo make themſelves Maſters thereof; and the *Faces* and *Flanks* of the *Demi-Lunes* will ſerve them for *Batteries* againſt the *Ravelin*, and the *Flanks* of the oppoſite *Baſtions*. And altho' they may be Retrench'd by *Traverſes*, yet the *Enemy* will not fail to Attack the *Face* entirely, or the Place where the laſt *Retrenchment* is. This happens to another Work, call'd a *Counter-Guard*, which being likewiſe out of uſe, I ſhall not deſcribe the *Figure* of them. *Vide* Plate 1. Fig. 4.

Of the Horn-Works. Plate 1. Fig. 9.

Horn-Works are to be ſet before the *Curtains*, in drawing *Lines* from it perpendicularly at the two *Flanks*, towards the *Campaign*, of 60 *Rods*; their *Front* is of 36 *Rods*, equal with the *Curtain*; this is to be divided into three Parts, one for the *Curtain*, the other two for the *Demi-Gorges* of the *Horn-Work*; the *Flanks* of ſix *Rods*, or 72 *Feet* every one.

This *Work* is the Principal of all the *Out-Works*, and it's found by Experience, that an *Enemy* is kept back, and gains as little Ground as poſſible by this *Work*, rather than by any other; they extend themſelves far into the *Campaign*, their *Fronts* defend themſelves, the Interior of them is open to the *Town*, they may be often Retrench'd, and conſequently fatigue and cozen the *Enemy*.

But this *Work* requires many *Men*, the *Flanks* and *Faces* of the *Demi-Baſtions* are too little, and the *Rampart* too thin to plant *Cannon*, and to ſtay on when there is a Breach. Thus an *Enemy* may eaſily Mine the *Defences* on the *Front*, and by Force maſter the *Demi-Baſtions*, and on this Height make *Batteries* to ruin the *Retrenchments*.

For this Cauſe, theſe *Works* are only to be made, when there is a great Neceſſity, and in ſuch Places only, where the *Enemy* is oblig'd to attack the Place.

Coehorn quite rejects this Work, as being ſo great a Circumference, and ſo ſmall a Defence, that 'tis not worth the Maſon-Work with which it is fac'd.

To place *Ravelins* before this *Work*, obſerve only the Method in the firſt *Paragraph*.

Of the Tenails. Plate 1. Fig. 4.

The *Tenails* (if there be not time to make a good *Fortification* for the Defence of the *Bridges* and *Paſſages*) 'tis uſual to raiſe in haſte a *Parapet*, in form of a *Tenail*, as *Fig*. 4. their Sides are no longer than the 50 *Rods*; their Front is of 36 *Rods*, which is to be divided into four Parts; in the Middle we draw a *Perpendicular*, on which is ſet off a $\frac{1}{4}$ part of the *Front*, towards the *Town*, and draw *Lines* from the Sides forming the *Faces*.

This *Work* is very proper for the *Counter Approaches*, when we would ſuccour the Place with *Men*; that which is the true Origen of ſo many *Horn-Works*, as well as *Tenails*, being firſt invented to this end, in the Sieges of *Bomel*, and *Bergen-op-Zoom*.

Having Time, we make the *Tenails* ſtronger, and joyn them to *Horn-Works*, that the *Enemy* may be the better diſcover'd at the *Angle* of the *Counterſcarp*, and the *Work* better defended.

Our Author being not particular enough in his Account of *Tenails*, let us improve it a little out of *Guillet*, and others, and the rather, becauſe of the Defences made by them at the Siege of *Liſle*, they ſay, that a *Tenail* is an *Out-Work* longer than broad, whoſe long Sides are *Parallel*, and it's either ſingle or double; and there are likewiſe *Tenails* in the *Foſs*.

A *Single Tenail* is a Work whoſe Front is advanc'd towards the Country, having two *Faces*, forming a *Re-entring Angle*; it's two long Sides terminate on the *Counterſcarp*, oppoſite to the *Angle* of the *Shoulder*.

A *Double Tenail* is a Work, whoſe Front having four *Faces*, forms two *Re-entring*, and three *Saillant Angles*: It's long Sides are likewiſe *Parallel*, and terminate on the *Counterſcarp*, oppoſite to the *Angle* of the *Shoulder*. Both the *Single* and *Double Tenails* have their Faults, that they are not flank'd or defended at the *Re-entring Angles*, becauſe the Height of the *Parapet* hinders the *Soldiers* from diſcovering before that *Angle*: Therefore *Tenails* are only made, when there is not Time enough to make *Horn-Works*. The *Ramparts*, *Parapets*, *Foſſes*, *Covert-Way* and *Glacis* of *Tenails*, are the ſame with other *Out-Works*.

Tenail in the *Foſs*, is a *Low Work* rais'd before the *Curtain* in the Middle of the *Foſs*, and is of three different ſorts; The firſt compos'd of a *Curtain*, including the *Parapet* and *Talus*, is but five Fathom thick, but the *Rampart* of the *Flanks* and *Faces* is ſeven. The ſecond, which Monſieur *Vaubon* has by Experience found to be of very good Defence, is compos'd only of two *Faces*, made on the *Lines* of *Defence*, whoſe *Rampart* and *Faces* are *Parallel*. The third differs from the laſt, only in having its *Rampart Parallel* to the *Curtain* of the Place. All theſe Sorts are very good Defences for the *Foſs*, and lie ſo low, that they cannot be hurt by the *Beſiegers Cannon*, till it be on the *Cover'd-Way*.

The *Tenail* of a Place, or *Front* of a Place, is what is comprehended between the *Points* of the two Neighbouring *Baſtions*, as the *Faces*, the *Flanks*, and *Curtain*; ſo 'tis ſaid, the *Enemy* attack'd the whole *Tenail* of a Place, when they made two Attacks on the Faces of the two *Baſtions*.

Of the Crown-Works. Plate 1. Fig. 4.

A *Crown-Work* is ordinarily made, when a Height is ſo near a Place, that the *Shot* of a *Musket* reaches it; to this end we extend the Sides of this *Work* (whether the *Crown-Work* be before the *Curtain* or *Baſtion*) 65 *Rods*, the Point of the *Demi-Baſtions* are to be at leaſt 60 *Degrees*. Joyn the Extremities of the Sides; on the Middle raiſe a *Line* Perpendicular, on which ſet 18 *Rods* for the *Capitol*, making an *Angle*, and two *Interior Polygones*, every one of about 50 *Rods*, giving 10 to the *Demi-Gorges*, and 8 to the *Flanks*. We make *Ravelins* to this *Work*, as is taught in the firſt *Paragraph*.

This *Work* may ſerve to adjoyn to *Forts*, that are too little to Lodge a great *Garriſon*, which oftentimes happens when ſmall Places, or *Towns* of no great Conſequence, become great *Frontiers*, when it would coſt too much to enlarge the whole *Fortreſs* round by making of a new *Wall*: And it would not be ſo convenient to throw down the old *Work*, which a ſmall *Garriſon* (if need were) could maintain.

All the *Out-Works* ought to be detach'd from the Place, and environ'd all round with a *Ditch*, having their Communication by *Bridges*; or if the *Foſs*, or *Ditch*, be dry by Land, yet not joyn'd with the *Counterſcarp*, leſt the *Enemy* inveſt them behind.

All theſe *Out-Works* (with many more) are repreſented in the *Figure* on the *ſecond Plate.*

Of Citadels and Caſtles.

Citadels and *Caſtles* are built to Command and Bridle a *Town*, in caſe the *Burghers* ſhould be Rebellious, and to be the laſt Refuge of Retreat. They are commonly of four or five *Baſtions*, and are us'd when a *Town* is ſo great, that the *Garriſon* makes in Number but a $\frac{1}{5}$ or $\frac{1}{6}$ Part of the *Burghers*; altho' ſometimes they are us'd as *Blinds*, built on any Hill, or Riſing-Ground near a *Town*, from hindring an *Enemy* from Shooting into it. They are ſet ſo, that there may be two *Faces*, and a *Curtain* towards the *Town*. The Difference between a *Citadel* and a *Caſtle* is, that the firſt is fortify'd with *Baſtions*, whereas the other hath only round or ſquare *Towers*.

The *Pentagone* is the moſt advantageous *Figure* to make a good *Citadel*, which oppoſes three *Baſtions* to the *Enemy*, and two to the *Town*, Commanding at the ſame time both the *Campaign* and the *Town*.

The *Interior Polygone* of the *Pentagone* may be made of $\frac{1}{4}$ of the adjoyning *Curtain*, or a little more; the two *Ports*, or *Gates* of the *Citadel*, are plac'd, that one may be towards the *Campaign*, the other towards the *Town*, every one cover'd by a *Ravelin*.

If the *Citadel* or *Caſtle* be a ſquare, or 9 ſided *Figure*, then the *Center* of it may be on the Point of the *Interior Polygone* of the Place.

The Center of the *Pentagone*, or 5 ſided *Figure*, may be near on the Point of the *Baſtion* of the *Town*, taken away to make the *Citadel* in, altho' ſome uſe them at a greater Diſtance.

The *Gorges*, *Flanks* and *Capitols* are ſet off in proportion to their *Interior Polygones*; the *Ramparts* are to be as high as thoſe of the *Town*.

For a more particular Deſcription of the *Out-Works*, conſult *Trevaux de Mars.*

CHAP. V.

Of the Ramparts and Parapets; Walls, Cazemats and Orillons; Foſſebray, Ditch or Moat, and Cover'd-Way.

Of the Ramparts *and* Parapets.

THE *Rampart* is a great and thick Maſſy Bank of *Earth*, rais'd round about the *Fort*, encloſing it to reſiſt the *Enemy*'s Great Shot, and to ſave the Buildings of the *Town* from Ruin; and by their Height, the better to annoy the *Enemy* in their Approaches: And therefore ought always to be ſo high, that they may Command with the *Artillery* planted on them, the *Campaign* all round, and that the *Enemy* may not Command them by raiſing the *Batteries* higher.

But to this end, you muſt take notice of the *Meaſure*, and make the *Ramparts* never higher than 20 Feet without the *Parapet*, that it may Command the better the *Cover'd-Way* and *Ditch*, and not by too great Height give opportunity to the *Enemy* to be under *Covert*. And on the contrary, the *Rampart* ought not to be leſs than 12 Feet without the *Parapet*, otherwiſe the *Enemy* will Command it eaſily by their *Batteries*.

The Thickneſs ought to be ſo regulated, that the *Parapets* built on them may be ſtrong enough to reſiſt the Violence of the *Enemy's Cannon*, and that behind them there may be place enough to plant great *Guns*.

But as the *Earth* is not always the ſame, you are to conſider what the Nature of it is. If the *Earth* be Tough and Clayiſh, a *Bullet* of 24 *lib.* will enter no farther than 10 Feet; but if the *Earth* be Light, Looſe or Sandy, than a *Bullet* of the ſame Weight will enter 15 Feet, or more. Therefore the *Parapet* muſt be made from 16 to 24 Feet, chiefly in the *Flanks*, and other Places where there are made *Counter-Batteries*.

The Interior Height of the *Parapet* is 6 Feet, the Exterior 4 Feet; the *Baſe* of the Interior *Talii*, or *Slope*, 7 Feet, the Exterior *Talii* 2 Feet; the *Banquet*, or *Foot-Bank*, 3 Feet broad, and a Foot and an half in Height. The Largeneſs of the *Terraplane* of the *Rampart* is always proportion'd to the Length, and Recoiling of the *Cannon*. Since then, that a *Demi-Cannon*, or a *Culverin*, are about 15 Feet long, and they Recoil about 6, 7, 8, or 9 Feet; and there being place neceſſary to manage them, the *Terraplane* ought to be at leaſt from 32 to 40 or 50 Feet large.

This Largeneſs ought to be ſet all round a Place, and the *Baſtions* ought to be entirely fill'd, if it could conveniently be done; but ſo, that the *Talii*, or *Slope* towards the *Town* may be proper to aſcend with the *Cavalry* (as it is in the *Citadel* of *Antwerp.*) In ſuch *Baſtions* you may more eaſily Rencounter and diſcover the *Enemy's Mines*; and they ought to this end to be Vaulted, either in Building; or if that be neglected, in time of a *Siege*.

The *Interior Talii* of the *Rampart* is equal to the Height of it, that is, a Foot for a Foot; the *Exterior Talii*, or *Slope*, is the half of the Height, if the *Earth* be good, otherwiſe $\frac{2}{3}$. The *Baſe* of the *Rampart* is found by adding to the *Terraplane*, the *Banquet*, *Parapet* and two *Talii*'s

It were very convenient (if there were *Earth* enough) to make the *Ramparts* larger, and Vault'em under with *Entries* towards the *Town*, to be Places of Refuge for the *Citizens*, to be ſafe from the *Enemy's Bombs*, which do great Execution in their *Houſes*. To this end, at the *Grave* in *Holland*, having *Earth* enough, by reaſon of their enlarging the *Fortifications* of the *Town*, they do intend to improve it to this Advantage.

But the Solidity and Dimenſions of the *Rampart*, muſt have their Determinations from the Judgment of the *Ingenier*, according as the Ground may prove, and from the *Purſe* of the *Prince*, according as there is *Money* enough to finiſh withal. Therefore I have given the higheſt Meaſure that is to be us'd in ſome of the *Works*, and the leaſt in others; from which you may proportion any mean Meaſure, according as the *Ground* and *Money* gives leave.

If it were the Cuſtom now to agree with *Ingeniers*, as *Princes* and *States* did not many Years agon, in the Building the *Fortifications* of their *Towns*, to treat with them according to ſuch and ſuch a Deſign, as propos'd to them, to render the *Town* defenſible in a limited Time; and it is to be their Buſineſs to provide *Earth*, *Stone*, *Inſtruments*, and all *Materials* neceſſary to the carrying on and compleating the *Works*; by this means the *Ingenier* was oblig'd to Calculate the Thickneſs and Solidity of the *Ramparts*, to the end he might know exactly how much *Earth*, *Stones*, and other *Materials* he muſt have; and how much he muſt dig and enlarge the *Ditch*; and conſequently be able to tell in what Time, and for how much *Money* he could raiſe and compleat the *Work*. If this were the Cuſtom, it would not be impertinent to ſhew how to build up a *Fort*, and make an Eſtimate of the *Coſts* and *Moneys* requir'd to perform the ſame; altho' it were a very hard Task to perform exactly: For there being ſuch a variety in the Body, or Maſs, whereon the Fort is to be built, as either Brick, or Stone, ſolid ſtrong Earth, or mooriſh, or marſhy Ground, where there will be a prodigious Expence in Pilating the Foundations of the Ramparts, the neglect of which has made very fine and fair Deſigns tumble into the Ditch. Upon this Account Princes take another Method; they have particular *Engeniers* and *Intendants*, of which the one gives the Deſign, and pays the Work-Men, and the other furniſhes the Stones, and other Materials, and to keep the Work-Men at their Work, Overſeeing them.

In a Word, this Buſineſs paſſes through ſo many Hands, that it is difficult to know how much the Work will coſt to raiſe it compleat, unleſs all the Accounts be gather'd into one, which cannot be done till after the Works are finiſh'd.

In *Plate* 1. *Fig*. 5. you have the Dimentions and Meaſures of the *Rampart* and *Parapets*, and is as followeth in the *Profile*, cut at Right *Angle* through the Face of a *Baſtion*.

		Feet.
R, *A*,	The *Baſe* of the *Rampart*, is	80
T, *S*, or *Q*, *O*,	The Height of the *Rampart*, is	20
R, *S*,	The Interior *Talii*, or *Slope*,	20
O, *A*,	The Exterior *Talii*	04 ½
L, *Q*,	The *Baſe* of the *Parapet*	21
Z, *D*,	The Interior Height of the *Parapet*	06
N, *P*,	The Exterior Height	04
N, *Q*,	The Exterior *Talii* of the *Parapet*	02
Q, *D*,	The Interior *Talii*	01 ½
V, *Q*,	The Breadth of the *Banquet*, or *Foot-Bank*	03
V, X,	The Height of the *Foot-Bank*	01 ½
T, *V*,	The Largeneſs of the *Terraplane*	35

The *Profile* of the reſt of the Works will be found in their particular Paragraphs.

To give Rules, to caſt up and find the ſolid Content in Feet and Rods, of the *Rampart* and *Parapet*, were to repeat what I ſuppoſe is handled in the Treatiſe of *Geometry*; and I do not find the great uſe of this Curioſity to be particular in applying the Rules to this purpoſe: For I do think, that if there be not Earth enough had out of the juſt Deepneſs and Wideneſs of the Ditch, it will do no great hurt, to make either the Ditch deeper, or Wider; and if there cannot be had enough, but by altering too much the Proportion, or the Ground not giving leave, it may be had ſomewhere elſe near the Town; and ſeeing Work-men are to be paid by Day-Wages, if the Overſeers do their Duty right, the Prince is not at all Cheated, although he knows not how many Baskets full of Earth the Works contain, yet not to let this altogether paſs.

Note, That the Earth, or Solidity that lies between *T*, *Q*, and *S*, *O*, is a *Parallelipipedon*, all of one Height and Thickneſs, and the Content of it is found by multiplying the Superfices at the Bottom, by the height of the Rampart. The *Earth* that lies on either ſide of this Body, and has each *Talum* for its Baſe, and ends the top of the Rampart in a Line, are *Priſmes*, or half of *Parallelipipedons*, as *o*, *a*, *c*, and *S*, *R*, *T*; and their Solid Content is found by multiplying the Superficies at the Bottom, by half the Height.

There is found in caſting up the Solidity of the Ramparts, two ſorts of *Pyramids*, *viz*. Erect Pyramids, and their Solidity is had by multiplying the Baſe into $\frac{1}{3}$ of the Height, thoſe lie to the outſide of the Rampart, and have one or two Sides to be ſeen.

The ſecond ſorts are *Pyramids jacent*, and their Solidity is found by multiplying the Superficial Content of the *Baſe*, by $\frac{2}{3}$ of the Height; theſe lie with all their Sides hidden in their Rampart; all the Sums added together, give the ſolid Content of the Rampart. For the Parapet and Banquet, you are to follow the ſame Rules.

Of the WALLS.

The Ramparts that are Revetued; or Faces with Stone or Brick, are the beſt both againſt Scaling and Mining, and are very uſeful to ſuſtain the Ramparts from tumbling into the Ditch, by the badneſs of the Weather.

Engeniers have made a conſiderable Improvement in the form of erecting the Walls, which certainly muſt turn to a conſiderable Account. Inſtead of building the Walls, as before Perpendicular towards the Town, now they bring them up with ſuch a Slope as they give to the Walls without, which both ſaves about a $\frac{1}{5}$ or $\frac{1}{6}$ part of Stone or Brick, that muſt be uſed; and the Earth of the Ramparts behind them lying almoſt in its natural Poſition, doth not preſs the Wall ſo much forward into the Ditch, as when the Walls are brought up Perpendicular; as is clear in *Fig*. 6. *Plate* 1.

This they put in uſe at the *Grave*, where they find it turns to good Account: And I am ſure, that if what was before built of the Town had been after this Method, the State had not been put to double Expenſes.

The Walls of the Baſtions are to be built higher than the Walls of the Curtain, which may be only about 12 Feet in Perpendicular height, and 3 Feet for the Slope, their *Center-forts* may be about 14 or 15 Feet in Length, three Feet in Thickneſs and 12 Feet diſtant one from the other. But the Walls of the Baſtions, may be erected ſo high as in the *Figure*, 22 Feet in Perpendicular height, $4\frac{1}{2}$ for the Slope, 6 Feet thick at Top and Bottom; the *Counter-forts* 16 Feet long, thick at the Wall 5 or 6 Feet, 12 Feet in Diſtance, or leſs, according as the Ground or Foundation proves.

If the Ground be Mooriſh or Marſhy, then the Foundation of the Walls muſt be Piloted, and the Piles drove ſo deep, that a 16 or 20 Hand Bill-bettle will not drive at laſt above a quarrer of an Inch, when then the Piles will touch the firm Ground. The Piles are to be ſet at greater or leſſer diſtance, according as the Foundation is, and are ordinarily of about 10 Inches Square. Over theſe Piles there muſt be ſtrong Timbers lay'd; and croſs theſe, there muſt be others of the ſame thickneſs, notched into one another ſo thick as the ſeat of the Wall is; at the inſide thereof, is lay'd a Timber of 6 Inches Square, or thereabouts; and at the fore-part of the Wall, there is another of a Foot Square laid over the Croſs-Timbers, and Notches into them to Prop the Foot of the Wall: Betwixt this Timber and the Wall, there are Planks 4 Inches thick joyn'd together and driven into the Ground juſt with the Slope of the Wall, to hinder the Water of the Ditch from waſhing out the Lime from the Walls, or the Earth under the Timbers, betwixt the two Square Timbers above the croſs ones; there are to be Planks laid of 3 Inches thick, on which the Wall is to be erected. The Earth betwixt the *Counter-forts* is to be well ramm'd and beaten.

If there be no Fauſſey-bray before the Faces of the Baſtions, there ought to be made a Vault or Alley of 3 Foot Large, 6 Foot High, with ſmall Windows to ſhoot into the Galleries.

A, (in *Fig*, 7. *Plate* 1) is the Figure of the Inſtrument the Work-men apply to the Walls, to bring up the Slope true, by the Plumet's playing down exactly upon the Line.

Of Caſemats and Orillons.

Caſemats are ſeveral Platforms for Guns to be made in the Corners of the Flanks, to be hid conveniently from the Enemy's Batteries, and to be preſerved, if poſſible, againſt the Enemy ſhall begin to lay their Gallery, and paſs over the Ditch, or to plant their Guns and raiſe Batteries on the Counterſcarp. There are ſometimes three ſuch Platforms one behind another, the uppermoſt of which, is on the Terra-Plain of the Baſtion, which makes the other two to be call'd Places Baſſee, or Low Places; they are cover'd from the Enemy's Batteries by a Work of Earth added to the Angle of the Shoulder; and are call'd *Orillons*.

Theſe are *Orillons* ſet on the Flanks, of ½ or ⅓ of the Flank, to keep at leaſt two Cannon under Covert, and are made either of a round Figure or Square; *as are to be ſeen on the* Flanks *of ſeveral of the* Baſtions *of the* Figure *on the ſecond Plate.* For the Conſtruction of theſe Figures, conſult *Travaux de Mars*.

Engeniers of late do find fault with theſe *Orillons*, ſince they ought neceſſarily to be revetued with a Wall. If the Enemy do play with their Cannon, no body will be able to ſtand in the *Caſemats*, by reaſon of the broken Wall flying, and they find that the *Orillons* do hinder from defending from within the *Ravelins*; and for theſe Reaſons they do not commend the uſe of them.

In Flanks that are not Perpendicular to the Curtain, and conſequently too open to the Beſiegers Batteries: Theſe *Orillons* ſupply the fault of their being too open; which has been the Reaſon why ſome Authors ſeem ſo poſitive for them; but where the conſtruction of the Flanks is perpendicular to the Curtain, they do not appear to be needful, ſeeing the Embraſures of the Parapets cover enough.

But notwithſtanding theſe oppoſite Opinions, 'tis certain, that at the famous Siege of *Candia*, the *Turks* having Attack'd it regularly on the Baſtions *Bethleem* and *Panigra*, for ſixteen Years after they were Maſters of all the Out-works about the Town, and that thoſe two Baſtions had ſuffer'd the Effect of many Mines, the Beſiegers had made terrible Breaches in both the Faces, but never could Lodge themſelves, for the Artillery of the Caſemats ſtill ruin'd their Lodgments, and forc'd them to quit that Attack.

Of the Fauſſebray.

At the foot of the Rampart Engeniers make a *Fauſſebray* all round a Place, but eſpecially before the Faces of the Baſtions; they are Large, from 18 to 24 Feet of a *Terraplane*, with a Parapet, as that of the Rampart: Of late they have neglected to make *Fauſſebrays*, alledging for Reaſons,

1. Since the *Fauſſebray* is but a Parapet raiſed above the Level of the Campaign, the Enemy being advanced to, and poſſeſſed of the Counterſcarp, which is ordinarily of the ſame Height, it may enfile it with their Batteries ſo eaſily, that it were impoſſible for the Beſieged to ſtay thereon, and hinder that the Enemy might not paſs the Ditch.

1. That the Ditch being paſſed, the Miners find place to Mine the Faces of the Baſtions where they will, and in many Places at a time, and the *Mine* being made, the Beſiegers may not only make the Aſſault at the Breach, but alſo on the Right and Left, in the *Fauſſebray*, and Attack over all.

3. And that which is the greateſt Reaſon, that the quantity of of Bombs, which are at preſent ſhot, the *Fauſſebray* will in few Hours be totally Ruin'd.

But in conſidering the great Advantages the *Fauſſebray* gives to a Place, ſince from them the eſcape which the Enemy is oblig'd to make through the Cover'd-Way, is eaſily diſcover'd, and the Enemy not only annoy'd on the Side, but likewiſe on the Front, and ſo hinder'd by Musket-Shot, Granadoes, and Artificial Fire, to fill the Ditch, and make a Gallery: And ſeeing alſo they defend the Ravelins and Cover'd-Way, much better than an high Rampart, it is more reaſonable to remedy the Faults, than to reject the uſe of the *Fauſſebray* before the Faces of the Baſtions.

As to the firſt Reaſon, *viz.* The *Enfilement* that the Enemy may make, the *Fauſſebray* may be made 9 Feet higher than the Parapet of the Cover'd-Way.

The ſecond and third Faults may be remedy'd by Traverſes, Caponiers, with little Paliſadoes and Countermines; the reſt of the Faults are remedied by making a ſmall Ditch of 20 Feet between the Rampart of the Town and the *Fauſſebray*.

When the Ditch, or Moat is dry, Then the *Fauſſebray* is not found ſo convenient, as when it is full of Water.

But in Places ſurrounded with a wet Ditch, the *Fauſſebray*, which is border'd with a Parapet and a Banquet for the Defence of the Foſs, may be more uſeful, provided it may be made only before the Curtain and Flanks; for lying Low, it cannot be eaſily hurt by the Enemy's Cannon, and defends the Foſs better, becauſe of its low Scituation, than the Ramparts, which becauſe of its Height, cannot ſo well diſcover the Foſs.

Fauſſebrays ought never to be made before the Faces, eſpecially in Places fac'd with Brick or Stone, becauſe the Breach being generally made in the Face, the Ruins and Rubbiſh of the Rampart are ſtopp'd in the *Fauſſebray*, which facilitates the Aſcent of the Breach; and in Places lin'd with Brick or Stone, the pieces of Stone or Brick fly among the Soldiers that are in the *Fauſſebray*.

See (concerning the Advantage of the *Fauſſebray*) *Chap*. 2. *Lib*. 1. *Dogon*, and *Chap*. 28. *Lib*. 1. *de Ville*.

Of the Ditch or Moat.

The *Ditch* or *Moat* is to be made ſo that the Flanks may command and ſcour it before the Faces of the Baſtions; to this End, the *Ditch* before the Faces is ſo broad as the Flanks are long, by drawing it towards the Shoulders of the oppoſite Baſtions.

A wet *Ditch* ought to be ſo deep, that in the Summer there be no leſs than 6 Foot of Water in it.

The dry *Moats* may be deep from 20 to 30 Feet; and *Moats* that are deep, and tolerable large, are eſteem'd better than ſuch as are leſs deep and larger, to render the getting up the more difficult to the Enemy; although the *Moat* ſhould never be leſs than 6 Rods, or 72 Feet, otherwiſe there cannot be made Retrenchments, and other Works in it; and the Enemy by firing a Mine at the Counterſcarp, may cover and render all unprofitable. In the middle of the *Ditch*, there is a *Cunet* or *Canal* made, of 20 or 24 Feet Broad, which ſerves in dry *Moats* to Counter-mine, and cauſe greater Pains to the Enemy to fill it.

The Ditches full of Water are much better than the dry ones; becauſe theſe require too great a Gariſon to defend them. For, when the Enemy is once Maſter of the Counterſcarp, he may render himſelf Maſter of the whole *Ditch*, and Attack in different Places, in ſuch a manner, that the Beſieg'd will be oblig'd to furniſh all their Poſts, and to have them ready over all. The dry *Ditches* are likewiſe too much expos'd to Surprize and *Scaling*; when (on the other Hand) the wet *Ditch* coſts the Enemy much Pains and Time before they can fill it, and the Beſieged ſee where they are to Paſs and Mine; and therefore has need only to take notice of that Poſt, and at the reſt to keep little *Corps des Guards* and Centinels.

Se *De Ville*'s *Ingenieur Perfaite* on this Subject.

Of the Cover'd-Way and Counterſcarp.

Beyond the Ditch, towards the Campaign, there is a large Place of 20 or 30 Feet, cover'd with a Parapet parallel with the Ditch, and ſometimes made with Salient Angles in form of Ravelins; and if there be a Ravelin, then they are made on both ſides thereof.

The *Cover'd-Way* is to Flank and defend the Campaign Horizontally, to hinder the Enemy's Approach, that it may coſt them ſome Pains and Time before they become Maſters of the *Counterſcarp* and Ditch: The Beſieged have their Place of Arms to make Aſſaults, and their Retreats, in caſe they be beat back. The Interior Height of this Parapet is 6 Feet, and it falls ſloping 50 Feet, or thereabouts, till it loſe itſelf in the Campaign. This ſloping is call'd *Glacis* or *Eſplanade*.

This Parapet is ordinarily ſet on the Level of the Campaign; but ſeeing this Height gives too great an Advantage to the Enemy, when he once becomes Maſter of it, therefore it's better to take away 3 Feet from the Height of the *Cover'd-Way*, and ſet the Parapet ſo that it may be elevated no more than 3 Feet above the Level of the Campaign.

This is that Part of the Fortification of a Town that the Soldiers do commonly call the *Counterſcarp*; although properly the *Counterſcarp* is the *Talii*, or Slope of the *Cover'd-Way* next the Ditch, whoſe *Baſe* is equal to the depth of the Ditch, if it be not revetued or lin'd with Stone or Brick.

CHAP. VI.

Of the Repreſentation of Figures, *and the Plat of any Fortify'd Town upon Paper, by way of Perſpective.*

FOR deſcribing of Forts and Towns, there is a kind of Perſpective, call'd by Engeniers, *Perſpective Cavalier*, that imagines the Eye at an infinite Diſtance, that is, at ſuch a Diſtance, that all equal Heights in the Fort are ſeen under one Angle, whether further or nearer, and all other Heights proportionable, and all Lines which would meet at the Eye are Parallel, becauſe of the Diſtance; as we ſay, the Rays of the Sun falling upon a Burning-Glaſs are Parallel.

The other kind of *Perſpective*, that Deſigns by a Principal Point, from whence all Parallels to that Principal do meet in that Point, being a very troubleſome way, and does ſo confuſe the Body of the Work, that unleſs one be very expert that way, he is not able to know what it means; although the Compleat *Engenier* ought to be Skill'd therein, as to repreſent a Body near at Hand, or ſome Engine.

Draw the Lines of your Fort with White-Lines, or with any thing that will rub out, with all the Parapets, Ramparts, and Out-Works; then conſidering what Side you deſign towards you, whether the *Curtain* or point of the *Baſtion*, or what other Point, draw a long Horizontal Line *A*, *B*, (*Fig.* 8. *Plate* 1.) having a Square of Braſs or Wood, run one ſide of it along the Line *A*, *B*, and at the extream Points of the *Baſtions*, *Flanks*, and *Shoulders*, draw Perpendiculars towards the Line *A*, *B*, over all, omitting thoſe that will cut the *Rampart*, or *Parapet*, becauſe we cannot repreſent the Interior Height of the Rampart *O*, which is hid by the Exterior Height *P*; the Interior Heights *C*, *F*, *D*, *G*, and *E*, *H*, of the Rampart, are repreſented by ſetting on the Perpendiculars, $\frac{2}{3}$ of the Flanks of the Fort, and joyning the Lines *F*, *G*, *H*, parallel to *C*, *D*, and *E*. For the height of the Walls, take what Height you pleaſe; as ſuppoſe the $\frac{1}{2}$ of the Flank, and ſet it on all the Perpendiculars, from all the *Faces*, *Flanks* and *Angles*, and join them with Parallels to the *Faces*, *Flanks*, and *Curtains*, and finiſh all as you ſee in the Figure of a *Nonagone* compleated.

The *Angles* that fall within the Body of a Place, cannot ſerve to repreſent the Exterior Elevation of the *Baſtions*, becauſe the Exterior is hid by the Interior Height of the *Rampart* and *Parapet*, as the Height, *Z*, *Y*, *X*, *V*, *T*, *R*, *Q*, *P*, on the Perpendiculars that fall from the Angles of the Counterſcarp in the Ditch; ſet off $\frac{1}{3}$ of the Flank, to repreſent the depth of the Ditch. And Note, That Lines drawn from the Angles of the Counterſcarp that do not fall into the Ditch, cannot repreſent the deepneſs of it.

The *Out-Works* are repreſented after the ſame manner; only obſerve, that the Works next to the Town ought to be repreſented higher.

The *Talli*, or Slope of the Walls, may be ſet off from the Perpendiculars, that the Fort may be the more naturally repreſented.

Note, That in giving the Shadows to a Work, all Opaque, and Bodies not tranſparent, caſt their Shadows always oppoſite to the ſide from whence the Day, or Light comes; or towards the Right-hand generally, when we Deſign any thing on Paper.

CHAP. VII.

Of Irregular Fortification.

FRom Regular proceeds Irregular Fortification, or the fortifying ſuch Figures as have not their Sides and Angles equal one to another, as the forms of Towns to be fortify'd commonly are, by reaſon of the Irregularity of their Form, and Situations; and therefore are the harder to be fortify'd the more they differ from Regular, which is the perfecteſt. And becauſe it hapneth but ſeldom that a Regular Fortification is newly rais'd, unleſs it be ſome ſmall *Field-Forts*, or *Citadels*, by reaſon that every one is enclinable to preſerve his own; therefore *Irregular Fortification* is more in uſe, and conſequently neceſſary to be exactly ſtudied and known.

The ſame Laws and Maxims for regular Fortification ſtand, and are in force in the Irregular, and ſerve for general Inſtructions, as occaſion requires, to fortify any Place; and although they are not always to be preciſely follow'd (for Time, Place and Charge, may hinder) they ought to be obſerv'd as near as poſſible.

The greateſt Art that is in *Irregular Fortification*, conſiſts chiefly in rectifying the Sides of any *Polygone* that are too ſhort, or too long; and in altering the Angles that are too little, or too great, by either going inward or outward of the Place, to augment or leſſen the Lines to ſuch a Proportion, as that they may be capable to receive a ſtrong defencible *Baſtion*, (that is, a Baſtion according to the Maxims.) The Angle of the *Polygone* leſs than 90 Degrees, is not fit to ſet a *Baſtion* on, becauſe then the Point of the *Baſtion* will become too ſharp, the *Flanks* too ſhort, and the *Faces* too long.

But before any Judgment can be made, it is requiſite that there be made a *Map* or *Plat* of the whole, with all the Ways Paſſages, old Walls (if there be any Rivers, Pools, Encloſures) and all other Things fit to be known in the Draught; and then there is to be deſign'd what Works ſhall be thought moſt agreeing to the Place to be fortified; and according to the proportion of the Draught on Paper, the ſame is to be ſet and rais'd on the Ground round the Town.

A *Polygone* leſs than 45 Rods, is incapable to place a *Royal Baſtion* on. And a *Polygone* longer than 65 Rods, is alſo too long; in ſuch Caſes, the Angle is either to be made greater, the ſhort Lines longer, or the long Lines ſhorter, to the juſt proportion.

If therefore there be a *Polygone* of 50 Rods, and another of 60 Rods, then according to the fifth Paragraph of the third Chapter, take $\frac{1}{5}$ of the Interior *Polygone* for the *Gorge*, $\frac{1}{6}$ for the *Flanks*, and both theſe together for the *Capitol*. Thus for a *Polygone* of 50 Rods, there is 10 Rods for the *Gorge*, 8 Rods 3 Feet for the *Flanks*, and 18 Rods 3 Feet for the *Capitol*. For a *Polygone* of 60 Rods; there is by the ſame Rule 12 Rods for the *Gorge*, 10 for the *Flanks*, and 22 Rods for the *Capitols*.

Therefore divide the Angle of the *Polygone* into two equal Parts, through the middle draw a Line, on which ſet the *Capitols*, the one of 18 Rods 3 Feet, the other of 22 Rods; then draw from the *Flanks* of 10 Rods towards the *Capitol* of 22 Rods, and ſo from the other *Flank* by his *Capitol*, till you meet the *Face* of the other, and ſo you have an *Irregular Baſtion*.

Thus by conſidering the Overture or opening of the Angles, and the length of the Sides, you may fortify any Figure in Proportion, obſerving always the *Rules* and *Maxims*. As,

Suppoſe you find the Angle of a *Polygone* of 120 Degrees, conſider to which in Regular *Fortification*, it comes neareſt; as in this Example, To a 12 ſided Figure, or *Dodecagone*; then according to the Rule of *Proportion*, If the *Polygone* of the 12 ſided Figure of 64 Rods, give the *Demi-Gorge* of 14 Rods, the *Flanks* 12 Rods, and the *Capitol* 24 Rods 6 Feet, or $\frac{1}{2}$ a Rod; how much will a *Polygone* of 50 Rods, and how much will a *Polygone* of 60 Rods give?

If a *Line* be very long, then it is to be fortified with a *Plat Baſtion* in the middle of it, the proportion is a great *Royal*.

A *Polygone* of 133 Rods, may be fortified after this manner.

If it be leſs, *viz.* from 90 Rods to 130, then it is to be fortified according to the Rule of *Proportion*. If it be ſhorter than 90 Rods, the *Plat Baſtion* will be too little; and therefore it is better to ſet on the two Angles of the *Polygone*, two great *Royal Baſtions*, and in the middle a *Ravelin* with *Flanks*.

The *Angle* of a *Baſtion* leſs than 90 Degrees, is not well fortified with *Demi-Baſtions*, ſeeing the *Face* is much expos'd to the Fire of the Beſiegers *Batteries*, and the Point too ſharp; therefore the *Angle* is to be made greater; or, if the Place will permit, to Retrench it in form of an *Horn-Work*.

Seeing there is ſo much Variety in *Irregular Fortification*, the Young *Engenier* muſt Practice by himſelf, by drawing ſeveral *Plats* of Irregular Places, and fortifying them. And becauſe Examples in this Matter, (as in other Things) exceeds all Precepts, he may peruſe the beſt Books he can find on this Subject; as *Maralois*, *Dogen*, and ſeveral others, where he will find infinite Caſes and Examples, that will help him and inform his Judgment for effecting his Deſire.

The raiſing the *Ramparts* and *Parapets*, are the ſame as in *Regular Fortification*; and all, or any of the before-mention'd *Out-Works* may be plac'd before the *Curtains*, and made in proportion to them as Occaſion requires.

CHA. VIII.

The Explication of the Second Plate.

A, Is a Town environ'd with a Wall and Moat, which ſerves to cover and defend the Houſes from the Violence of the Enemy.

B, is the Place of Arms where the main Guard is kept; or the Place where the Soldiers of the Gariſon aſſemble at the time of Mounting the Guard, to know their Poſts.

C, are the Market-Places.

D and *E*, are the Houſes, by which is meant, not only private, but publick Houſes, as *Halls*, *Priſons*, *Churches*, &c.

I, is a *Baſtion* or *Bulwark*.

L, are the *Caſemats*.

6, is an *Orillon*.

P, is a *Retrenchment*, or a Work the Beſieged make behind the Place Attack'd, to keep the Enemy the longer off from being Maſters of the Town.

7, are *Fraiſes*, or ſeveral pieces of Wood fixed in the Wall under the *Cordon*, or upper Row of Stone or Brick in a Wall. In Places that the *Ramparts* are not riveted or lin'd with Stone, they are plac'd always at the Foot of the *Parapet*; their uſe is, to hinder Deſertion and Surprizes by Scaling.

M, is a *Platform* or *Earth* thrown up along the *Curtain*, which ſerves to plant great Guns on.

N, is a *Cavaleer*, or a Height ſometimes of Earth, Stone, or Brick, raiſed in the middle of a *Baſtion*, to plant ſome Pieces of Cannon on, to ſcour the *Campaign*, to oblige the Enemy to begin their Trenches at a great diſtance from the Fort, and to make them the deeper.

O, is a *Counter-mine*, or ſort of a Well the Beſieged dig or make in their *Ramparts*: Towards the Bottom of them they make ſeveral little Alleys branching under Ground, to diſcover the Enemy's Mines, and to give Vent to them when made and ſprung.

S, is a *Gwerit*, which covers the Centinel from the Weather.

V,

V, is a Port with a *Stone-Bridge.* The Wooden Bridges are eſteem'd the beſt; becauſe as occaſion requires, they may be burnt down eaſily.

R, is a *Draw-Bridge.*

F, is a *Citadel.*

G, is the *Caſtle*, or *Governor*'s Lodging, environ'd with a *Moat*; there is ordinarily on the top of it a Tower, which diſcovers a great way into the *Campaign*, on which there is a Bell to ſound Allarum or Retreat, as there is occaſion.

Z, is the *Cover'd-Way*, or that which the Soldiers ordinarily call the *Counterſcarp.*

X, is the *Glacis*, or *Eſplanade.*

Y, are the *Trenches*, in which the Enemy, under Covert, approach the *Fort.*

H, are *Batteries* rais'd at every turning of the Trenches, to diſmount the Beſiegers Cannon, and ruin their Walls.

1, is the *Line* of *Contravalation*, to ſecure the *Camp* from Surprizes from the Town, by frequent Sallies that the Beſieged might make.

2, is the *Line* of *Circumvallation*, which is to hinder any Succour or Aſſiſtance to get into the Town, and to hinder the Soldiers Deſertion.

*, are *Redoubts*, *Triangles*, *Squares*, and other *Field-Works* upon the *Line*, to *Flank* and Defend it.

3, is the *Ground* and *Tents* of the *Infantry.*

4, are the *Cavalries*, *Huts* and *Tents.*

5, is the *Artillery* part, where the Cannon, and all Tools (and Things neceſſary for Service) are kept.

7, are *Bruſhes* and *Faggots* or *Facines*, which ſerve both to make *Parapets* of, and to fill the *Ditch.*

8, are *Baskets* full of *Earth*, which ſerve for *Parapets*, through which the Musketiers ſhoot.

9, is a *Gallery*, or a Frame of *Wood*, which ſerves to cover the Miners in paſſing the *Ditch*, or *Moat.*

10, is the Quarters for the *Victuals.*

11, are big Pieces of *Wood* to mend the Ways, to facilitate the Paſſage of the *Artillery.*

12, are *Crow-foots*, *Calthrops*, or Four-pointed *Irons*, one Point being always uppermoſt, to ſtrow on the Ground, to hinder the *Cavalry* to paſs, gauling, or pricking their Feet.

13, *Horſe de Freeze*, is uſed inſtead of a *Gate*; it is ſometimes called a *Turn-Pike.*

14, are *Piles*, or *Palliſadoes* made of *Spars*, plated or ſhod with *Iron* at the Points, having two or three Nails drove through them: They are ſet in two or three Rows, the loweſt Breaſt-high, and every Row higher; ſo deep, as they may not be pull'd up. They are planted on the top of a *Breach*, or on ſome *Paſs*, on a ſudden.

15, is a *Barricade*, to plant on a *Paſs*, or on the top of a *Breach.*

CHAP. IX.

Of Beſieging Towns.

WHen a *General* does intend to Beſiege a *Town* or *Fort*, he firſt ſends to Inveſt it with a Body of Horſe, Commanded by a *Lieutenant-General* and a *Camp-Marſhal*, that no Succour may go in, while he marches with the reſt of his Army to it; and to that end, they take care to ſtop all the *Ways*, *Paſſage*, and *Intelligence*, that may be ſent either in or out of the Town; This is called the Blocking up the Town.

When the Army is come before the Town, if it is ſituated on a *River*, there muſt be made a Detachment of ſome part of the Army, and ſend them of the other ſide of the River, to take up their Quarters, having *Bridges* of *Communication* laid over, and *Redoubts* made to defend them, in which there muſt be put a ſtrong Guard of Foot.

If the Place be ſurrounded with Hills, then the General poſſeſſes himſelf of the Heights of them.

As ſoon as the Place is Block'd up, and conſequently the reſt of the *Army*, *Baggage*, *Proviſions*, *Amunition* of *War*, and the *Artillery* are arriv'd, and the General hath form'd out his *Camp*, for the *Army*, which in a Siege always Encamps with their Backs to the Town, having *Squadrons* of *Horſe* betwixt each *Battalion*; then the *Engeniers* mark out the *Line* of *Contravallation*, call'd breaking of Ground, which is to be choſen beyond *Musket-Shot*, or *Falcon*, from the Town, under which the Cavalry may ſecurely Lodge.

This *Line* is carry'd round about the Town, if the Garriſon be very ſtrong and full of Men; elſe on one Part.

If the Enemy have Armies near, and that it's thought they will endeavour to raiſe the Siege, before the Town can be taken, then the *Engeniers* mark out another *Line* further into the *Campaign*; this is call'd the *Line* of *Circumvallation.* This *Line* is carry'd round about, incloſing Ground enough for all the Army to Lodge in. The Quarters of the General and other Chief Commanders, are to be plac'd round about, ſo as one may Relieve another conveniently.

Upon this *Line*, within Musket-Shot one from another, are to be plac'd *Redoubts*, *Triangles*, *Long Squares*, and other *Field-Works*; each *Regiment* is to Work at them before their own Camp. Their *Ramparts* are generally ſome 8 or 10 Foot thick, 6 Foot high, with a *Foot-bank* to mount upon the *Parapets.* The outward Height 5 Foot, the *Ditch* caſt about them 10 or 12 Foot broad, and 4, 5, or 6 Foot deep, altho' the Proportions are to be made always according to the Danger the Enemy may put the Army unto.

The next thing to do, is opening of the Trenches, that is, beginning the *Lines* of *Approaches* towards the Town, at about 1200 Foot from it. To this end, the Colonel, or Commander of the *Infantry*, (whoſe Buſineſs is to open them) ought early in the Morning to viſit the General, or more particularly the Lieutenant-General, if he be appointed for this Action; and it were neceſſary he had well review'd the Place himſelf, before he comes to Diſcourſe thoſe that know it. Then the Regiments make their Detachments, and are to furniſh ſuch number of Work-men that the *Engenier* requireth; and beſides their ordinary Arms, they take along with them *Spades*, *Shovels*, *Pick-axes*, and other Materials neceſſary for the Work. The *Engenier* is to ſhew and inform them well how they are to run their *Line*, which he draws out to them as neceſſity requires, being of divers Lengths, but moſt commonly ſome 20 or 40 Rods long, or ſometimes ſhorter or longer, and broken and turned as often as is neceſſary.

That the Work-men may begin with the more ſafety where the *Line* begins (which is with a great place of Arms) there is to be built a *Redoubt* or *Battery* with Guns, and there are cover'd from the Enemy's Cannon, by two great *Eſpaulments* well *Flank'd*, ſeveral Guards of *Foot* and *Horſe* ſtanding near to defend them, if the Beſieged ſhould Sally out. The *Line* being laid out and mark'd, which is to be cary'd out Obliquely, ſo that no Shot can be made out of any Work of the Town, that may ſcour that *Line*; the *Engeniers* are to divide and place the Work-men, in order that one may not hinder another.

Now they give to every Man the length of 4 or 5 Foot, and every one maketh as much haſte as poſſible to get into the Ground, for the avoiding of the Danger whereunto he is expos'd while he ſtands upon the open Field. To this end, the *Earth* which he diggeth, he caſteth up before him; and he is to dig the Hole ſo deep, that with the *Earth* thrown up, he may be under Covert, which will be when he digs three *Feet* into the Ground, the *Earth* thrown up making other three above the Ground, or 6 *Foot* in all.

The Workmen being thus got into the Ground, they enlarge and deepen the *Trenches* as neceſſity requires; as when they come nearer to a *Fortreſs*, they are to be made deeper: The breadth or width of them may be 12 or 14 *Foot* at the Top, and 6, 8, or 10, at the Bottom, with *Foot-banks* for the conveniency of Musketiers: Sometimes one is conſtrain'd to to make 'em larger, in regard Waggons may be driven through them, with Materials neceſſary for the Gallery; and alſo Cannon muſt be drawn down and mounted on the *Batteries*. But it is always to be obſerv'd, by how much larger the Approaches are made, by ſo much ought the *Parapet* of the Trench to be heighten'd, that the Enemy may not diſcover the Soldiers that are in them; eſpecially one ought to heighten thoſe Points and Windings where the *Line* turns; and when it cannot be conveniently done, the Soldiers are to take great *Facines* and cover the Place that is ſeen with them.

The Trenches are to be reliev'd every 24 Hours; and in ſhort, are to be order'd with great Care.

If the Ground be *Rocky*, *Mooriſh*, or *Marſhy* with *Bogs*, where one cannot Dig, then there is a Foundation made with *Sinkers*, that is, Bundles of *Boughs* faſten'd together, upon which *Earth* is caſt. Upon this Foundation there are *Traverſes* and *Gabions*, which are deſcrib'd in the laſt Chapter. Theſe *Gabions* are uſed alſo in ſtony Ground, where one cannot dig the *Earth*, becauſe of Stones.

As the Trench advances, there are at the Windings and Turnings, Batteries to be made about 10, 12, or 16 *Foot* high; the *Breaſt-Works* made with *Gabions*, or Sacks of *Earth*, and *Cannon-Baskets*; theſe *Batteries* are to ſhoot into the Town, to beat down the Houſes, and terrify the Burghers, and to play continually Day and Night. Or *Batteries* may be made on any Hill, or riſing Ground to this Effect.

There muſt be a good *Line* of *Communication*, betwixt the two, or more Approaches: When they are once advanc'd into the *Foot* of the *Glacis*, take in and fortify the Ground betwixt the *Attacks*, by which means the Enemy coming to Sally out, will find themſelves betwixt two *Firings*.

In the carrying on the *Lines* of *Approaches* and *Batteries*, the *Engeniers* muſt be ſure to be provided with *Palliſadoes de Camp*, and *Piles* of 6 *Foot*, *Turn-Pikes*, *Horſe de Freeze*, *Barricadoes*, or a Fence made of *Paliſadoes*, Thouſands of *Crow-feet*, or *Carthrops*, to hinder the March of *Horſe*, together with good ſtore of Planks and Timber ready.

The nearer the Approaches advance to the *Fortreſs*, and the more the Soldiers are expos'd to Danger, their Pay is encreas'd every Day; ſometimes they have half a Crown a Night, and ſometime a Crown for an Hour's Work, if their Poſt be Dangerous.

Every Morning as ſoon as Day begins to break, the *Lieutenant-General*, or *Marſhal de Camp*, orders the Soldiers too low to the Trenches, and there take their Places; to Fire continually, and hinder the Enemy from ſhewing their Heads above the Works, whilſt the Cannon from the *Batteries* are beating down the *Parapets*, and levelling the *Works*; the *Batteries*, to this end, are advanced as the *Attacks* advance, and the beſt Place for them is betwixt the two *Attacks*; for by this means one diſpoſes them in ſuch a manner, that he is Maſter of the Firings of the two *Flanks* of the two oppoſite *Baſtions*.

When the Approaches are advanced to the *Counterſcarp*, along the *Breaſt-work* of it, there is to be made a great Lodgment, in the middle of which, there is a Deſcent cut into the *Ditch*, which is call'd the *Sap*: When it is brought to the *Ditch* or *Moat*, there muſt be good ſtore of *Pioneers* employ'd to run Earth in Wheel-Barrows Night and Day to fill up the *Ditch*; and as ſoon as it is Dark, the *Horſe* of the Army, but thoſe that are upon the Guards, to carry *Facines* to the Tail of the Trenches, to be caſt into the *Moat*, to fill it up, even to that Place where the Mine is to be made; for in ſo doing, the *Ditch* will be fill'd up by degrees, and there will be a good Foundation for the *Gallery* to reſt upon. The *Pioneers* fetch in the Wheel-Barrows good ſtore of Earth upon Planks laid in the *Gallery*, and bring it to the Mouth thereof, caſting it upon a heap, and ſome Work-men appointed to work in the Mouth of the *Gallery*, caſt it into the *Moat*, to ſettle the *Facines* and *Faggots*.

This Earth thus caſt up, ſerves to cover and make *Blinds* for the Work-men, which they uſe to make at the Mouth of the *Sap*, and continue ſo doing till they bring the *Gallery* to the *Face* of the *Baſtion*. The *Blinds* are to be raiſed on that ſide which reſpects the Enemy's *Curtain* and oppoſite *Flank*.

To bring on the *Gallery*, firſt there is made two Frames of Timber, ſome 8 or 10 *foot* wide, and about 9 in height, in form of a Gallows; the Timber may be 6 or 8 Inches thick; and the ſide oppoſite to the Enemy's *Flank*, ought to be double Plank'd. Theſe Frames ought to ſtand 6, or 7 *foot* from one another, and ſo one after another, till the *Gallery* reach to the *foot* of the *Baſtion*.

The *Gallery* is to be cover'd at the Top with Earth a *foot* thick, to hinder *Fireworks* from burning it: There are little Windows made in the *Gallery*, betwixt every 3 or 4 *Frames*, to give the Work-men Light,

When the *Gallery* is thus brought to the *Face* of the *Baſtion*. The next Thing is to make a *Mine*, which is to be done by *Miners*, who are to have *Pick-Axes*, and all kinds of *Maſons* Tools, with all things requiſite to pierce and break the Wall. The height of the *Mine* is about 4 or 4 ½ *foot* high at the moſt; the breadth about 3 ½ *foot*; according to which Meaſures the Props and Planks are fram'd, wherewith the *Mine* is under-prop'd. The *Earth* that is taken out of the *Mine* under a *Rampart* or *Baſtion*, is to be carry'd away in a Veſſel or Pail of Leather, which is light in handing it one to another, till it be brought out of the Hole or entrance of the *Mine*, and laid in the *Gallery*, to the end the Enemy may not ſee it, and gueſs whereabouts the *Mine* is.

The *Mine* is wrought on by ſeveral Turns; to prevent the blaſt of Powder coming forwards: Sometimes the Maſter *Miner* makes uſe of a *Compaſs*, and conducts his *Mine* by the help of the *Needle*, that he may carry it right; and always the nearer he comes to the Place where the *Chamber* is to be, the narrower he makes the way of the *Mine*, in ſuch ſort, that it be no broader or higher at the entrance into the *Chamber*, than a Barrel of Powder may ſcarcely paſs into it, for by this means the *Mine* is eaſier ſtopt.

The bigneſs of the *Chamber* is made according to the greatneſs of proportion of the *Wall* and *Rampart*. The commonOpinion is, that a Barrel of Powder will blow up 12 *foot* of Earth; the Barrels are to be laid in ſuch order, that in an Inſtant they may all take Fire together. The *Chamber* may be made 10 or 12 *foot* wide, and about 5 *foot* high: The Earth is to be blown up either into the *Fortreſs*, or elſe without, by making that ſide which is to be blown up, not ſo thick as the other. Thus having made the *Mine*, place the Powder therein, and cloſe up the Mouth of it; which muſt be carefully done, putting croſs Timbers in every Return, and at the Entrance ſtop it with thick and ſtrong Planks, ram'd in with Earth, leaving a Trunk or hollow Pipe all the way fill'd with Powder, and carry'd to the end of the *Mine*, at the *Wall*, where the Paſſage is to be well ſtopp'd, ſince the ſtronger a *Mine* is ſtopp'd, it takes the better effect; then Fire it as ſoon as conveniently may be, leſt the Powder take harm by two much moiſture; after which, follows the Aſſault, and ſeconding the Mine, if the Breach be made conſiderable.

CHAP. X.

Of Defending a Town or Fort.

IT is a certain Rule, that where there is an *Offenſive War*, there is alſo a *Defenſive*; and therefore, as ſoon as the Governor of any Fort gets notice of an Army coming before it to Beſiege the Place, and before they form their *Blocus*, or *Block it up*, he ſends the Gunners to the *Batteries*, with Orders to ſhoot ſeveral *Cannon* to inform the Country round, and give the Signal of Retreat, that they may come in with all the Proviſions they can find about the Place: And alſo by making ſeveral Shot, keep off the *Light-Horſemen* and *Spies*, that they approach not ſo near as to view the Works of the Fort; and alſo to favour the *Foot* and *Horſe*, who ought every Day to make a Sally, to ſhew the *Garriſon* is Strong and in good Heart: The *Infantry* muſt not go beyond Musket-Shot; but the *Cavalry* ought every Day from the opening the *Trenches*, to Sally in ſmall Squadrons, to draw the Army near, that it may lie open to the *Cannoneers*, who may make ſome good Shot, and cut off ſome of the Principal Officers.

If the *Garriſon* be but Weak, then the Governor is to manage it to the beſt Advantage; and is not obſtinately to defend the *Out-Works*, but rather to look to the defence of the *Ditch* and the Body of the Place, that the *Flanks* be well furniſh'd with *Cannon*, and as ſoon as he perceives the Attacks of the Enemy, is to Counter-mine the *Flank'd Angles* of the *Out-Works*, and to blow them up at ſuch time as he is forc'd to quit them; and after having Retrench'd the *Baſtions* after a conſiderable Breach, all that he can do, is upon the moſt Honourable Terms to make Capitulations; as to March out with *Arms* and *Baggage*, *Drums Beating*, *Trumpets Sounding*, *Colours and Standards Flying*, *Matches lighted at both Ends*, *Bullets in their Mouths*, *with ſome Pieces of Cannon and Mortars*, *and Amunition neceſſary*; the Beſiegers furniſhing them with *Waggons*, *Horſes*, and every thing neceſſary for their March. But if the *Garriſon* be conſiderable Strong, it is to be Govern'd quite in another manner.

The *Governor* is to Husband the Proviſions well, and defend boldly the *Out-Works*, and to Countermine round about them, as the Enemy ſhall Attack, and to Retrench them; and alſo to make *Retrenchments* and *Barricadoes* all along the *Cover'd-Way*; that he may loſe all things Piece by Piece, and to quit nothing but by main Force.

After the *Governor* is Advertis'd, by ſmall Parties he ſends out, what Part the Enemy will Attack, he is always to annoy them by continual ſmall Sallies of the ſtouteſt Soldiers, two by Two, and Three by Three, who are to fire upon the *Pioneers*, by creeping into the Field unperceiv'd, and not to give them Reſt, or let the *Trenches* be quiet; and afterwards to Retreat into the *Counterſcarp*: And in the mean time the *Governor* is to have the Soldiers in readineſs, to give Fire as ſoon as the Party is return'd, by which commonly many Officers are Kill'd that do advance: To this end, the *Out-Works* are to be well furniſh'd with Men, to keep continually Firing; and to render them the more able, they are to be Reliev'd twice a Day, and twice a Night.

It is very ordinary to the *Garriſon*, to make a great and brisk Sally about *Sun-riſing*, or break of Day, after a Stormy or Rainy Night, as opportunity admits, and to carry along with them a quantity of Nails to cloy the Guns, *Pick-Axes*, *Spades*, and *Shovels*, to throw down their Lodgment; ſome *Grenadiers* and *Musketoons*, to make a conſiderable Aſſault, and to throw down their Works in ſuch a manner, that the Enemy coming to regain Ground, may lie open to the Shot from the *Out-Works*, which ought eſpecially then to be well furniſh'd with Men, and in readineſs to make a continual Firing, to favour the Retreat of the Sally; and ſo by this means the Enemy ſhall not gain a Foot of Ground but at a very dear rate, and loſe much of his time before he be able to gain any of the *Out-Works*. The *Out-Works* ought to be *Mined* and *Retrenched*, and the *Mines* fired when the Enemy makes a Lodgment on them, and the *Garriſon* forc'd to retire to their *Retrenchments*.

The *Retrenchments* turn to account when their *Ditch* is 12 *feet* broad at Top, and 6 *feet* at the Bottom, and 8 *feet* deep; and the *Earth* that comes out of the *Ditch* makes a good *Parapet*. All theſe *Retrenchments* and Cuttings off, are to lie open towards the Town, or *Fortreſs*, with this *Proviſo* alſo, that they be not made ſo high, but that the main Works may overlook and Command them.

When the *Garriſon* is forc'd to quit their laſt *Retrenchments* on the *Out-Works*, and retreat into the Town, the Governor is to have the *Flanks* well furniſh'd with *Cannon*, which may beat upon the flanked *Angles*, and ſcour the *Ditch*; for there is nothing makes greater Slaughter, or with greater eaſe hinders *Undermining* than this; and it is almoſt impoſſible for the *Enemy* to make any *Lodgment*, or ſet any *Miners* at work upon the Body of the Place: And being not able to make a Breach, but by their *Cannon*, it is ſoon repair'd with *Palliſadoes*, and the *Baſtion* cut off and Retrench'd with *Mines* prepar'd under the Breach, and the *Batteries* made firm before they can Storm; and for ſome Days they cannot make any *Lodgment*, notwithſtanding they have won the *flank'd Angles*, and made a conſiderable Breach, even to the *foot* of the *Baſtion*, yet they cannot maintain it but with great Loſs; neither can they avoid the *Granadoes* and *Fire-works*, that will be continually caſt upon them, and ſo forced to approach by *Sap*, which may with all facility imaginable be Rencountered.

If the Enemy by diſmounting the *Guns* on the *Batteries*, with their *Counter-Batteries* approach to the Foot of the *Baſtion*, and ſet their *Miners* at work, and prepare their *Mines*, then the Governor is diligently to ſearch out the *Enemy*'s *Mines*; and being aſſured of the Place where they are hid, and a working, which may be done by ſetting a *Drum* on the place ſuſpected, with ſome *Dice* or *Peaſe* upon the Head of it, which with any ſtirring, will leap upon the *Drum*, when it ſtands over the Place where the *Miners* are at Work.

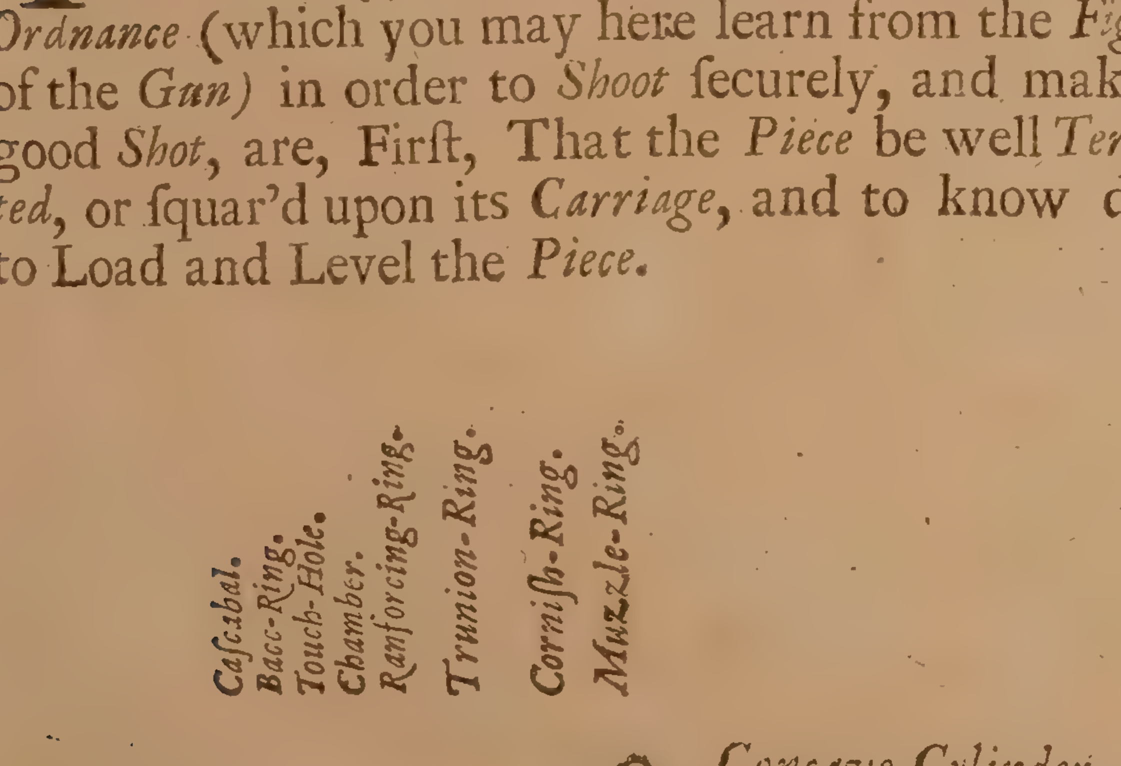
After the Place is thus found out, nothing remains but to make a *Counter-mine* againſt them, which is made after the ſame manner as a *Mine*, deſcrib'd in the laſt Chapter. Now, becauſe one is not ſure to meet juſt with the *Enemy*'s *Mine*, which may be made either too high or too low, therefore there are ſeveral *Mines* to be made, till by one of them the *Enemy*'s Mine is found out, and ſo take away their Powder out of the *Chamber*.

When an *Enemy*'s *Mine* is carry'd ſo ſecret and hidden, that one can't find it out; then the Garriſon muſt of neceſſity reſolve to quit that part of the *Rampart*, or *Baſtion*, under which they ſuſpect there is a Mine, and ſo Retrench and cut it off inwardly; but for their Advantage, they muſt make ready alſo their Counter-mines made in that Place, and *Chamber* their Powder, attending the effect of the *Enemy*'s *Mine*; and when they ſpring it, they muſt retire themſelves into their new *Work* cut off, or *Retrenchment*; and the *Enemy* being Lodg'd on that part of the *Rampart* or *Baſtion*, which they have quitted, then the *Counter-mine* is to be blown up. The like is alſo done in *Out-Works*, and on the *Counterſcarp*, when one is driven to quit them.

CHAP. XI.

Of GUNNERY.

THE General Things to be known in the Art of *Gunnery*, next after the *Names* and *Parts* of *Ordnance* (which you may here learn from the *Figure* of the *Gun*) in order to *Shoot* ſecurely, and make a good *Shot*, are, Firſt, That the *Piece* be well *Tertiated*, or ſquar'd upon its *Carriage*, and to know duly to Load and Level the *Piece*.



To *Tertiate* a *Piece*, is to know if it has its due thickneſs of *Metal* at the *Touch-hole*, *Trunions*, and *Neck*; by which you may judge at the ſtrength of the *Gun*, whether well fortified or no. This you do with a *Coliper* pair of *Compaſſes*; and if the *Piece* be Home-boar'd, the *Diameter* leſs by the Height divided by 2, is the thickneſs at any Place.

To *Quadrate*, or *Square* a *Piece* Mounted, is to ſee if it is directly placed, and equally poiſed, which depends on the *Carriage*, in regard of the *Wheels* and *Axle-Tree*.

To *Diſpart* a *Piece* of *Ordnance*, is to ſet ſuch a Mark upon the *Muzzle-Ring*, or thereabouts, that the viſual *Ray*, or *Sight-Line*, taken upon the Top of the *Baſe-Ring*, againſt the *Touch-hole*, by the Mark ſet at, or near the *Muzzle-Ring*, may be parallel to the *Axis* of the *Concave Cylinder*. To do this, take the *Diameters* of the *Baſe-Ring*, and the Place at the *Muzzle*, where you intend the *Diſpart* to ſtand; divide the difference of theſe two into two equal Parts, one of them will be the *Diſpart*, which you may ſet upon the *Gun* with *Pitch*, or *Wax*. If you have not *Compaſſes*, meaſure the *Cirles* about, and work with them.

The *Weights* of *Shot* are regulated by the *Cubes* of the *Diameters*, and by knowing the Weight of one, the Weight of any other is found thus:

A *Bullet* of *Iron* of 4 Inches *Diameter*, is found by Experience, to weigh 9 *lb.* and ſo is any other *Diameter* Cub'd to its Weight: Or as 9 *lb.* is to the *Cube* of 4, ſo is any other Weight to the *Cube-Root* of its *Diameter*. *Lead* and *Iron* in weight, is as 2 to 3, that is, a *Shot* of 2 *lb.* of *Iron*, and a *Shot* of 3 *lb.* of *Lead*, will have the ſame *Diameter* of height. *Iron* to *Stone* is as 3 to 8, *Lead* to *Stone* is as 4 to 1; that is, a *Bullet* of *Stone* of 10 *lb.* is equal in height to a *Bullet* of *Lead* of 40 *lb.* Therefore knowing what a *Bullet* of *Iron* of any *Diameter* weighs, you will find the weight of a *Bullet* of the ſame *Diameter* of *Lead*, and *Stone*; for *Lead* having the weight of 9 *lb.* of *Iron* for 4 *Inches Diameter*. If 3 give 2, what will 9 *lb.* give? Anſwer 6; and ſo of any other. As the *Shot* is regulated by the *Cubes* of the *Diameters*, ſo alſo is the *Powder*. Suppoſe 1 *lb.* ½ of *Powder* be a Charge for a *Falcon* of 2, 68 *Bore* of *Diameter*; what weight in *Powder* will be fit for a Charge of a *Cannon* of 7; The proportion is thus: As the *Cube* of 2, 68 is to 1 *lb.* ½ of *Powder*, ſo is the *Cube* of 7 to 26.

The Names of the *Pieces* of *Ordnance*, which are taken from the height of the *Bore*, are ſet down in the following *Table*, which gives in the firſt *Column* the Names of the *Pieces*; next, the weight of *Fortify'd Guns*; the Third, the height of the *Bore*; the Fourth, the height of the *Shot*; the Fifth, the weight of the *Shot*; the Sixth, the *Powder* for *Proof*; the Seventh, *Powder* for Service; the Eighth *Paces* (five *Foot* to a *Pace*) the *Piece* ſhoots *Point-blank*, or upon the *Level*; the Ninth the utmoſt *Random*, the *Piece* mounted to 45 *Degrees*; the Tenth, the *Horſes*; and the Eleventh, the *Men* requir'd to draw a *Piece* of *Ordnance*.

Names.	Guns weight.	Height Bore.	Height Shot.	Weight of Shot.	Powder for Proof.	Powder for Service.	Paces Point-Blank.	Utmoſt Random.	Horſes to Draw.	Men to Draw.
	C.			lb.	lb.	lb.				
Can. 8.	70	8	7.75	63	28	23	180	1800	18	100
Can. 7.	604	7	6.75	42	24	18	180	1800	16	80
Dem C.	504	6.3	6.05	32	20	15	180	1800	12	60
24 lb.	404	5.87	5.62	24	17	11	180	1810	10	50
Culv.	40	5.32	5.07	18	14	10	184	1840	8	50
12 lb.	35	4.46	4.64	12	10.5	8	178	1780	6	40
Dem.C.	30	4.25	4.03	9	9	7	175	1750	6	35
Saker.	20	3.58	3.40	5¼	5.25	4	160	1600	4	25
Minion.	12	3.35	3.18	4	4	3	120	1200	3	16
Falcon.	5	2.68	2.54	2½	2	15	120	1200	2	10

As to the ſeveral *Shootings* in *Artillery*, and the knowledge of the true Diſtance that any Piece will carry to, is a Matter that depends upon many Uncertainties, there being ſuch Varieties in the trueneſs of the *Bore*; in the heights of the *Shot*; in the ſtrength of the *Powder*; in the *Diſparts*; in the *Levelling* and *Direction*; in the *Air*, *Wind*, &c.

The *Ball*, when it is ſhot flies through the *Air* with a violent, mix'd and natural Motion, deſcribing a *Parabolicol Line*, in whoſe Beginning, and End, are *Lines* ſenſibly ſtreight,and in the middle Curv'd. The *Shootings*, or *Shots* in *Artillery*, are therefore three: The firſt is call'd *Point-Blank*, which is that Space, that the *Ball* flies in a *Line* ſenſibly right, without any Inclination. The ſecond is call'd the *Mean*, which comprehends all that Space the ſhot flies in a *Curv'd Line*. The third is call'd the *Dead-Shot*, which is the fall of the *Ball* by a ſenſible right *Line* towards the Ground, after that the Violence is ceaſed.

Gunners do take notice of theſe three Differences and *Ranges* of *Shot*, for three ſeveral Ends. The *Shots* of *Point-Blank* ſerve to Batter the *Ramparts* and *Walls* of *Forts* and *Caſtles*; the *Mean*, or *Middle Range*, to moleſt afar off the *Troops* in the *Campaign*, and in their *Quarters*, and to ruin the *Houſes* within the *Cities*, and *Caſtles*, &c. The *Dead-Shots* ſerve for *Mortars* to ſhoot *Bombs*, and other Artificial *Fire* upon the *Enemy*, eſpecially when they cannot be otherwiſe offended, nor ſeen; being cover'd behind with *Ramparts*, *Trenches*, *Hills*, and other *Eminennencies*.

A Shot *Point-Blank*, which is the moſt ordinary and moſt Important, is diſtinguiſh'd, in regard of the *Horizon*, and in regard of the Object which it ſtrikes. As to the *Horizon*, they are of three ſorts, Firſt, *Level*. Secondly, From *Low* to *High*. Thirdly, From *High*, to *Low*, call'd *Under Metal*.

The *Horizontal*, and by the Level of the *Chaſe*, or *Concave Cylinder*, is the moſt ſecure and certain.

That from *Low* to *High*, proves fallacious, becauſe by the Recoyling which the *Piece* makes, the *Shot* flies higher than the Mark: And that from *High* to *Low* is moſt fallacious, becauſe the *Shot* (beſides other notable Effects) comes more *Low* by the Recoyling of the *Piece*. Therefore an Experienced *Gunner* muſt remedy theſe Faults, by taking the due Advantages in *Shooting*.

As to the Object, a *Shot Point-Blank* is made either at *Right Angles* againſt the *Superfices* of the Object, or at oblique *Anglees*: At right *Angls* it ſtrikes more furiouſly than at oblique; therefore it is uſed againſt ſtrong *Walls*, to batter them; and are uſed to make *Batteries* of ſeveral *Tire*, and diſcharging them againſt the ſelf-ſame Mark, and in the ſame Inſtant. At oblique *Angles* they ſtrike either Croſs-ways, or Rebounding like a *Tennis-Ball*. If they ſtrike Croſs-ways, with two *Batteries*, one upon each ſide of the Object, it ruins more ſpeedily the Defence either of *Earth* or *Wall*: If they batter obliquely, or by a Rebound, which is done when they cannot do it right forward, as if one would batter a *Flank* cover'd with an *Orillon*, or *Shoulder*, one muſt ſtrike the *Curtain* in ſo fit a Place, and obliquely, that by the Rebound, the *Shot* may leap into the *Flank*; holding it for a *Maxim* in this Operation, *That the Angle of Incidence, is equal to the Angle of Reflection.*

The *Mean* or middle *Ranges* are diverſe, according to the different Elevations of *Ordnance*: The Elevations are regulated by the *Gunners Square*, which is an Inſtrument made of *Braſs* or *Wood*, of two right *Lines* (See *Fig.* 10. *Plate* 1.) one longer than the other, both which make a right *Angle*, from which, as from the *Center*, is deſcrib'd an *Arch* divided into 90 *Degrees*, or into 12 equal Parts, call'd *Points*; ſo much of the *Arch* as exceedeth a *Quadrant*; as 45 Degrees, or 6 Points, ſerves for ſhooting below the *Horizon*, as the *Quadrant* doth for above. From the *Center* hangs a *Thread* with a *Plumet*, the longeſt Leg put into the *Chaſe*, or *Concave Cylinders* of a Piece of *Ordnance*; the *Thread* cutting the *Arch*, doth ſhew the Degrees of Elevation, or Depreſſion; one never exceeds 6 Points, or 95 Degrees of Elevation, in ſhooting with long *Cannon*.

The *Dead-Shot*, which is made with *Mortars*, is done by giving Elevation from the *Points* 6, or 95 Degrees, to the *Point* 12, or 90 Degrees, which are meaſur'd with the *Square*, or with a particular *Inſtrument* like a Level, putting a *Staff* a-croſs the the Mouth of the *Mortar*, and upon that the *Quadrant*.

In *Shooting* in theſe, its obſerv'd, that at the ſixth *Point* is the fartheſt off, and that at the ſeventh *Point* comes the neareſt, and at the eighth *Point* nearer; and ſo nearer and nearer to the twelfth *Point*, in which the *Bomb* falls into the ſame Place from which it departed.

Of *Shots* made out of *Mortars*, betwixt the *Middle* or *Mean-Shot*, and the *Dead-Shot*, it is to be obſerv'd by Experience, thoſe are Equal which are equally remov'd from the ſixth *Point* of the *Quadrant*, viz. That the *Bomb* fall as far diſtant, being ſhot from the ſame *Piece*, and with the ſame ſtrength at the fifth as at the ſeventh *Point*, and the ſame thing at the fourth as at the eighth, and as much at the third as at the ninth, and ſecond as tenth.

Shots from the *Mortar-Pieces* are very fallacious, ſometimes flying farther, ſometimes ſhorter than needs, and the *Bombs* break in the Air; ſometimes after the fall they do not break, which gives time to the *Enemy* to retire, or to Choak it: Therefore to have a juſt Blow, and to take Effect, theſe following Advertiſements muſt be obſerv'd.

Firſt, One ought to know how many *Paces* are to the Place, which you would ſhoot, which may be done with an *Inſtrument*.

Secondly, That the *Bombs*, or other Bodies, which are to be *Shot*, be of equal weight, otherwiſe the *Shots* will vary.

Thirdly, That the *Carriage* in breadth be always upon a Level, and without any Deſcent, that it do not leap in Diſcharging.

Fourthly, That the *Powder*, with which the *Mortar* is loaded, be always of the ſame force and weight.

Fifthly, That the Charge of the *Mortar*, as well in *Powder*, as in *Wadding*, be always ramm'd in with Blows equally heavy, and of equal number.

Sixthly, that the *Fuſees* be newly made in thoſe Days they are to be us'd, and that they be made of a mixture proportionable to the Range the *Shot* ſhall make in the Air, and that it break in the very Fall; which Skill is in the *Fuſee* fill'd with mixture of Compoſition, which is to be ſuch, that altho' the *Bomb* fall in the Water, it ought to break.

CHAP. XII.

Of Mortars, and the ſeveral ſorts and uſes of them, for Bombs, Carcaſſes, &c.

HAving mention'd Mortars ſo often in the laſt Chapter of *Gunnery*, we ſhall not only from *Guillet*, give a brief Deſcription of a Mortar-piece, but add the ſeveral Sorts and Uſes of them: It's a ſhort Piece of Artillery reinforced, and of a wide Caliber, differing from a Cannon both in Form and Uſe; the Cannon ſerving to throw Ball, and the Mortar to throw *Bombs*, *Carcaſſes*, *Fire-pots*, and ſeveral other ſorts of *Fire-works*; as likewiſe *Stones*.

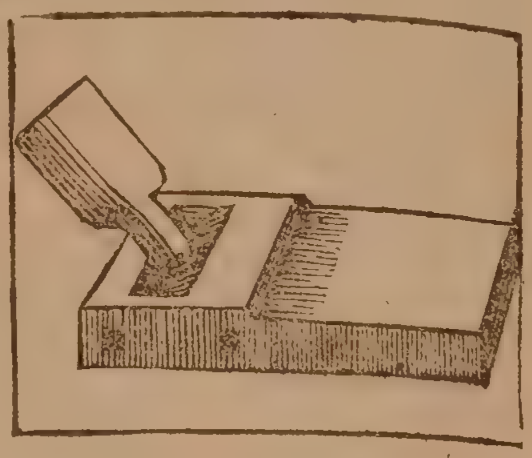
Mortars are us'd both by Sea and Land, but differ very much in Form: A Sea Mortar is generally thirteen Inches Diameter of the Bore, longer, and more reinforced than a Land-Mortar, becauſe they are fir'd with a greater quantity of Powder; ſometimes with thirty, or three and thirty Pounds: Some of them have their Beds or Stools of Metal, caſt in a Piece with the Mortars; others have them of a thick ſquare Piece of Oak, which by the help of Hand-Screws, or Jacks, is turn'd round upon a ſtrong Axis of Iron, to fire any way: They are always fix'd at an Elevation of 45 Degrees: They carry Bombs of 200 Pound, and generally weigh 9 or 10000 weight.

Land-Mortars are of different ſorts: Thoſe moſt us'd in *England*, are ten, thirteen, fifteen, and eighteen Inches Diameter. There are ſmaller Mortars of ſix or eight Inches. All but the eighteen Inch Mortars are mounted on a very thick Plank of Oak, on which riſe two Cheeks or Brackets on the ſides of the Mortar; but the eighteen Inch, is mounted on a low *Dutch* Carriage, conſiſting of two ſtrong Planks of Wood, bound with thick Plates of Iron, and joyn'd together with Tranſoms of Wood. All Land Mortars may be elevated to any Degree of the *Quadrant*: They have no Wheels, and therefore on a March, they are laid on a Block Carriage made on purpoſe. They are never carry'd along with the Army, becauſe of their great weight, except upon occaſion of a Siege or Bombardment: But a ſort of ſmall Mortars call'd *Hobits*, mounted on Gun-Carriages, are always a part of the Field Artillery. The *Hobits* are about ſix, ſometimes ſeven or eight Inches Diameter, have much ſhorter Carriages than the larger ones, and are very good for annoying the Enemy at a diſtance with ſmall Bombs, which they throw two or three Miles, or for keeping a Paſs, being loaded with Cartouches.

Now to make every thing as Intelligible as may be to the Gentle Reader; a *Cartouch* is a caſe of Wood, about three Inches thick at bottom, girt round with Marlin, holding about 400 Musket Balls, beſides ſix or eight Balls of Iron of a Pound weight. A new ſort of them was made in the Year 1703. much better than the former in *England*, of a Globular Form, and fill'd with Ball of a Pound weight; others were alſo then made for the Guns, being of Ball of half a quarter of a Pound weight, according to the nature of the Gun, ty'd in form of a Bunch of Grapes, on a Tompion of Wood, and Coated over; they were made in the room of the Partridge Shot formerly us'd, and exceed them very far, as ſome of the *French* Battalions Experimented to their Coſt, at the Battle of *Blenheim*.

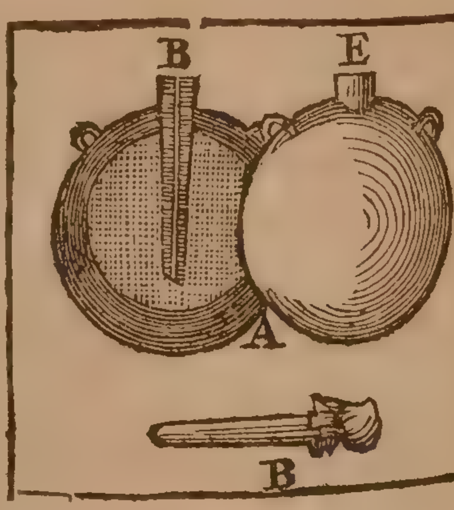
Hand-Mortars, are in like manner of ſeveral ſorts; as Tinker-Mortars, which are fix'd at the end of a Staff of about four Foot and an half long, the other end being ſhod with Iron, to ſtick into the Ground, while a Soldier with one Hand keeps it at an Elevation, and with the other Hand Fires. *Fire-lock-Mortars*, are fix'd in a Stock with a Lock like a Fire-lock; they ſwing between two Arches of Iron, with Holes anſwering one another, by which the Mortar is Elevated; theſe ſtand upon a Soal or Plank of Wood, and may be carry'd by one Man from one Place to another.

There are more ſorts of *Hand-Mortars*; but *Coehorn*'s new Invention exceeds them all, ſo as to deſerve a particular Deſcription.



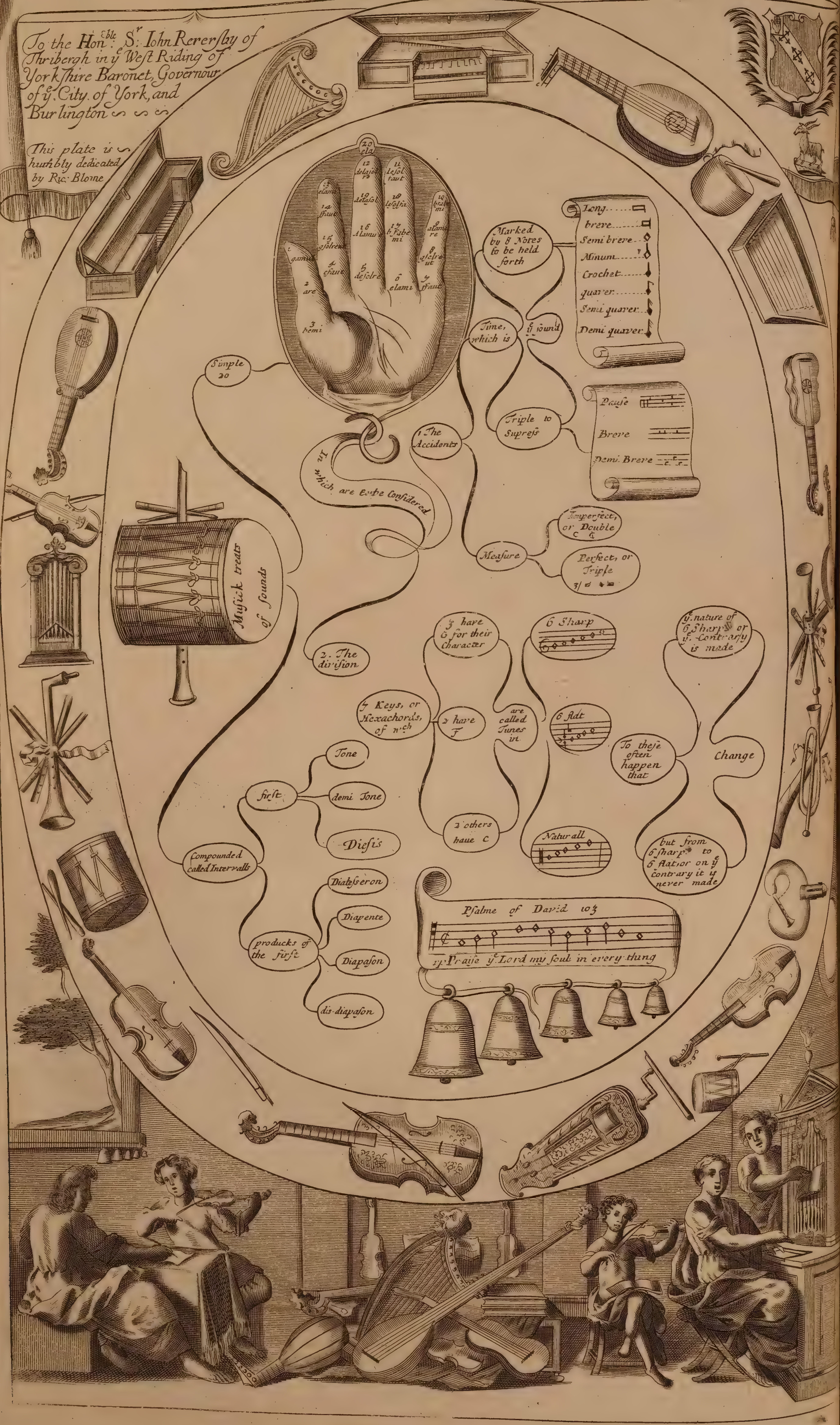
They are made of Hammer'd Iron of four Inches Diameter of the Bore, ten Inches and an half long, and nine Inches in the Chace, fix'd upon a piece of Oak of twenty Inches long, ten and an half broad, and betwixt three and four thick: They ſtand fix'd at 45 Degrees of Elevation; they throw Hand-Granadoes, as all other Hand-Mortars do: They are placed in the Bottom of the Trenches at two Yards diſtance from one another, having each a Soldier to ſerve it, and an Officer to every forty or fifty, who lays them to what Elevation he pleaſes, by raiſing or ſinking the hind part of the Bed; three or 400 of them are ſometimes in Service at once, in different parts of the Trenches, 60, 70, or 80, in a Place: Thoſe in one Place fire all at once, immediately after the Batteries have done, and are anſwer'd from another part of the Trench, which flings ſuch a Shower of Hand-Granadoes into the Cover'd-Way, that thoſe that Defend it, cannot prevent being in Confuſion. Now, an Hand-Granado is only a Shell of Iron fill'd with fine Powder, which being fir'd, burſts the Metal in Pieces among thoſe that are near where it falls, who are oblig'd to quit their Poſts, or run the hazard of having their Legs and Arms broke and ſpoil'd: It has a Vent to receive a Fuſe, which is of the ſame Compoſition as that of a Bomb, (of which in the next Paragraph) that the Granado may not burſt in the Grenadier's Hand before it be deliver'd.

Having ſaid ſo much concerning Mortars (out of the largeſt of which they throw Bombs) this is a great Shell of Caſt Iron *A*, with a large Vent to receive a *Fuſee*: This *Fuſee B*, is made of Wood, and drove full of a Compoſition of Meal, Powder, Sulphur, and Salt-Petre: Now when the Bomb is fill'd with Powder, the Bombardiers drive the Surface into the Vent within an Inch of the Head, and Pitch it over to preſerve it; but when the Bomb is put into the Mortar, the *Fuſee* is Uncap'd, *E*. and ſalted with the flaſh of the Powder in the Chamber, and burns all the while the Bomb is in the Air: When the Compoſition is ſpent, it fires the Powder in the Bomb, which being confin'd, breaks the Bomb with great Violence, blowing up whatever is about it; for the great height it goes in the Air, and the force with which it falls, makes it go deep into the Earth.



As for *Carcaſſes*, they are repreſented by the following Figure *A*. It's an Invention of an Oval form, made of Ribs of Iron, afterwards fill'd with a Compoſition of Meal-powder, Salt-petre, Sulphur, broken

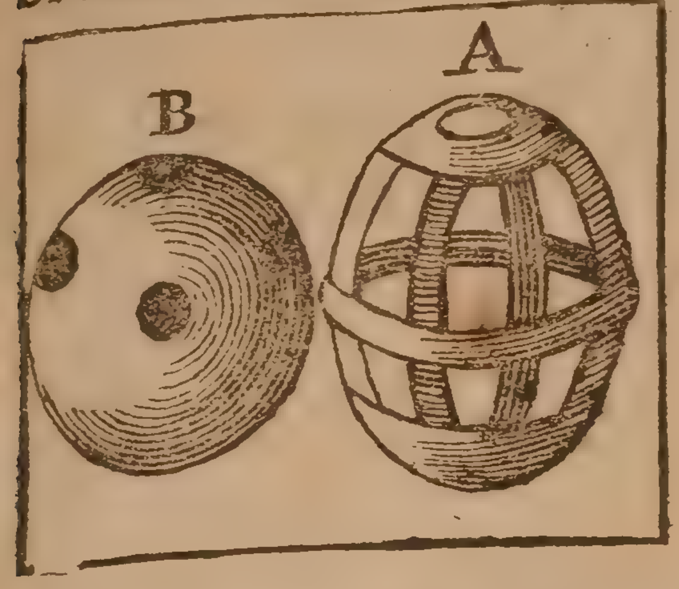
MUSICK



To the Hon:ble S:r Iohn Rererſby of
Thribergh in yͤ West Riding of
Yorkſhire Baronet, Governour
of yͤ. City. of York, and
Burlington

This plate is
humbly dedicated
by Ric: Blome

20 ela
12 delaſol re
11 leſol faut
13 elami
19 delaſol
18 leſolfa
10 bfab mi
14 ffaut
16 Alamire
17 bfabe mi
9 alamire
15 gſolreut
8 gſolre ut
1 gamut
4 cfaut
5 deſolre
6 elami
7 ffaut
2 are
3 bemi
Marked by 8 Notes to be held forth
Long
breve
Semi breve
Minum
Crochet
quaver
Semi quaver
Demi quaver
Time, which is
yͤ ſound
Simple 20
Triple to Supreſs
Pauſe
Breve
Demi Breve
1 The Accidents
In which are to be Conſidered
Imperfect, or Double
Meaſure
Perfect, or Triple
Muſick treats of ſounds
2. The diviſion
3 have G for their Character
6 Sharp
yͤ nature of 6 Sharp or yͤ Contrary is made
7 Keys, or Hexachords, of wͨh
2 have F
are called Tunes in
6 flat
To theſe often happen that
Change
Tone
firſt
demi Tone
Dieſis
2 others haue C
Naturall
but from 6 ſharp to 6 flat, or on yͤ contrary it is never made
Compounded called Intervalls
Diateſſeron
Pſalme of David 103
Diapente
producks of the firſt
Diapaſon
1: Praiſe yͤ Lord my ſoul in every thing
dis-diapaſon



broken Glaſs, ſhavings of Horn, Pitch, Turpentine, Tallow, and Linſed-Oyl, and then Coated over with a Pitch'd Cloth: it's Prim'd withMeal-powder and Quick-Match, and fir'd out of a Mortar; the Deſign being to ſet Houſes on Fire. For lifting it up to put it into the Mortar, it has too ſmall Cords fixed to the ſides of it. Another ſort there is of them of a late Invention for the Sea Service, which does not differ from a Bomb, ſave its being fill'd with a Compoſition as before, and having Five holes all Prim'd with Powder and Quick-Match, which takes fire from the flaſh of the Mortar; and having fir'd the Compoſition, it burns very vehemently from thoſe Holes, Letter *B.*

To meaſure a juſt Time, is done by filling a *Fuſee* after the ordinary manner. Take a ſmall Barrel or Cane of Iron of equal Bore to that of the *Fuſee*, but ſomewhat longer, with many little Holes all along its length, and filling it in the ſame manner as the *Fuſee*; then the Bomb being fitted to the Mortar, you give Fire at the ſame time to the *Fuſee* in the Mortar and the Iron Barrel, letting the Barrel burn until you ſee the Bomb break, in which Moment you obſerve the Barrel, and to what Hole the Fire burns down, which will give an aſſured Mark of the Time the *Fuſee* ought to have.

If the Bomb in the very Fall ſhall break, the ſame quantity of Compoſition ſhall be continu'd in the *Fuſee*; but if it break before the Fall, you muſt abate the Heat, by adding a ſmall mixture of *Charcoal-Duſt* incorporated in the ſame Compoſition: And if after it Fall, it ſhall delay its Effect, then you ſhall joyn with its Mixture a little fine *Powder-Duſt*: And ſo you may by Experience with this Barrel, obſerve into what Mark or Hole it burns, ſo that with ſuch *Fuſees* the *Bomb* ſhall juſtly break in the very Fall among the Enemies, obſerving always to fill the Barrel with the ſame Mixture.

MUSICK.

Muſick is the Art of making Harmony, either by *Voice* or *Inſtrument*: Or (which is the ſame thing) the Art of well Singing, or playing on *Muſical Inſtruments*. The firſt is call'd *Vocal*, the other *Inſtrumental Muſick*, and conſiſts both of *Sounds*.

A *Sound* is that which affects the *Ear*, of which there are two Sorts, *Simple* and *Compound*: The *Simple* is conſider'd by itſelf.

There are but 20 *Simple* or *Single Sounds*, mention'd by *Muſicians*, from *Gam-ut* to *E-la*, and all contain'd in the *Gam-ut*; which is call'd the *Scale*, invented by one *Guido Aratin*, an *Italian*, the better to learn to *Sing* and *Play* well: The Enumeration of which *Simple Sounds* take as followeth.

The firſt, *Gam-ut*; ſecond, *A-re*; third, *B-mi*; fourth, *C-fa-ut*; fifth, *D-ſol-re*; ſixth, *E-la-mi*; ſeventh, *F-fa-ut*; eighth, *G-ſol-re*; ninth, *A-la-mi-re*; tenth, *B-fa-B-mi*; eleventh, *C-ſol-fa-ut*; twelfth, *D-la-ſol-re*; thirteenth, *E-la-mi*; fourteenth, *F-fa-ut*; fifteenth, *G-ſol-re-ut*; ſixteenth, *A-la-mi-re*; ſeventeenth, *B-fa-B-mi*; eighteenth, *C-ſol-fa*; nineteenth *D-la-ſol*; twentieth *E-la*.

Of which *Simple Sounds*, firſt are to be conſider'd the *Accidents*, and then their *Diviſion*.

Their *Accidents* are *Muſical Time*, or *Meaſure*.

Time in *Muſick*, is a Quantity which either lengthens, or ſhortens the *Sound*.

The *Muſical Time* to expreſs the *Sound*, is known by eight *Characters*, viz. *A Large*, *a Long*, *a Breve*, *a Semi-Breve*, *a Minim*, *a Crotchet*, *a Quaver*, and a *Semi-Quaver*.

But the Time to ſuppreſs the *Sound* is different, that is, in ſeveral ſorts of *Reſts* or *Pauſes*, longer and ſhorter.

Muſical Meaſure, is that by which the aforeſaid *Simple Sounds* are Meaſur'd.

There are two ſorts of *Meaſure* in *Muſick*; the one *Spondaick*, and call'd by the Modern *Muſicians Imperfect* or *Duple*; the other *Trochaick*, which they call *Perfect*, or *Triple*.

Secondly, theſe *Simple Sounds* are divided into ſeven *Hexachords*, vulgarly call'd *Cliffs*.

An *Hexachord* is a Deduction, or Conduct of ſix *Voices*, as *Ut*, *Re*, *Mi*, *Fa*, *Sol*, *La*.

The three firſt of which *Cliffs* that have *G* for their *Character*, are rough and harſh, and call'd *Tunes* of *B. Sharp*.

The two others, whoſe *Characters* are *F*, are ſoft and ſweet, and are call'd *Tunes* of *B Flat*.

But the other two, whoſe Character is *C*, are the Mean, and between both, and are call'd *Tunes* of a natural *Key*.

It often happens, in theſe *Cleffs*, that the Naural *Song* is chang'd into *B Flat*, or into the contrary: But *Tunes* in *B Sharp*, are never chang'd into *B Flat*, nor thoſe in *B Flat*, into *B Sharp*.

The *Compound Sound*, is that which is compounded, and repeated with another.

The *Compoſition* of *Sounds*, is call'd in *Muſick Interval*; that is to ſay, *Muſical Concord*, as well of the *Voice*, as on *Inſtruments*; of which ſome are Principal *Chiefs*, the others Effects of the *Chiefs*.

There are three *Chiefs*, viz. a *Tone*, a *Semi-Tone*, and a *Dieſis*: And four Effects of the *Chiefs*; as *Diateſſaron*, *Diapente*, *Diapaſon*, and double *Diapaſon*.

A *Tone* is an Interval of *Muſick*, compos'd of two half *Tones*, and proceeding from a *Seſquioctave ration*.

Muſicians call it the Second Perfect: For Example, If when two Sing, one ſings *Ut*, and the other *Re*, this Compoſition of Sounds is call'd a *Tone*.

A *Demi-Tone* is the Moity of a *Tone*, or of a *Seſquioctave*.

A *Tone* can't be divided by Numbers into two unequal Parts, but only into equal; for when you have divided a *Tone* into two Parts, you have two *Demi-Tones*: That which is the Sharp of the two, is call'd the *Demi-Tone Major*, or Greater, and is ſeldom in uſe; the other which is Flat, is call'd the *Minor*, or leſs *Demi-Tone*, and is only in uſe, and call'd the ſecond Imperfect, which is made from *Mi*, to *Fa*.

A *Dieſis* or *Perfation*, (call'd by *Bœtius* a leſſer *Demi-Tone*) is the ſmalleſt of the *Intervals*; that is to ſay, the fourth part of a *Tone*, or a *Seſquioctave*.

A *Diateſſaron* is a ſoft imperfect Fourth, which is frequently uſed, as from *Ut* to *Fa*: It contains two *Tones*, and a leſs *Demi-Tone*.

A *Diapente* is call'd a Fifth, which is a very ſweet and frequent *Interval*; it contains three *Tones*, and one leſs *Demi-Tone*.

A *Diapaſon* is a moſt perfect *Interval*, and very much in uſe, and conſiſts of eight *Sounds*, and is call'd an *Octave*: It contains five *Tones*, and two leſs *Demi-Tones*.

A Double *Diapaſon* is the fifteenth, or a double *Octave*; and ſo two *Octaves* make one entire Body of *Concords*, viz. The greateſt *Syſtem* and *Interval* in *Muſick*, which is ſo vulgarly call'd, as a little before, ſo as well here below; that is to ſay, twice through all the *Sounds* and eſſential *Chords*, *A,B,C,D,E,F,G.*

Beſides this *Tract* of *Muſick*, which is adapted to the *Eliptical Table*, 'Tis thought fit to add this folloing Diſcourſe, as recommended from a Perſon very Knowing in the ſaid *Art*, where he ſaith, That the two chief Parts of *Muſick* are *Compoſition* and *Modulation*.

Compoſition is ſetting together of ſeveral *Muſical Notes*, into a *Tune* of ſeveral Parts, into a *Conſort* fit to be *Sung* or *Play'd*.

There chiefly belongs to *Compoſition*, the Knowledge of the *Chords*, of the *Moods*, and of the ſeveral Parts which make up a *Muſick Conſort*.

In all the ſeven *Notes*, (for there are in Nature but ſeven diſtinct *Sounds*, however repeated in different *Keys*) an Eighth, being but a *Union* to the firſt, a Ninth, to the ſecond; a Tenth, to the third; an Eleventh, to the fourth; a Twelfth, to the fifth; a Thirteenth, to the ſixth; a Fourteenth to the ſeventh: So likewiſe in a higher *Key*, a Fifteenth to the eighth; a Sixteenth, to the ninth; and ſo of the reſt. In all the ſeven *Notes* (for an Eighth, is but the firſt of another *Septenary*; and every *Note* whatſoever is a Firſt, or *Union*, in reference to its *Octave*) there are five *Concords*, and two *Diſcords*; of the five *Concords*, three are perfect *Chords*, and two *Imperfect*.

The three *Perfect*, are an *Octave*, call'd by the *Greeks*, *Diapaſon*; that is, from *A-re* the *Proſlambanomenos*, to *Elamire*, the *Meſe* of the *Greeks*. A Fifth, call'd *Diapente*; that is, from *B-mi* the *Hypate Hypaton*, to *F-fa-ut*, the *Parhypate Meſon* of the *Greeks*; a Fourth, call'd *Diateſſeron*, that is, from *D-ſol-re*, the *Licanos-Hyppaton*, to *G-ſol-re-ut*, the *Licanos-Meſon* of the *Greeks*.

The two *Imperfect*, are a Third, call'd by the *Greeks*, *Ditonom*; that is, from *C-fa-ut*, the *Parhypate-Hypaton*, to *E-la-mi*, the *Hypate-Meſon* of the *Greeks*. A Sixth, call'd *Hexachordon*; that is, from *F-fa-ut*, the *Parhypate-Meſon*, to *D-ſol-re*, above the *Nete Synemenon* of the *Greeks*.

The two *Diſcords* are a ſecond; otherwiſe call'd a whole *Tone*; that is, from *C-ſol-fa-ut*, the *Paranete-Synemenon*, to *D-ſol-re-ut*, the *Nete-Synemenon* of the *Greeks*; and a Seventh, call'd *Heptachodron*; that is, from *D-ſol-re*, the *Nete-Synomenon*, to *G-ſol-re-ut*, in the higher *Key* to the *Poranete-Hypaton* of the *Greeks*.

The moſt uſual *Moods* of the *Greeks* (for *Alpinus* names fifteen) were five, the *Dorick*, the *Lydian*, the *Æolick*, the *Phrygian*, and the *Ionick*. What the Uſe and Nature of theſe *Greek Moods* was, is not certainly determined, even by the moſt diligent Enquirers into the *Muſick* of the Ancients; only thus much is generally noted, That the *Dorick* is the moſt Graver and Solid; the *Lydian* the moſt Sprightly, and what we now-a-days generally call *Air*.

There are reckon'd among the Moderns four *Moods*; two great, the *Perfect* of the More, and the *Imperfect* of the Leſs: But of theſe the two laſt alone are chiefly in Uſe.

The *Imperfect* of the More, is, when three *Minims* go to the *Semi-brief*, with a *Prick* of Perfection; this is call'd *Triple-time*, and hath uſually this Mark $\overset{\mathrm{C}}{_3}$.

The *Imperfect* of the Leſs, hath as the former, two *Longs* to a *Large*, two *Breves* to a *Long*, and two *Semi-brieves* to a *Brieve*; but in this it differs, that it hath alſo but two *Minims* to a *Semi-brief*, &c. and this is call'd *Time*, and thus mark'd 𝄵

The Parts of Muſical Conſort.

THere are indeed in *Muſical Conſort* but three Material Parts, *viz. Treble*, *Mean*, and *Baſe*; but our *Muſicians* commonly make four Parts, *viz.* the *Supremus*, or *Cantus*, that is, the *Treble*; the *Altus*, or *Counter-Tenor*; the *Tenor*, which we call the *Mean*, or *Tenor*; and the *Baſſus*, which we call the *Baſe*, or loweſt Part.

In the ordering of theſe *Parts*, there are two ſeveral ways of *Compoſition*, viz. *Counter-Point*, and *Deſcant*.

Counter-Point, is a ſetting of Parts together in ſuch ſort, that they may anſwer each other exactly, *Note* for *Note*.

Deſcant, is the ſetting of Parts together in ſuch ſort, that the *Notes* of one may anſwer to thoſe of the other, not in equality of *Number*, but only in *Time* and *Proportion*; as two *Minims*, or four *Crotchets* to a *Semi-brief*, and in like manner in all the reſt.

Modulation, is the *Muſical* Performance, or expreſſion for Harmony, by *Singing* or *Playing* upon an *Inſtrument*.

In *Singing* or *Playing*, there are five Things to be obſerved. 1. The Number of their *Notes*. 2. Their *Names*. 3. Their *Tunes*. 4. Their *Times*. And 5. Their *Adjuncts*.

The Number of *Muſical Notes* is indeed but ſeven; for tho' from the loweſt of a Man's *Baſe*, to the higheſt of a Boy's or Woman's *Treble*, there are reckoned 21 *Notes*, yet they are really but 7, three times repeated; ſo that the whole *Scale* of *Muſick*, commonly call'd the *Gam-ut*, ſhould reach from *Gam-ut* below to *F-fa-ut* above; that is, from *G*, to *F*, in the loweſt *Septenary*, or *Baſe*; from *G*, to *F*, in the middle *Septanary* or *Mean*; and again from *G*, to *F*, in the higheſt *Septenary*, or *Treble*. But the moſt uſual *Scale* falls ſhort a *Note* in the third *Septenary*, reaching but to *E-la*; this poſſibly being ſuppoſed the ordinary Compaſs of a *Voice*. But ſome there are, who add to the *Scale* ſeveral *Notes* beneath *Gam-ut*, and above *E-la*, in *Alt*; this increaſed *Scale* being probably ſuppoſed, the extraordinary Compaſs of the *Voice*, or *Inſtrument*.

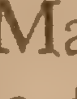
The ſecond Thing to be obſerv'd in *Singing* or *Playing*, is the Knowledge of the Names of the ſeveral *Notes*, which are commonly joyn'd with the ſeven firſt *Letters* of the *Alphabet*, which are properly to be look'd upon as the *Cleffs*, or *Signs* of the *Notes*.

The *Names* of the Seven *Notes* are, *Ut*, *Re*, *Mi*, *Fa*, *Sol*, *La*, *Fa*; where Note, that the ſeventh, is call'd by the ſame Name as the fourth, as being but half a *Tone* above *La*, as *Fa* is above *Mi*; and the Truth is, conſidering that *Ut* and *Re*, are much rejected by Modern *Muſicians*, or at leaſt accounted but the ſame with *Sol* and *La*. There are indeed but four ſingle Names, *viz. Mi*, *Fa*, *Sol*, *La*, tho' oft repeated, and variouſly commix'd one with another, as appears in the following *Gam-ut*, or *Scale* of *Muſick*.

The *Treble*, or higheſt *Septenary*.
F-fa-ut,
E-la,
De-la-ſol,
C-ſol-fa,
B-fa-bi-mi,
A-la-mi-re,
G-ſol-re-ut,

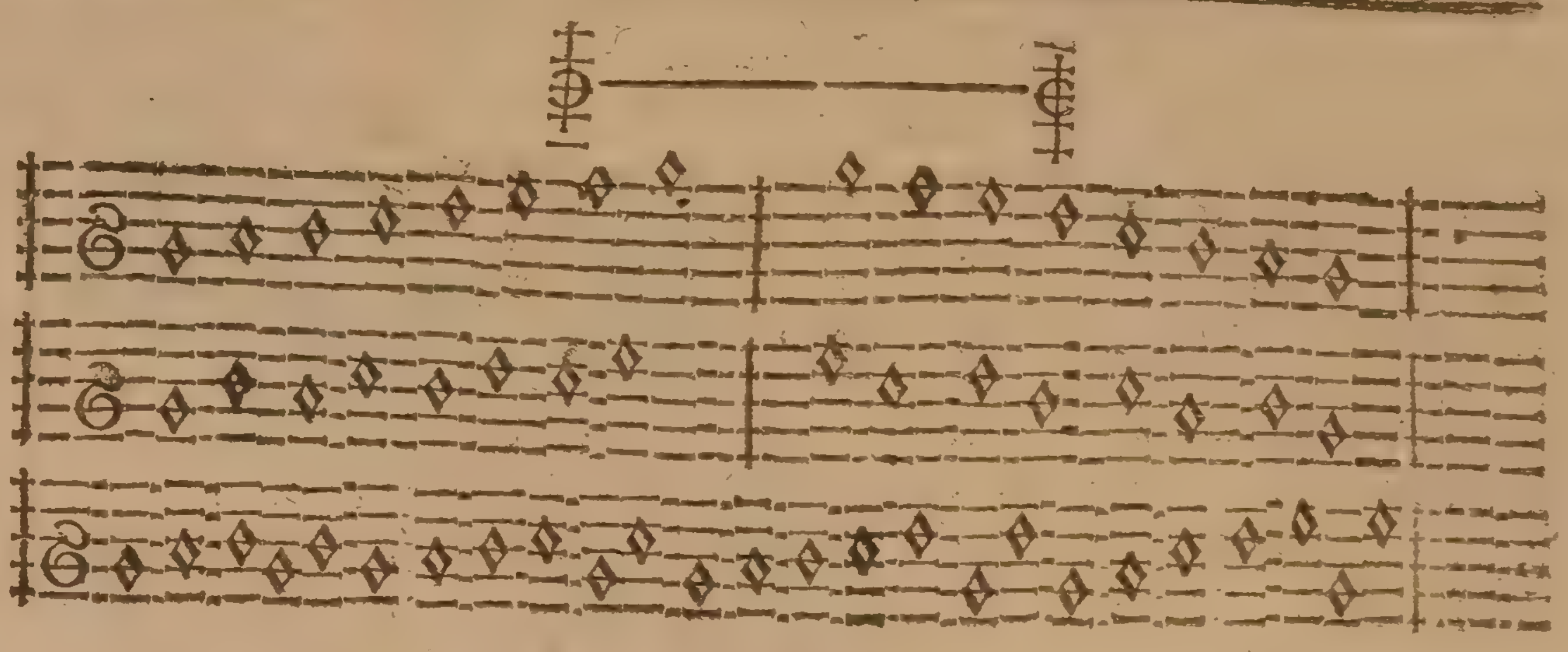
The *Mean*, or middle *Septenary*.
F-fa-ut,
E-la-mi,
D-la-ſol-re,
C-ſol-fa-ut,
B-fa-bi-mi,
A-la-mi-re,
G-ſol-re-ut.

The *Baſe*, or loweſt *Septenary*.
F-fa-ut,
E-la-mi,
D-ſol-re,
C-fa-ut,
B-mi,
A-re,
Gam-ut.

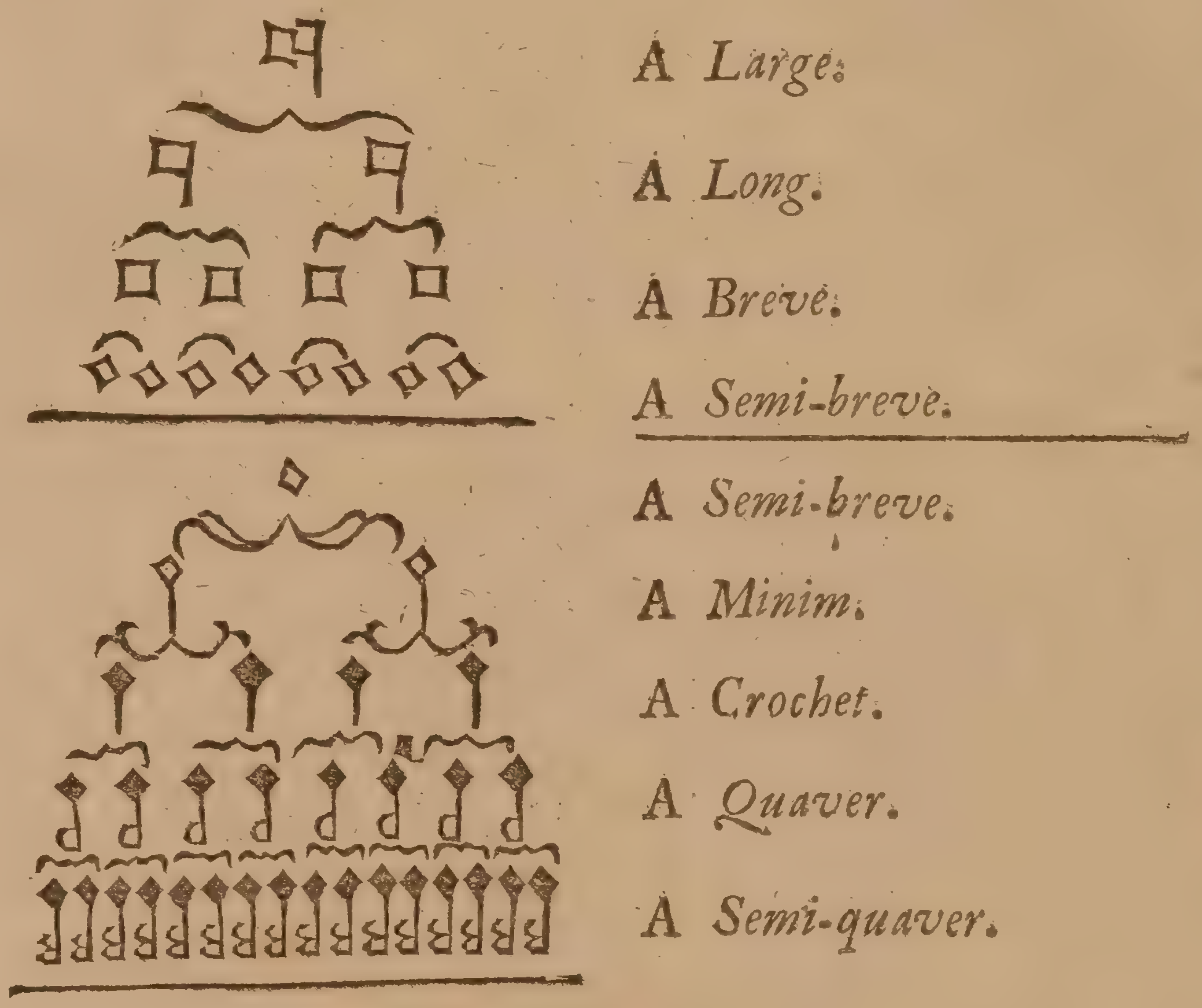
Of the ſeven *Cleffs*, or *Keys*, noted by the ſeven *Letters*, four only are in uſe; the firſt is *F-fa-ut Cleff*, which is peculiar to the *Baſſus*, or lower *Part*; and at the beginning of *Songs* and *Muſical Airs*, is ſet upon the uppermoſt *Line* but one, and is thus Mark'd The Second is *C-ſol-fa-ut*, which belongs to the *Mean*, or *Middle Part*, and is commonly, (but not always) upon the middlemoſt *Line*, and is thus Mark'd The Third is *G-ſol-re-ut Cleff*, which is appropriate to the *Treble*, or uppermoſt *Part*; and at the beginning of *Leſſons*, or *Songs*, is uſually ſet on the lowermoſt *Line* but one, being thus Mark'd . Theſe are the three firſt and Signed *Cleffs*. The Fourth, which is call'd *B Cleff*, is unfix'd to any particular *Part*, but goes through all, and ſerves wherever it is for the Flatning, or Sharpning of *Notes*, where it is call'd *B-fa*, or *B flat*, and is thus Mark'd (♭); where it ſharpneth, it is call'd *B-mi* or *B ſharp*, being thus Mark'd .

Of all the four *Notes*, *Mi* is the principal, and claims a ſtation in theſe Places, *viz.* in *B-mi*, *E-la-mi*, and *A-la-mi-re*. In the firſt, as in its proper Station, in the others when *B flat* chanceth to be plac'd there; alſo moreover immediately from *Mi*, *Fa-ſol-la*, is ſung twice upwards, and *La-ſol-fa*, twice downwards, and then you return to *Mi* again.

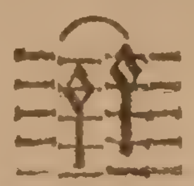
The third Thing to be conſider'd in *Singing* or *Playing*, is the Knowledge of the *Tunes* of the *Notes*, wherein this Thing is chiefly to be obſerv'd, *viz.* That from *Mi* to *Fa*, and from *La* to *Fa*, is but half a *Tone*; but between any other two *Notes* is a whole *Tone*, as will appear in theſe following Examples.

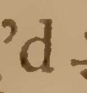


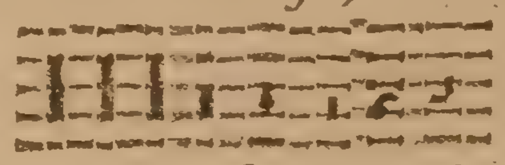
The fourth Thing to be conſider'd in *Singing*, or *Playing*, is the *Time* of *Muſical Notes*, which is denoted by eight ſeveral *Terms* of Diſtinction, each having their ſeveral *Marks* or *Characters*, and each comprehending the other double, *viz.* a *Large* contains two *Longs*, a *Long* two *Breves*, a *Breve* two *Semibreves*, &c.

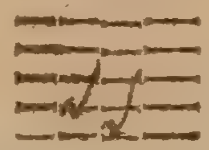


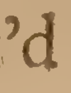
The fifth Thing to be conſider'd, is the knowing the *Adjuncts*, which are theſe, *viz.* A *Tye*, a *Repeat*, a *Pauſe*, a *Direct*, and a *Cloſe*.

A *Tye* is a Mark by which two *Notes* are ſignified to be joyn'd together, and eſpecially when two *Notes* are to be Sung to one *Syllable*: This *Tye* is made by a *Semi-circle*, whoſe two Ends point to the two *Notes* conjoyn'd; as thus 

A *Repeat* is to ſignifie, that a part of a *Song*, or *Leſſon*, is to be Sung, or Play'd over again from that *Note* over which it is plac'd, and it is thus mark'd .

A *Pauſe*, or *Reſt*, is to ſignifie a ceaſing for the ſpace of ſome *Note* Sung or Play'd: This *Pauſe* is nam'd according to the Name of the *Note* for which it ſtays; as a *Large-Reſt*, a *Breve-Reſt*, a *Semibreve-Reſt*, &c. all thus Noted: 

A *Direct* is to ſhew at the end of one *Line*, where a *Note* ſtands in the beginning of the next *Line*; as thus mark'd 

A *Cloſe* is the end of a *Song*, or *Strain*; the firſt is call'd *Perfect*, and thus mark'd . The other *Imperfect*, and thus mark'd .

As to the exact *Rules* of *Compoſing*, I refer you to larger Volumes of that *Subject*, it not being deſign'd here.

CHRONOLOGY.

CHAP. I.

Of the DAY.

THE *Day* is either *Aſtronomical*, or *Political*, otherwiſe call'd Civil: The *Aſtronomical* is that which is ſo term'd by *Aſtronomers*, and is divided into *Natural* and *Artificial*.

I. The *Natural Day* is that interval of Time wherein the *Sun* departing from any Point of the *Heavens*, or from the *Meridian*, returns again to the ſame Point: Or otherwiſe it may be Defin'd, The *Sun*'s converſion from any firſt *Meridian* to the ſame again, which is perform'd in the ſpace of 24 equal *Hours*.

2. The *Artificial Day*, is the ſpace of Time from *Sun-riſing* to *Sun-ſetting*, or the whole Time of the *Sun*'s ſhining in our *Hemiſphere*, the oppoſite Time whereof muſt accordingly be call'd *Artificial Night*.

Note, That the *Artificial Day* differs from the *Natural*, in regard the *Natural* is always and every where the ſame; whereas, the *Artificial* hath almoſt always a perpetual Mutation, eſpecially in Regions remote from the *Æquator*; for, as I ſaid, the *Artificial Day* comprehends only the ſpace of Time comprehended between the *Sun*'s Riſing and Setting, being ſhorter in Winter, and longer in Summer.

Note Secondly, that the *Days* are longer in Summer by reaſon of the *Sun*'s longer continuing above the *Horizon*, and the larger *Arches* of *Heaven* the *Sun* runs through in reſpect to our *Horizon*; as you may ſee in the Deſcription of the *Sphere*: On the contrary, the *Diurnal Arches* the *Sun* makes in Winter, are ſhorter. The *Diurnal* and *Nocturnal Arches* appear almoſt all equal. Not to ſpeak of the *Twilight*'s being an Impreſſion of Light from the Sunbeams upon the Air, either before *Sun-riſing*, which is call'd *Diluculum*, or *Day-break*, or in the Evening after *Sun-ſet*.

Note Thirdly, That the *Natutal Day* hath not the ſame beginning among all People, but is determined according to the different Inſtitution of each of them. The *Babylonians* uſe to denominate the *Day* from one *Sun-riſing* to another. The *Italians* on the contrary from one *Sun-ſetting* to another, and accordingly they number their *Hours*. The Ancient *Romans*, and accordingly the *Romiſh Church*, at this Day reckon from Midnight to Midnight. The *Arabians* and *Aſtronomers* from *Moon* to *Moon*, becauſe the *Sun* and *Stars* keep always the ſame Regularity to each other, in reſpect of the *Meridian Circle*, but not in reſpect of the *Horizon*, which always varies according to the variety of the *Polar Elevation*.

Nor can we in reſpect to the *Holy Scriptures*, omit the Cuſtom of the ancient *Jews*, who, as they were commanded by God, began all their Feaſts from the foregoing *Sun-ſetting*, according to that of *Leviticus*, *from Evening to Evening ye ſhall celebrate your Sabbaths.* Contrarily the *Tyrians* began their *Day* from the *Sun-riſing*; and probably in this Matter they differ'd not from the *Babylonians*, and other Neighbouring Provinces, who computed the *Hours* not from *Sun-riſing*, but from its *Setting*.

Further *Note*, This *Natural Day* conſiſting of *Artificial Day* and *Night*, is call'd *Civil*, or *Political*, as it takes beginning or ending from the different Inſtitution of *People* and *Countries*: And of theſe *Political Days* ſome *Feſtival* or *Holy-Days*, in which Shops are ſhut up, and common Works laid aſide, or *Working-Days*, allotted for the exerciſe of all manner of Works and Profeſſions; and theſe *Days* are noted in theſe *Tables*, or *Books*, which from the *Arabians* we call *Almanacks*, and from the *Latins*, *Calenders*; for a *Calender* is the Order and Series of all Months, *Lunations*, and *Feſtival-Days*, which happen through the *Year*; and it is call'd *Calender* from the *Calends*, which are the firſt *Days* of every *Month*.

CHAP. II.

Of the HOURS.

AN *Hour* is one of thoſe leſſer Spaces of *Time*, into which every *Day* of the *Year* is continually divided. It is more particularly thus Defin'd: An *Hour* is the 24th part of a *Natural*, or the 12th of an *Artificial Day*.

Note Firſt, That of *Hours* ſome are call'd *Equal*, which are the 24Parts(as have been ſaid)of a *Natural Day*, otherwiſe term'd *Aſtronomical*, or *Equinoctial*; becauſe each of them is that ſpace of *Time* wherein the *Equator* aſcends 15 Degrees above the *Horizon*, or in which the *Sun* in his Courſe runs through 15 *Meridians*: Each *Hour* is divided into four *Quarters*, and every *Quarter* into 15 *Minutes*, or *Scruples*, making in the whole 60.

Note Secondly, Others are call'd *Unequal Hours* by the *Greeks*. There are 12 Parts as well of *Day* as of *Night*; that is, as well of that Time wherein the *Sun* is above the *Horizon*, as wherein he ſtays beneath it: And they are call'd *Unequal*, not that the *Hours* of one and the ſame *Day* or *Night* are unequal among themſelves; but becauſe when as there are 12 equal Parts of unequal *Days*; that is, of *Summer-Days* and *Winter-Days*, it muſt neceſſarily follow, that the *Summer* and *Winter-Hours*, are by this means unequal among themſelves. They are alſo call'd *Unequal*, becauſe in the *Summer* time the *Diurnal Hours* are longeſt, and the *Nocturnal* ſhorteſt; but in the *Winter* time quite contrary. They are alſo call'd *Temporary*, becauſe according to the diverſity, that is, the *Length* or *Shortneſs* of *Days* they have different *Magnitudes*. Laſtly, They are ſaid to be *Planetary*, in regard certain Ancient *Aſtronomers* were of Opinion, that the ſeven *Planets* rul'd the Hours ſucceſſively; that is, in ſuch a manner as this, That the firſt Hour of the *Day* ſhould be allotted to that *Planet* from whence the ſaid *Day* took Denomination.

It is to be obſerv'd out of *Baronius*, in his Remarks upon the *Year* of our *Lord* 34, That the *Jews* divided as well the *Day* as the *Night*, not only into 12 *Temporary Hours*, but alſo into 12 *Equal Parts*, as it were, into 4 *Stations*, each of which contain'd 3 of thoſe which are call'd *Temporary* and *Unequal Hours*; but the 4 Parts of the *Night* were call'd *Vigiliæ*, by a Name borrow'd from *Vigiles*. The firſt began at *Sun-ſetting*; the ſecond ended at *Mid-night*, where alſo the third began; and the fourth ended at *Sun-riſing*.

Now, the 4 Parts of the *Day* were properly call'd *Hours*, each conſiſting (as aforeſaid) of 3 *Temporary Hours*, ſo as at the laſt part of this ſort of *Hour*, that is, the Second, was the Sixth *Common* and *Temporary Hour*, which the Third proper *Hour* of the *Jews* follow'd, containing of the *Temporary Hours* the Seventh, Eighth, and Ninth: And according to this Calculation, St. *Mark* rightly ſaith, that our *Saviour Jeſus Chriſt*, was Crucify'd in the *Third Hour*, that is, in the Third of thoſe Four equal *Stations* into which the whole *Day* was divided; whereas, St. *John* Writing, that he was Condemn'd by *Pilate* in the *Sixth Hour*; that is, in the Sixth *Temporary*, or *Vulgar Hour*.

CHAP. III.

Of the WEEK.

THE *Week*, call'd by the *Latins*, *Septimana*, is a Period of 7 *Days*, ſtill circling in a *Ring*; firſt Inſtituted by *God* in the beginning of the *World*, Religiouſly obſerv'd by the *Hebrews*, and the Obſervation thereof deliver'd by Tradition from them to others. But the *Hebrews* themſelves call'd the principal *Day* of the *Week*, the *Sabbath*, as it were a *Day* of *Reſt*, in which *God* is ſaid to have Reſted after his finiſhing the *World's Creation*: Moreover, among them this *Day* gave Name to the whole *Week*; ſo that *Sabbatum* was the ſame as *Hebdomada*; and what we call the firſt, ſecond, or third *Day* of the Week, &c. was by them call'd the firſt, ſecond, or third *Day*, &c. of the *Sabbath*.

The *Ethnicks* gave to each of theſe *Days*, the Name of one of the 7 *Planets*, taking beginning from the *Sun*, whence the firſt *Day* was call'd *Dies Solis*, or Sunday; after which follow'd the reſt in order, as *Dies Lunæ*, Monday; *Dies Martis*, *Tueſday*; *Dies Mercurii*, Wedneſday; *Dies Jovis*, Thurſday; *Dies Veneris*, Friday; and *Dies Saturni*, Saturday.

The *Chriſtians* uſed to call theſe Days *Feriæ*, to ſignify that there ought to be a Divine keeping *Holy-Day*, by reſting from all Profane or Secular Employments, and following only *Religious Duties*, eſpecially thoſe ſet apart for the *Holy Function*. The firſt *Feriæ*, they call'd *Dies Dominica*, or the Lord's Day; becauſe on that Day our Lord and Saviour *Jeſus Chriſt*, was rais'd from the Dead. The ſeventh *Feriæ* ſtill retains the Name of *Sabbath*, to ſignifie that the *Jewiſh Sabbath* was only a Type or Shadow of the *Lord's-Day*, and as it were, a Preparation to the celebrating thereof.

For the better repreſenting the Revolution of theſe 7 Days throughout the whole *Year*, the 7 firſt *Letters* of the *Alphabet*, *A*, *B*, *C*, *D*, *E*, *F*, *G*, have been made choice of in ſuch an Order and Method, that each of theſe *Letters* in their turn, ſhould declare the *Dominical Day*, whence they are generally call'd *Dominical Letters*.

CHAP. IV.

Of the MONTH.

THE *Month* is two-fold, *Solar* and *Lunar*. The *Solar* is that ſpace of Time in which the *Sun* runs through one whole Sign of the *Zodiack*; wherefore, in conſideration that the *Sun* runs through thoſe 12 Signs of the *Zodiack* in 365 Days, and ſome odd Hours and Minutes, there are attributed accordingly to ſome of the *Months* 30, and to others 31 Days, *February* only excepted, to which the Remainder falls, and compleats the above-mention'd number of Days in the Year. The *Lunar Month*, is that ſpace of Time in which the *Moon* runs through the *Zodiack*, or the Space between the two Conjunctions of the *Sun* and *Moon*; for there is a double *Lunary Month*, one call'd *Periodical*, being the Space wherein the *Moon* departing from any *Point*, returns to the ſame again, that is (as is vulgarly computed) in 27 Days, 7 Hours, and odd Minutes. The other *Lunary Month*, is that which they call *Synodical*, or the Month of the *Lunary Syzygie*, or *Conjunction*, and is that ſpace of Time wherein the *Moon* going from the *Sun*, returns again into the *Conjunction* with him; and this is ſaid to be in the ſpace of 29 Days, 12 Hours and an half; for when the *Moon* finiſhes her Period of 27 Days and 12 Hours, the Sun in the mean time makes ſome Progreſs, that is to ſay, 27 Degrees; and this muſt be made up in the *Moon's* Circle, before ſhe can come again to her *Conjunction* with the *Sun*, which can't be done in leſs than 2 Days and 5 Hours, which being added to the number of the *Periodical Months*, make 29 Days and 12 Hours, not to mention Minutes. And thus the *Periodical Month* are by turns of 29 and 30 Days; the twice 12 Hours remaining making in 2 *Months* one whole Day: And this is that ſort of *Month* that the Year is divided into.

Thirdly. It is to be noted, that the *Lunar Months* are joyn'd with the *Solar*; and that the *Lunation* is properly of that *Solar Month*, in which it ends, according to the Vulgar Saying,

In quo finitur Menſi Lunatio detur.

The Reaſon of this is unfolded by *Clavius* in his *Calendarium Gregorianum*, C. 17. that is to ſay, for that it would otherwiſe happen, that ſometimes the *Months* would ſcarce have one or another Day of their proper *Lunation* through the whole Year, eſpecially when the firſt *Lunation* of the Year happens upon the firſt of *January*; for the other *Lunations* of the ſame Year, begin only in the laſt Days of the Month.

Fourthly. Obſerve that the firſt *Month* of the Year among the Ancient *Ægyptians*, was call'd *Thot*; among the *Romans*, *Martius*; whence *July* was call'd *Quintilis*, and *Auguſt*, *Sextilis*, as being the fifth and ſixth *Months* from *March*. But when *Numa* added *January* and *February*, then the uſual Computation was made from the firſt of *January*.

Fifthly. It is alſo obſervable, that the *Months* were divided by the *Romans* into three ſorts of Days, *Calends*, *Nones*, and *Ides*. The firſt Day of every *Month* was call'd *Calendæ*, from the *Greek* Word Καλεῖν, that is, *to Call*; becauſe on that Day the People were call'd as well to the *Fairs* and *Markets*, as to the *Capitol*, to receive from the *Prieſts* what was to be obſerv'd for that *Month*, in reference to the Worſhip of the *Gods*. Next follow'd the *Nones*, ſo call'd, as contracted from *Nundinæ*, that is, *Fairs*, as ſome are of Opinion. Laſtly, came the *Eight Days* of the *Ides*, which follow the *Nones*; theſe *Ides* are generally ſuppos'd to be ſo call'd from the old Word *Iduo*, which ſignifies *to Divide*; becauſe they make a diviſion between the *Nones* and the *Calends*; which *Calends*, becauſe they have their fix'd and certain Seat in every *Month*, as falling upon the firſt Day of every *Month*, when as the Days of the *Ides* and the *Nones*, are variouſly diſpoſed. There are theſe following *Verſes* vulgarly made uſe of to give direction by what Method the *Nones*, or *Ides*, are aſcrib'd to their reſpective *Months*.

Sex Maius Nonas October, Julius & Mars,
Quatuor, at reliqui dabit Idus quilibet octo.

So that when the *Nones* are once known, the finding out of the reſt will follow of courſe.

Sixthly, From theſe three Days all the reſt take their Denomination: For Example; the Day which preceeds the *Calends*, that is, the laſt Day of the fore-going *Month*, is call'd *Pridie Calendas*, or *Primus Calendas*, *Secundus Calendas*, the Second Day before the *Calends*, and ſo of the reſt; and the ſame is to be ſaid proportionable of the *Nones*, and *Ides*.

CHAP. V.

As the Month, *ſo alſo the* Year *is Two-fold, viz.* Solar *and* Lunar.

I. THE *Solar Year*, is the ſpace of Time wherein the *Sun* departing from any *Cardinal Point* of *Heaven*, returns again to the ſame. The *Principal* or *Cardinal Points*, are theſe four; the *Vernal Equinoctial*, the *Summer Solſtice*, the *Autumnal Equinoctial*, and the *Winter Solſtice*, which gives beginning to the four *Seaſons* of the *Year*, viz. *Spring*, *Summer*, *Autumn*, and *Winter*.

But 'tis obſerv'd, that among the Ancient *Ægyptians* and the *Romans*, this Circuit of the *Sun* was meaſur'd exactly by 365 *Days*, which Computation was found ſhort of the *Celeſtial Motion* about 6 Hours; whence it came to paſs, that every fourth *Year*, the firſt Day of the *Year*, and conſequently the reſt following, loſt their Place, and had no firſt Station; whereupon thoſe *Feaſts* which ought to have been celebrated at certain Times, fell out ſometimes in *Winter*, and ſometimes in *Summer*, as it hapned. This Error *Julius Cæſar* at length corrected, by adding to the 365 Days, 6 Hours, which at the end of every fourth *Year*, being added together, made up a Day, which Day was inſerted into the *Month* of *February*, the laſt and ſhorteſt of all the Months; and it is call'd *Biſſextile*, becauſe it is inſerted, *bis ſexto Calendas Martias*, twice on the ſixth Day before the *Calends* of *March*? and not only the *Day*, but the whole *Year* is call'd *Biſſextile*, or *Leap-Year*.

This Conſtitution of the *Year* was obſerv'd in the *Roman Empire*, and from its Author call'd the *Julian Account*, being twofold; the one *Common*, conſiſting of 365 Days; the other *Biſſextile*, of 366.

II. The *Lunar Year* is that Space of Time wherein the *Sun* and *Moon* are 12 in *Conjunction*: And thus the *Lunar Year*, conſiſting of 12 *Synodical Lunations*, contains 354 Days; which *Lunar Year* is at this Day only in uſe among the *Turks* and *Saracens*, neither hath it among them any certain beginning, nor is it determined by any certain *Seaſon*, or *Point* of the *Heaven*, as among us the *Julian Year* begins always about the *Winter Solſtice*. Others have ſo accommodated the *Year* to the *Moon*'s Motion, as to joyn alſo the *Sun*'s Motion thereunto.

But it is to be noted, that the *Lunar Year* falls ſhort of the *Solar* about 11 Days, ſo that if this *Year* the *New Moon* falls upon the *Calends* of *January*, the Common *Lunar Year* of 12 *Lunations* will be finiſh'd on the 20th of *December*, the *New-Moon* ſtill going back the Space of 11 Days, until by the third *Year* 13 *Lunations* are brought about, the laſt whereof will be finiſh'd on the 27th of *December*; and this ſort of *Lunar Year* is call'd *Emboliſmical*, or *Emboliſmal*, from the *Emboliſm*, or *Intercalation* of that *Lunation*. And thus the *Lunar Year*, as well as the *Solar*, is twofold; the one Common, conſiſting of 12 *Lunations*; the other *Emboliſmical*, containing 13.

It hath been obſerv'd by *Meton* a famous *Aſtrologer*, that the New *Moons* after the Revolution of nineteen *Years* elapſed, return all again to the ſame Days, and the ſame point of Time: For Example; if this preſent *Year* the New *Moon* ſhould fall on the firſt of *January*, it would in like manner certainly fall on the ſame Day on the nineteenth Year enſuing. Hence proceeds the moſt famous *Cycle*, or perpetual Revolution of Numbers, from One to Nineteen; by the benefit whereof it may eaſily be underſtood upon what Day of every Month the New *Moon* happens, inſomuch that it is uſed to be ſet down in the *Calender* in *Golden Letters*, and ſo it was call'd the *Golden Number*, being commonly defin'd to be a Revolution of Years from 1, to 19; which Revolution being finiſh'd, there is a return again to Unity. For *Example*, in 1653, the *Golden Number* being 1, that of the following Year will be 2, and ſo forward to 19; and thus the proper Number of the Year in the *Decennoval Series*, extending through every Day of the Year, will ſhew the New *Moons* as often as it happens; but every Year of the *Golden Number* terminates in the end of *December*, and in the beginning of *January* of the enſuing Year, another takes its beginning.

And this was the Doctrine of *Meton*, which heretofore was vulgarly follow'd by all; but at length it was found not abſolutely free from Error, for as much as by this Computation, the *Moon* appear'd to have finiſh'd her *Period* ſooner by one Hour, and about 27 Minutes, than ſhe had begun it 19 Years before; whereupon, after 66 *Cycles* the *Golden* was got 4 Days diſtant from the New *Moons*: Upon which the *Epacts* were brought into the room thereof, of which more hereafter in the ſeventh Chapter. However, it was by no means thought fit to be left out of the *Calender*, ſince it is of great uſe for the finding out of the *Epacts* of every *Year*.

III. Divers Nations, according as Cuſtom hath prevail'd, have given different beginnings to this Year: I ſhall only mention the Cuſtom of the *Jews* and *Romans*, as being moſt obſerv'd throughout *Europe*.

The *Jews* heretofore began their Year from the *Vernal Æquinoctial*, becauſe according to the Common Opinion, the World was Created at that time of the Year, although when they ſojourn'd among the *Ægyptians*, they conform'd to their Cuſtom, beginning the Year from the Month *Thoth*, which (by reaſon of the neglected Intercalation of one Day every fourth Year) anſwer'd to no certain Point of the *Celeſtial Year*: But as ſoon as they were come out of *Ægypt*, they were commanded by God, to have recourſe to their old beginning, as is mention'd in the 12th of *Exodus*: The Month *Niſan ſhall be to you the beginning of Months; it ſhall be the firſt of the Months in the Year*.

But this is to be underſtood out of the Sacred Year, to which their *Feaſts*, New *Moons*, and all other Sacred *Rites* were accommodated; for as the Interpreters of *Scripture* obſerve, that the Civil Year of the *Jews* after their departure from *Ægypt*, began from the Month *Thiſri*, and all their Civil Affairs and Negotiations were reckon'd according to the courſe of this *Civil Year*. Hence it is, that ſome Authors aſſert, that the *Jews* before *Moſes*, began their Year in the *Autumn*, and make it their chief Argument to prove, that the World was created in the *Autumnal Equinoctial*.

The beginning of the *Roman Year*, was from the *Calends* of *January*, and conſequently but a few Days diſtant from the *Winter Solſtice*: And the *Chriſtians* have for the moſt part follow'd their Example, upon the account of our *Saviour's Birth*, being ſo near that Time. But the *Franks* not till the Year 1564, before which, they began the Year from *Eaſter-Day*.

CHAP. VI.

Of the Gregorian *Account.*

THE *Catholicks* have thought fit in this one Particular, to give ſome way to the *Jewiſh Ceremonies*, that is, in exactly obſerving the time of their *Paſſover*, in their celebration of *Eaſter*; by reaſon that the one (as St. *Auguſtin* obſerves) is a *Type*, or a Myſterious *Allegory* of the other; ſo that as the old *Paſſover*, as we have already mention'd, was celebrated by God's Command, in the firſt *Moon*, or Month of the Year, ſo alſo the *Chriſtian Paſſover*, or *Eaſter*, was by the *Nicene* Council order'd to be kept on that Month; and that no Controverſie might ariſe in the Celebration thereof, they pitch upon the 14th Day of the firſt Month, both as to the *Feaſt*, and as to be the Seat of the *Vernal Equinoctial*, accounting that the firſt Month whoſe twelfth Day ſhould fall upon the *Equinoctial*, or immediately following it: Afterwards the *Equinoctial Epoc*, was by the Judgment and Conſent of the moſt Skilful *Aſtronomers*, determin'd to the 21ſt of *March*; and at length the *Golden Number* was fitted to the *Calender*, by the benefit whereof the *New Moons*, and other Days of the *Moon* might be eaſily found. Moreover, herein alſo the *Chriſtians* differ'd from the *Jews*, in that they appointed *Eaſter* to be kept, not as the *Jews* did, on the very 14th *Moon* of the firſt Month, but on the *Lord's-Day* immediately following it, and that chiefly for this Reaſon, *viz.* Becauſe on the firſt *Dominical*, or *Lord's-Day* after the *Jewiſh Paſſover*, our *Saviour* roſe from the Dead. For as the Author of the *Gregorian Calender* ſaith, the *Jews* Celebrate the *Paſſover* on the 14th *Moon*, which repreſented the Death of *Chriſt*; ſo we, in this Feaſt, Celebrate the Memory of *Chriſt's*, which happen'd on the *Dominical Day*: So that not to concur with the *Jews*, in caſe the 14th *Moon* of the firſt Month ſhould fall upon the *Dominical Day*, the obſervation of *Eaſter* muſt be transferr'd to the *Lord's-Day* following; therefore for the more exact Celebration of *Eaſter*, upon which all the reſt of the movable *Feaſts* depend, theſe three Things are eſpecially to be obſerv'd, *viz.* the *Vernal Equinoctial*; the 14th *Moon* of the firſt Month, and the *Lord's-Day* following the ſaid 14th Month.

But after this Conſtitution, it came to paſs however, through the Miſtakes of *Aſtronomers*, that the *Vernal Equinoctial* at length, inſtead of hapning on the 21ſt of *March*, it was on the 11th; nor could the *New Moons* be well computed by the *Golden Numbers* plac'd in the *Calender*, but fell out above 4 Days later than their juſt Time; and conſequently *Eaſter-Day* could not be kept in its due turn, according to the Sanction of the *Nicene Council*: Whereupon, by the Authority of *Pope Gregory* the 13th, who call'd together all the ableſt *Aſtronomers* of that Age, the *Calender* was rectified, *Anno* 1582. the Year brought to its juſt Meaſure; and by taking away 10 Days, the *Vernal Equinoctial* re-inſtated in its former Seat; and laſtly, 30 *Epactal Numbers* put in the room of the *Golden Number*.

According to this Form, that ſpace of Time wherein the Sun departing from any Point of the Heaven, for Example, from either *Equinoctial*, or *Solſtitial Point*, returns again to the ſame, is call'd the *Cæleſtial*, or *Tropical Year*; and this ſort of Year is unequal, that is, ſometimes greater, and ſometimes leſſer, by ſome *Scruples*; and by this means it leaves us in Obſcurity as to its *Solution*. Wherefore *Aſtronomers* following a middle way, have allotted to the Year 365 Days, 5 Hours, and 49 Minutes, reckoning it as a Mean between the *Tropick*, or *Cæleſtial Year*, and the *Julian Year*, which is greater by 11 Minutes, or *Horary Scruples*; and becauſe the *Julian Year*, tho' greater than the *Tropical*, was not however totally thrown aſide, it was provided to prevent all Error for the future, that every Century of Years one *Biſſextile Day* ſhould be omitted, excepting only every 4th Century, which ſhould retain the *Biſſextile*, according to the common Cuſtom.

CHAP. VII.

Of the various Cycles *and* Periods *of Years.*

NOT to inſiſt long upon the Explaining the ſeveral *Epochs* of Time, it is enough to ſay, that *Epochs* are certain Heads, or Beginnings, from whence Time is computed, and agree'd upon among all *Chronologiſts*, as among the *Epochs* of the *Old Teſtament*; *Noah's Flood*; the *Jews deliverance from Bondage*, and the *Babyloniſh Captivity*: Among the *Chriſtian Epochs*, the *Birth* and *Paſſion* of our *Saviour*, the Deſtruction of *Jeruſalem*, &c. Among thoſe of the *Romans*, the Building of *Rome*: And among the *Greeks*, the Deſtruction of *Troy*, the *Olympiads*, the Death of *Alexander*, &c. Much of the ſame Nature are the ſeveral *Area's*, as the *Area*, or *Hera* of the World; that is, the number of Years from the *World's Creation*, the *Chriſtian Area*, or number of Years from the *Nativity* of our *Saviour*: Alſo the *Hegira* of the *Arabians* from *Mahomet*.

The *Cycles* and *Periods* of Years, are a certain number of Years circuiting about, by which, as ſo many Faithful *Guardians*, the *Series* of Times are preſerv'd whole and entire. Famous among the *Greeks* were their *Olympiads*, which were every 5th Year, in which all ſorts of *Games* and *Exerciſes* were perform'd. Among the *Romans* was their *Luſtrum*, which was alſo the ſpace of five Years, at the end of which Time all *Tributes* and *Taxes* were paid; but in the Reign of *Conſtantine* the Great, the *Olympiads*, and *Luſtres*, being abrogated, the *Indiction* was put in the room thereof: This *Indiction* was the ſpace of 15 Years, which was the time allotted to the Provinces of the *Roman Empire*, for the paying their Tributes: And the uſe of this *Indiction* is retain'd among the *Eccleſiaſtical Accounts*. Among the *Jews* there were two noted Periods, *viz.* The *Sabbarian Year*; that is, every 7th Year, in which the *Earth* was to reſt from all manner of Tillage, in like manner as Man from all manner of daily Labour on the 7th Day of the Week. Secondly, the Year of *Jubile*, which was every 50 Years; at which time, not only the *Earth* reſted from Tillage, but all *Debts* were remitted, *&c.* There needs no more to be ſaid of that which we call *Seculum*, but that it is the ſpace of 100 Years; nor of the *Acunm*, but that it may be properly ſaid to contain 1000 Years. As for the *Decemnoval Circle* of the *Golden Number*, it hath been ſufficiently Treated of, *Chap.* 5. There now remains only the *Cycle* of the *Epacts*, and the *Solar Cycle*.

I. The *Epact* is the Series of 11 Days, by which ſpace the *Lunar* Year is exceeded by the *Solar*; ſo that if this Year the *Epact* be 11, the next Year it will be 22, but the third Year not above 3; becauſe that as often as by the Addition of ſeveral *Epacts* together, the number 30 ſhall come to be included in the ſum of the ſaid *Epacts*, 30 is to be taken away, and what remains, is to be retained for the *Epactal Number* of the following Year; ſo that every third Year in which the Thirties are caſt away, there happens an *Emboliſmical Moon*: Where Note, That the *Epacts* always proceed by the Addition of the Number 11, till the *Golden Number* happens in its courſe to be 19, and then the Number 12 is added in the room of 11, for the *Epact* of the following Year; and therefore this *Cycle* is call'd becauſe it is oftentimes thus interrupted.

II. The *Solar Cycle*, or Circuit of Dominical Letters is a revolution of 28 Years, at the end whereof the ſame Order or Combination of Letters returns as at firſt; for ſince it hath been ſaid before, that the Series of Letters, *A*, *B*, *C*, *D*, *E*, *F*, *G*, which repreſents the 7 *Feriæ*, or Days of the Week, are ſo diſpoſed in the *Calender*, that the Letter *A*, prefixt at the beginning of the Year, continueth on in the ſame capacity, and denotes the ſelf-ſame Day of the Week to the Year's end, unleſs that the Year happen to be *Biſſextile*, the next Year in like manner *B*, and ſo forward in their order. The whole *Cycle*, or revolution of the 7 Letters would by this means be brought about, and finiſh'd in 7 Years, if the *Biſſextile* Day did not obſtruct; for this being every 4th Year inſerted, and in the whole Series of Years 7 times coming about, tho' in a different manner, doth not happen in the ſame order of Letters, until all the 28 Years are compleated, as may be ſeen in the *Calender*; for it is call'd the *Solar Cycle*, becauſe it conſiſts of *Solar Years*, which being 4 times Multiplied upon 7, compleat that Number; and this *Cycle* according to the *Roman* Cuſtom, begins from the *Biſſextile Year*, which hath *F* for its Dominical Letter. Of all the ſorts of *Cycles* mention'd, the three moſt in uſe among *Chronologiſts*, are the *Decemnoval Cycle* of the *Golden Number*, the *Solar Cycle* of 28 Years, and the *Cycle* of *Indiction*, conſiſting of 15 Years.

The *Solar Cycle* being Multiply'd by the *Decemnoval Cycle* of the *Golden Number*, produces the Number of 532, which is call'd the *Dionyſian Period*, from the Inventer thereof, *Dionyſius*, Sirnam'd *Exigans*, who obſerv'd, that the revolution of theſe 532 Years brought about an exact conformity of the 3 *Cycles*; and conſequently by that the *New Moons* return not only to the ſame Days of the Year, but alſo the ſame Days of the Week, as they are noted in the *Calender*.

Hitherto may alſo be added the *Julian Period*, conſiſting of 7980 Years, which ariſeth from the Multiplication of the *Dionyſian Period* by 15, the number of Indiction: They call it the *Julian Period*, becauſe it is compos'd of the *Julian Year*, Multiplied upon each other; and it is finiſh'd of the ſame Conjugation, upon the return of the 3 *Cycles* of which it is compos'd; neither will the ſame Conjugation of the *Solar Cycle*, the *Golden Number*, and the *Indiction*, ever happen again in any Year of this *Period*, until after the revolution of 7980 Years: For Example; It is to be ſuppos'd from the Doctrin of *Petarius*, that 3983 Years, of this *Period* had paſt from the *Creation* of the *World*, to the *Birth* of our *Saviour*; and that the *Chriſtian Area*, or firſt Year of *Chriſt*, began with the Year of the *World*, 3984; and that the *Solar Cycle*, then 10, the *Lunar*, or *Golden Number* 2, and the *Roman Indiction* 4, fell upon the firſt Year of *Chriſt*, as appears from the exact computation of them. For if in this preſent Year of *Chriſt*, the *Cycle* of the *Sun* be 9, and of the *Moon* 10, as all *Mathematicians* agree, it follows that thoſe above-mention'd were in the firſt Year.

Laſtly, it muſt be taken for granted, that thoſe three *Cycles* agree together in the Year of the *Julian Period* 4714; becauſe if this Number be divided by 28, which is the entire *Solar Cycle*, the Remainder from the *Diviſion* will be the Number 10; and by the ſame Reaſon, if afterward the ſame Number of the *Julian Period* be divided by the *Cycle* 19, the Remainder will be 2; and if by 15, the *Cycle* of the *Indiction* 4.

Theſe things being firſt laid down, it follows, Firſt, That the firſt Year of *Chriſt*, which is ſuppoſed to be the Year of the World, 3984, concurs with the Year of the *Julian Period*, 4714. Whence obſerve Secondly, that the Years of the *World* being ſubtracted from that Number, their remains out of the *Julian Period* the 730 Years which went before, and were coexiſtent with no real Time, 731 Years of the *Julian Period* being paſt before the Creation of the *World*.

And thus we may underſtand what the true Reaſon is of the *Julian Period*, namely, that every Year thereof may have its proper *Cycles*, all which can be found in no other Year of the ſame *Period*.

CHAP. VIII.

Practical Examples of CHRONOLOGY.

To find the Solar Cycle *of any given Year.*

TO the Year of our *Lord* propounded, add 9; then divide the Sum added by 28, and the Remainder is the *Solar Cycle* of the given Year: If nothing remains of the Diviſion, the Number of the *Solar Cycle* is 28.

Note, That the *Quotient* in this Diviſion ſhews how many Revolutions of this *Cycle* have been made from our *Saviour's Nativity* to the Year propoſed.

'Tis further to be noted, that the Number 9 is therefore added, becauſe that our *Saviour* being Born in the 10th Year of this *Cycle*, 9 Years thereof had then paſt.

To find upon what Day of the Week, the firſt Day of any aſſigned Year ſhall fall.

Divide the fore-going Year of *Chriſt* by 4; then add the *Quotient* to the Number divided, omitting the remainder of the *Diviſion*; from Sum Total ſubtract 10, and then divide the reſidue by 7, and the Remainder from this *Diviſion* will be the Number ſought: Or if there be no Remainder, then 7 itſelf will be the Number. For Example; Let 1654 be the Year propoſed, the Year preceeding being divided by 4, the *Quotient* will be 413; which being added to the divided Number, produceth 2066; but 10 being ſubtracted, 2056 is the remaining Number; which being divided by 7, hath 5 for its Remainder; ſhewing that the firſt Day of the ſaid Year is the fifth Day of the Week, *viz.* *Thurſday.*

To find the Dominical Letter of any given Year.

Subtract the Day of the Week, found by the former *Rule*, from 9. For Example; 5 from 9, and there reſts 4; which Remainder ſhews, that the ſought Letter is the 4th among the *Dominicals*, reckoning incluſively from *A*, whence it follows that *D*, is the *Dominical Letter* of the ſaid Year; for it may be taken for granted from what hath been ſaid before, that *A*, is always affixed to the beginning of the Year.

To find out the Biſſextile Year.

Divide the given Year of *Chriſt* by 4; if nothing remains, then the Year itſelf is it; or if any remain, then the ſaid Remainder ſhews the Number of Years from the *Biſſextile*, both for the Time paſt and that to come. For Example; from the *Diviſion* of the Year 1654, there reſts the Number 2, which ſhews that 2 Years before, that is, 1652, was the laſt *Biſſextile*, and that 2 Years after, *viz.* 1656, will be the next.

The Year being given, to find the Number of the Roman Indiction.

To the Year of our *Lord* propoſed add 3, becauſe it is determin'd, that our *Saviour* was Born in the 4th Year of this *Cycle*, ſo that conſequently 3 *Years* were then paſt. Now let the Number compos'd of the ſaid *Year* and added, be divided by 15, the Number left of the Diviſion will be the *Indiction* ſought; if nothing be left, conclude it to be the Year of the *Indiction* compleated, *viz.* 15, and the *Quotient* will ſhew how many Revolutions of this *Cycle* have paſt until that given Year. For Example; In the Year 1654, the Year of the *Indiction* is 7, and there have paſt to this time 110 *Cycles* of the *Indiction.*

To find the Golden Number of the given Year.

To the given Year of our *Lord*, add 1; which Number divide by 19, the remainder will be the *Golden Number* of the current Year; the given Year of our *Lord*, being 654, the *Golden Number* will be 2.

To find the Epact of the given Year.

To the *Golden Number*, which is ſuppos'd already found, and conſiſts of 3, or a compoſition of ſeveral *Threes*, add 20: The Sum, if it amount not to 30, or the Surpluſage if above, (for then the 30 muſt be caſt away) is the *Epact* ſought. For Example: The *Golden Number* of the Year 1651, is 18, being a multiplicity of *Threes*, to which 20 added, makes 38; ſo that after the 30 caſt away, the remaining 8 is the *Epact* of the Year. Otherwiſe, if the *Golden Number* ſhould be leſs by a Unite than 3, or a Compoſition of *Threes*, then add 10, and the Sum thereof will be the *Epact*; yet ſtill with a rejection of 30, when ever there is a Surpluſage of that Number. And thus in the Year 1654, the *Epact* is 12: But if the *Golden Number* chance to be greater by a Unite than 3, or a Compoſition of *Threes*, the *Golden Number* itſelf will be the *Epact* ſought.

To find when it will be New-Moon in any given Month.

Add the *Epact* of the Current Year to the number of Months incluſively from *March*, and Subtract the *Product* thence ariſing from 30; or if it exceed that Number, then from 60, and the Remainder will ſhew the Day of the Month on which the *New-Moon* happens. For Example; It is enquir'd on what Day of the *Month* of *Auguſt*, *Anno* 1651, the *New-Moon* was, ſuppoſe the *Epact* of that Year was 8, add thereunto 6, the number of Months from *March*, the Sum of both theſe Numbers will be 14; then Subtract from 30, and there remains 16; whence it is apparent, that the *New-Moon* of that Month was about the 16th Day.

To find the Age of the Moon on any Day given.

Having from the foregoing *Problem*, gain'd the *New-Moon*, if the given Day of the Month be after the *New-Moon*, reckon how many Days incluſively have paſt from thence; but if before, it will belong to the laſt Part of the preceeding *Moon*. For Example: If the Age of the *Moon* be ſought on the 24th of *Auguſt*, in the Year 1651, in which the *New-Moon* is found to fall on the 16th Day, by conſequence it may be concluded, that ſhe was 9 Days Old; but if it be ſought on the 8th of *Auguſt*, it was on the 22d of the *Moon* preceeding; upon this *Hypotheſis*, that 30 Days are attributed ro the *Moon*; for if from 30 you Subtract the Days numbred from the *New-Moon* found, and conſequently from the end of that preceeding *Moon*, which is found to be 8, there remains 22.

There is another Vulgar way of finding the Age of the *Moon*. Add together theſe 3 Numbers, the proper Epact of the Year, the number of Months incluſively from *March* to the given Month; and Laſtly the given Day of that Month: If the ſum of theſe Numbers added, be under 30, it ſhews the *Age* of the *Moon*; if above 30, then ſubtract 30 from it, and the Remainder will be the *Age* of the *Moon* ſought.

Note, That when the *Age* of the *Moon* is ſought in the Month of *January*, or *March*, nothing is to be added to the *Epact*, but the Day of the Month, and that only 1 is to be added for the Month of *March* and *April*. But remember, that that *Epact* begins from *January*.

The Age of the Moon being known, to aſſign its Place in the Zodiack.

Suppoſe that on the 31ſt of *October* the *Sun* be in the 8th Degree of *Scorpion*, and that the *Moon* be at that time 16 Days Old, and conſequently that 16 Days before ſhe was in Conjunction with the *Sun* in the 23d Degree of *Libra*; and laſtly, that the *Moon* in one diurnal Circuit paſſeth through very near 16 Degrees of the *Zodiack*: Hereupon multiply thoſe 16 Days by the 13 Degrees, and the Product will ſhew how many Degrees ſhe is diſtant from the *Sun*; then by reckoning the Degrees which the *Sun* hath finiſh'd at that time, and knowing how many Degrees the *Moon* hath departed from the *Sun* it may conſequently be collected in what Sign the *Moon* is, and in what Degree of the Sign, ſince every Sign contains 30 Degrees. Or thus, multiply the Age of the *Moon* by 4, and again the Product of this *Multiplication* by 3, and you will have the number of Degrees of the *Moon*'s diſtance from the *Sun*.

Note, That the *Moon* departs every Day farther and farther from the *Sun* about ¾ of an Hour; ſo that if ſhe riſeth to day with the *Sun*, to Morrow ſhe riſeth not till ¾ of an Hour after.

To find the Paſchal Moon *of any given Year.*

Seek in the *Gregorian Calender*, from the 8th of *March* to the 5th of *April* for the *Epact* of the Year Current, and that will ſhew, that the *New-Moon* is on ſuch or ſuch a Day; then reckon 14 Days from thence; which done, ſeek the *Dominical Letter*, which follows next after the ſaid 14th Day; and hereby the true Time of the *Feaſt* of *Eaſter* is known.

Note, That theſe *Moons* only which begin at the 8th of *March*, and end at the 5th of *April*, can become *Paſchal*, and conſequently that *Eaſter* can't fall ſooner than the 22d of *March*, ſince the 14th Day of the *Moon* falls upon the 21ſt of *March*, and the Day following is the *Dominical*, or *Lord's Day*, which is *Sunday*. But neither on the other ſide, can *Eaſter* fall later than the 25th of *April*: And conſequently, it is alſo to be obſerv'd, that a *March Moon*, that is, wholly within the Month, can never become *Paſchal*, ſince (as it hath been already obſerv'd) the *Moon* is only attributed to that Month in which it ends; but the *Paſchal Moon* always ends out of the Month of *March*; whence it follows, that a *March-Moon* can never be *Paſchal*; or a *Moon* of the firſt Month, according to the *Jews*, and the Decree of the *Nicene Council*.

The Time of the Day, or Night, being given, to find what a Clock it is.

Firſt, Let the *Sun*'s Elevation above the *Horizon* be known, and the Degrees of the *Zodiack*, which the *Sun* or *Moon* poſſeſſeth, be rightly diſpoſed in the *Circle* of the Elevation, then apply the *Oſtenſor* to that Degree or Part of the *Zodiack*, according to the *Line* of Direction, which upon the *Limbo* will point to the Hour ſought; that is, if in the Eaſt-part, the *Anti-meridian*, or *Forenoon-Hours*; if in the Weſtern-part, the *Po-meridian* or *Afternoon-Hour*.

Where *Note*, That *Equal*, or *Equinoctial* Hours are here treated of; for if an *Unequal*, or *Temporary* Hour be ſought, the *Oſtenſor* is applied to the Part oppoſite to the *Sun*, or to the oppoſite *Sign* and *Degree* in the *Zodiack*, the lower Part of the *Oſtenſor* will denote the *Unequal*.

To find the Riſing, and Setting of the Sun; *and conſequently the quantity of the* Artificial Day, *at any time of the Year.*

Place the *Part*, or Degree of the *Sun*, found by the *Aſtrolabe*, on the Eaſtern Part of of the *Horizon*; then ſet the the *Oſtenſor* to that Part of the *Sun*, and it ſhews the ſought Hour of the *Sun's-Riſing*. In like manner the Hour of the *Sun's-Setting*, is to be found by transferring that of the *Zodiack*, where the *Sun* is to the Weſtern *Horizon*.

The ſame is alſo done by the *Globe*, or *Armillary Sphere*, by applying that part of the *Ecliptick* where the *Sun* is, to the *Meridian-Circle*, and at the ſame time putting the *Horary Index* upon the *Meridian-Hour*; and laſtly, turning that part of the *Zodiack* Eaſtward, till it exactly anſwer the *Horizon*, and then the *Horary Index* will ſhew at what Hour the *Sun* Riſeth: In like manner anſwerably for finding the Hour of the *Sun's-ſetting*.

Of the Morning and Evening Crepuſcle, *or* Twi-light.

The Morning *Crepuſcle* begins when the *Sun* comes within 18 Degrees of the *Horizon*, towards his Riſing in the Morning: The Evening *Crepuſcle* ends when the *Sun-ſetting* is gone 18 Degrees beneath the *Horizon*. To find the Hour of this *Crepuſcle*, turn the *Globe* ſo about, that that part of the *Ecliptick* where the *Sun* is may fall 18 Degrees beneath the *Horizon*, and then the *Horary Circle* will declare the ſought Hour; and ſo the oppoſite Part being Elevated 18 Degrees above the *Horizon*, proves that the *Sun* at the ſame time is deſcended 18 Degrees beneath; as will appear by numbring theſe Degrees upon the *Æquator*.

To know what A-Clock it is in any part of the World.

This will eaſily be found by the help of the *Terreſtial Globe*; the Hour being firſt known of thoſe Regions which lie under your *Meridian*, by moving that *Meridian*, and directly applying it to the immovable *Meridian* of your *Inſtrument*, and placing the *Horary Index* at ſuch or ſuch an Hour; then upon turning about the *Globe*, the immovable *Meridian* will point out thoſe Regions, whoſe Hour deſir'd is ſhewn in the *Horary Index*.

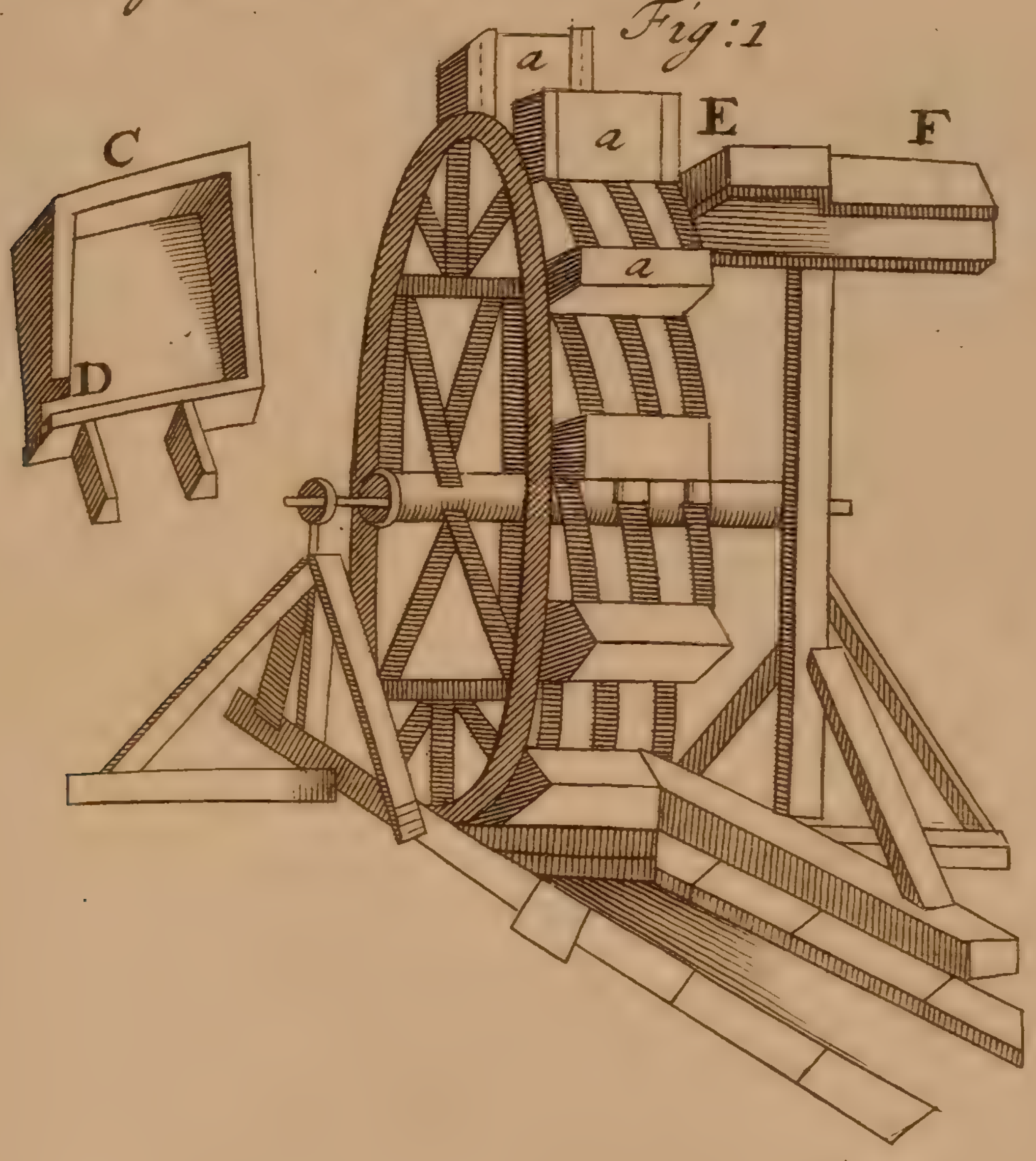
Firſt, It is to be Noted, for the unfolding of ſeveral *Problems* of this Nature, That the *Earth* is daily ſurrounded by the *Sun*, who in that *Quotidean* Courſe paſſeth through a multitude of *Meridians*, ſucceſſively one after another; ſo that he muſt viſit every Hour 15 *Meridians*, according to the Account of 365, being divided by 24. Moreover, it muſt be allow'd, that in every Country there is a *Mid-day*, or *Noon*, when the *Sun* makes its *Circle*, which is thence call'd the *Meridian-Hour*, the very midſt of the ſaid Place, and conſequently, that every 15 *Meridians* he paſſeth through, ſo many Hours he makes; and that the *Sun* makes at the ſame time both the ſame Hours, and alſo both new Hours and Seaſons reſpectively, according to the ſeveral Countries and Regions he paſſeth through; whence it may well enough be affirm'd, That that very Moment there is at one and the ſame time every Hour, and every Seaſon of the Year, throughout the ſeveral Countries of the World, inſo much that every Hour of the Day perpetually circuits round about the Earth, &c. Suppoſe therefore, that to a Man reſting under the ſame *Meridian* there is always a Natural Day of 24 Hours, becauſe there muſt needs be ſuch a ſpace of Time before the *Sun* can return again to the ſame *Meridian*.

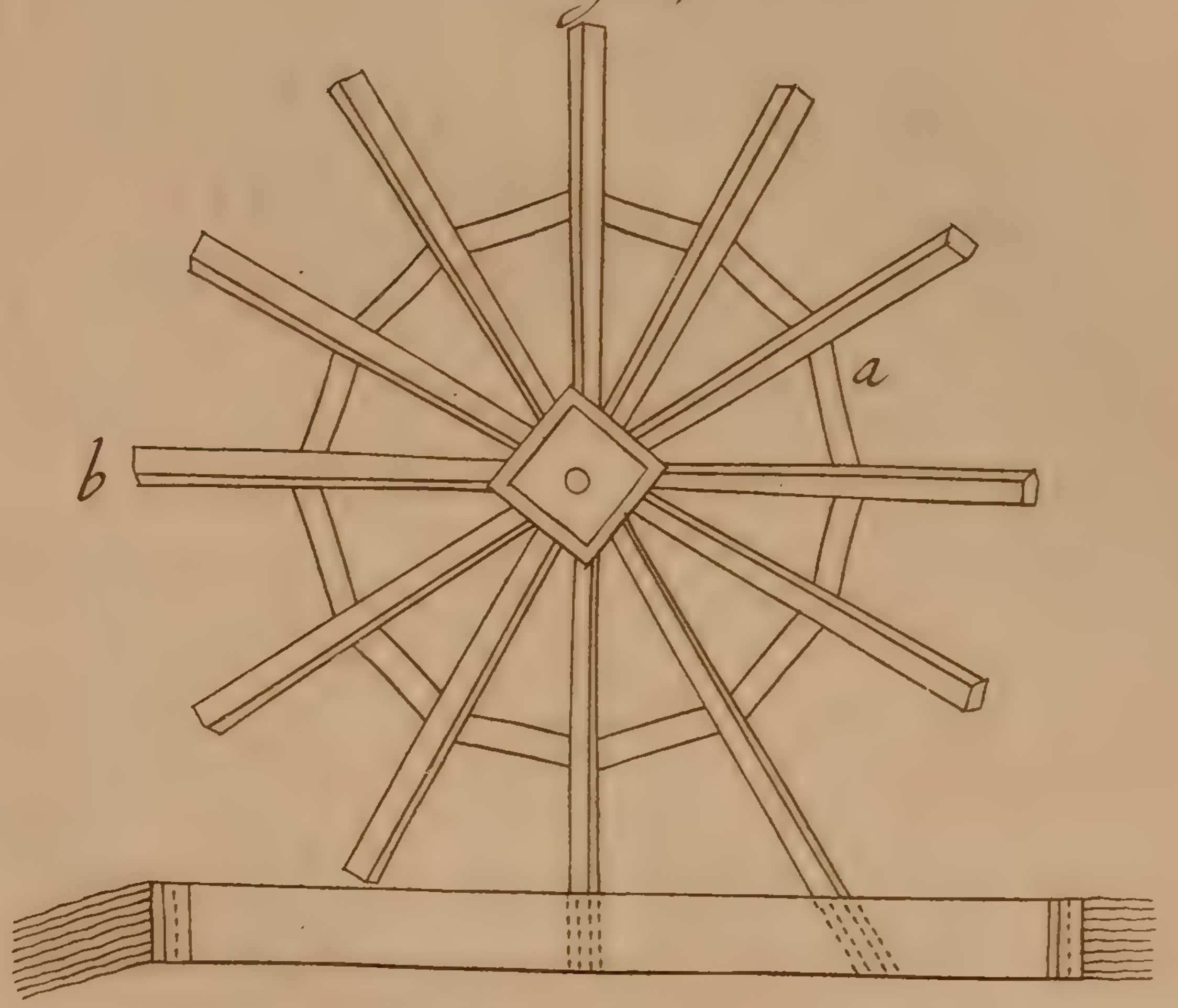
Note alſo, That to a Man Journying Eaſtwards, the Day is leſs than 24 Hours; for the *Sun* will be ſooner in that *Meridian* in which he is to meet him, than in that from whence he departed. On the contrary, to one that makes a Journey Weſtwards, the Day becomes more than 24 Hours, becauſe the *Sun* will ſooner reach the *Meridian* from whence the Perſon departed, than to overtake the Perſon departing: Wherefore *Note* in the laſt Place, That it may ſo happen, that two *Ships* ſetting forth from the ſame *Port*, the one Eaſtwards, and the other Weſtwards, yet at length may meet in ſome part of the World. In like manner, Admit *Peter* go hence Eaſtward, and *Paul* at the ſame time Weſtward, and both of them having ſurrounded in their Travels the World, after ſome Years, return on the ſame Week to *John*, who remains all this while at Home; it may happen that altho' every one of them obſerve the ſame way of counting the Time, yet *John* may reckon *Tueſday*,

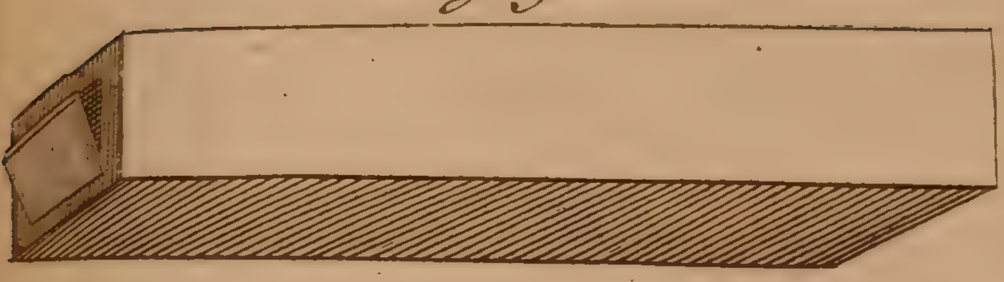
Peter

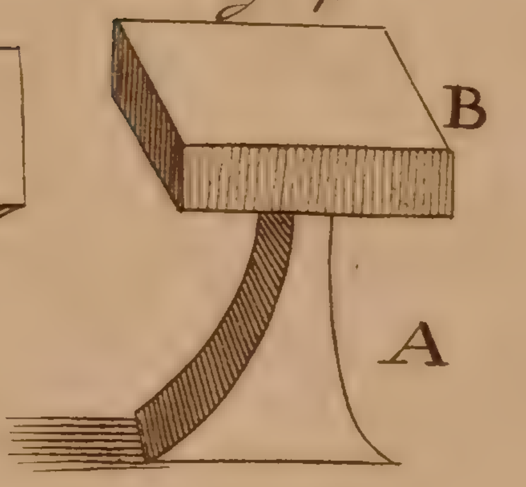
Plate. 1

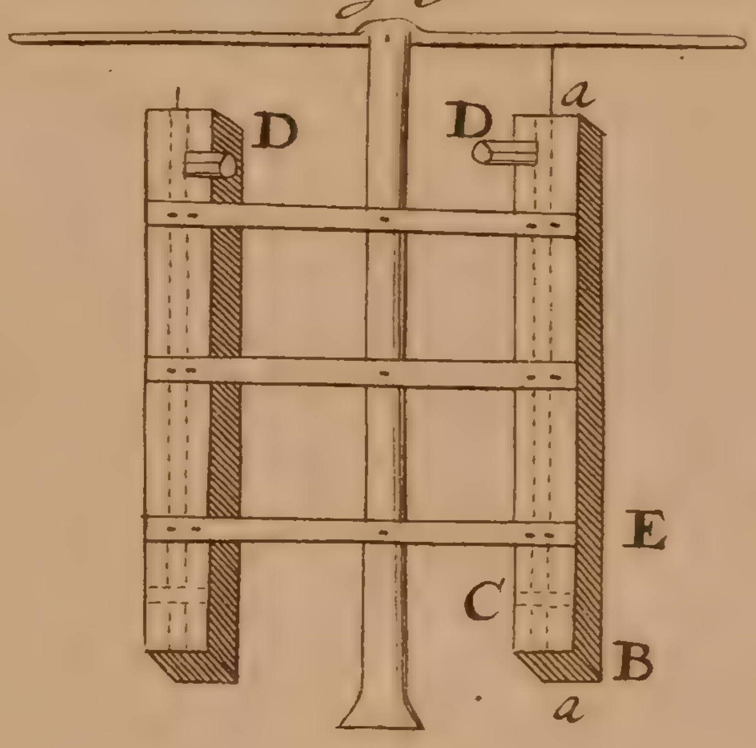
page. 256.

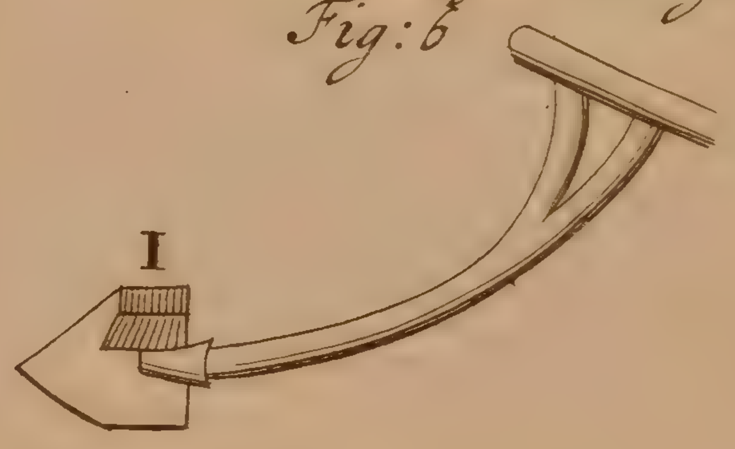

Perſian Wheel
Fig:1

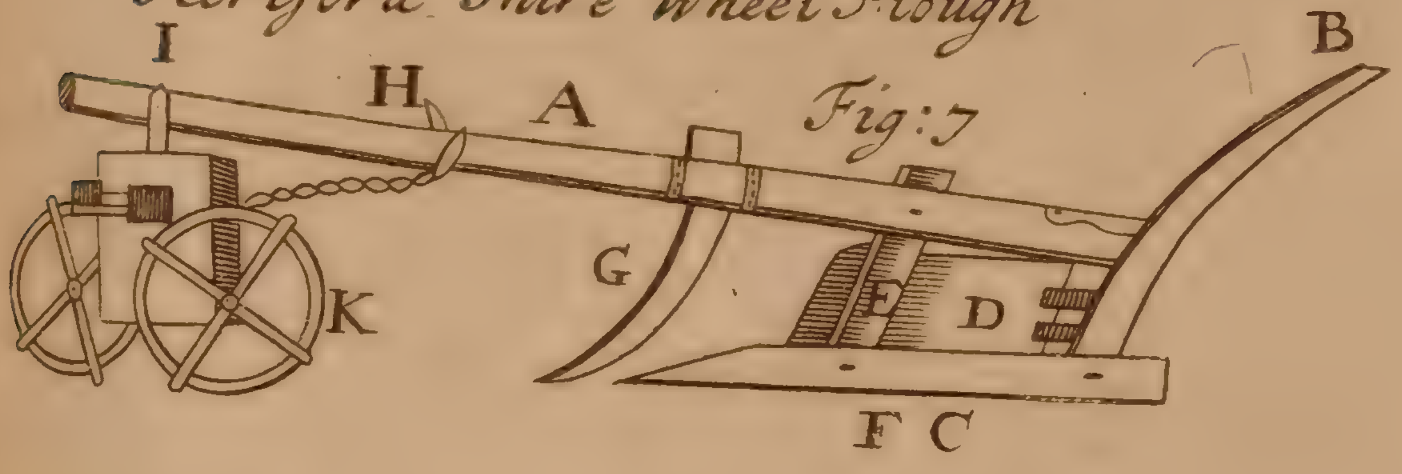

Lincolnſhire Wheel
Fig:2

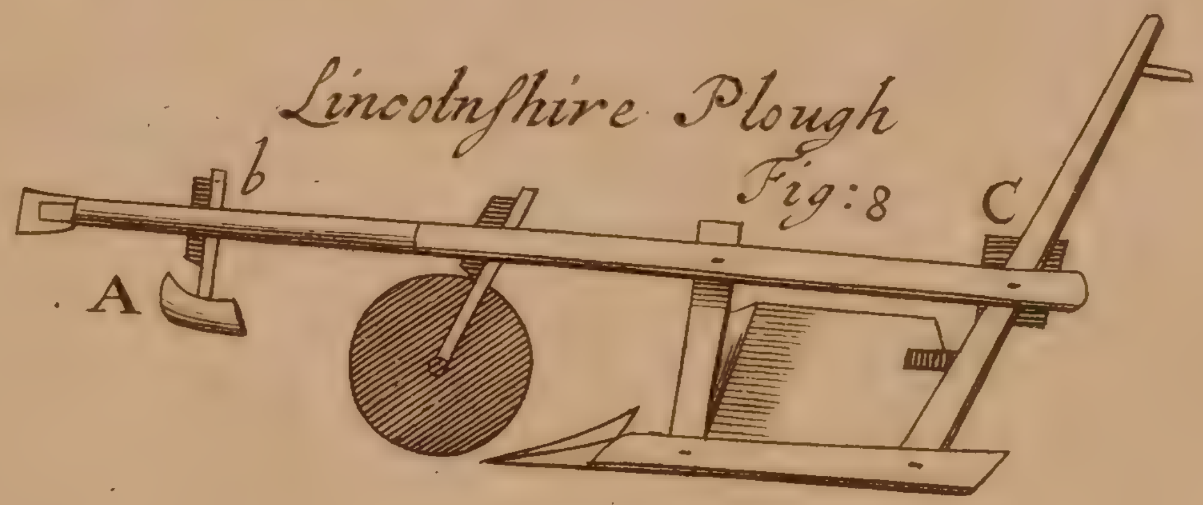

Draining Troughs
Fig:3

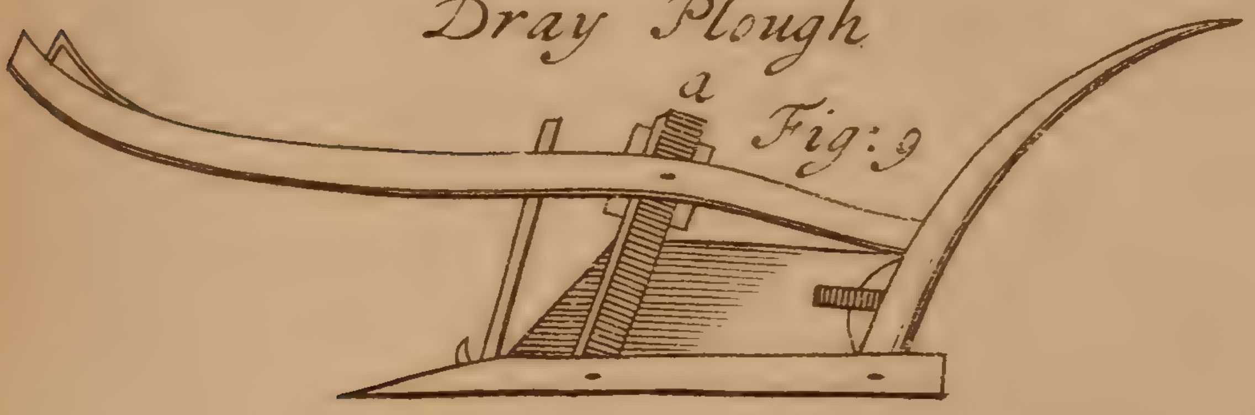

Corn Supporters
Fig:4

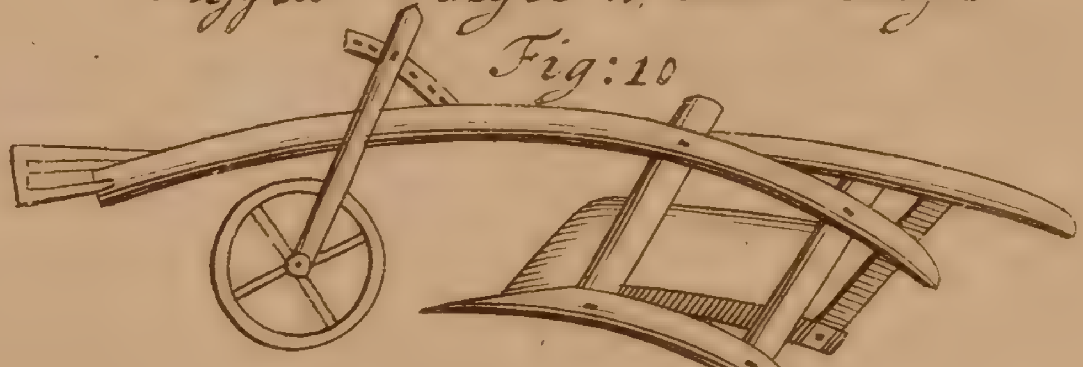

Pump
Fig:5

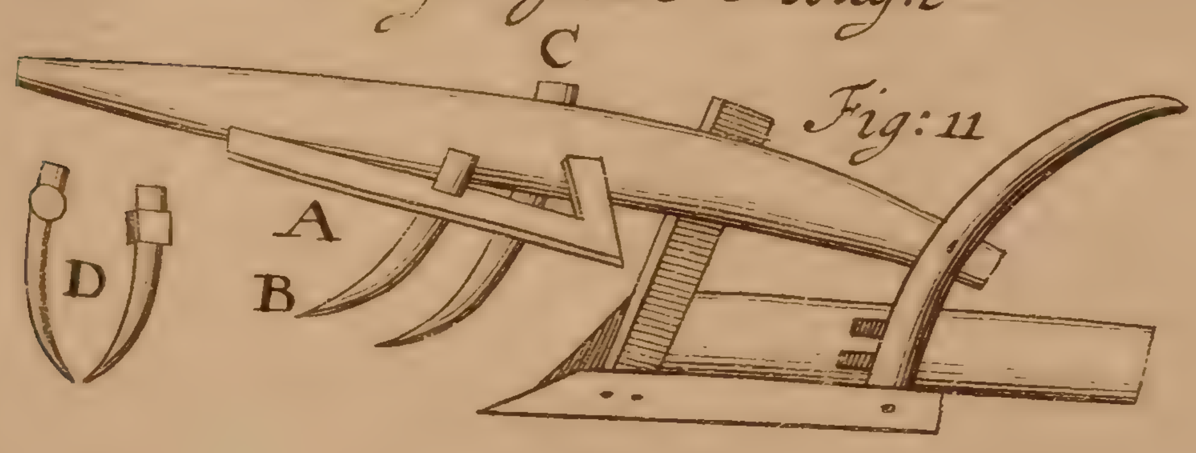

Breaſt Plough
Fig:6

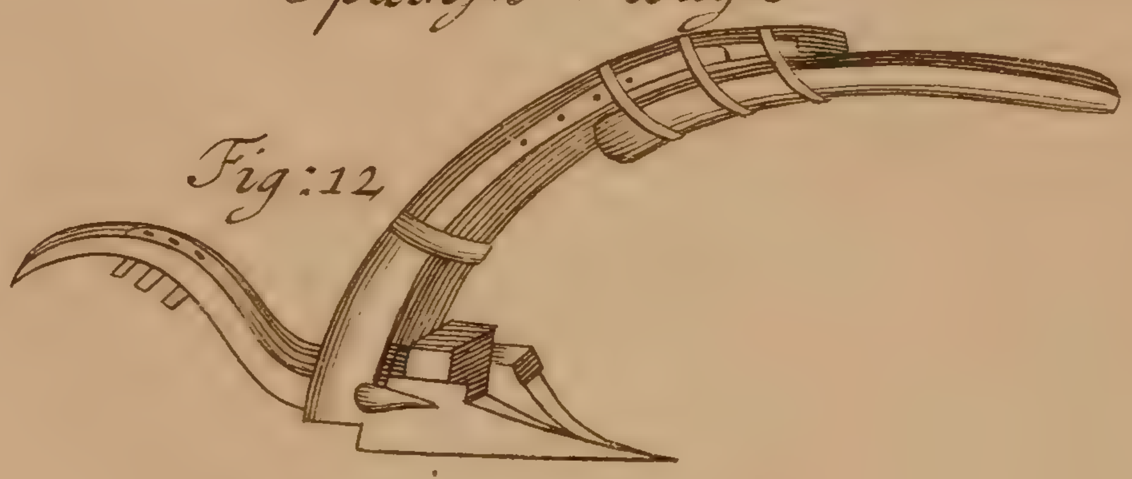

Hertford Shire Wheel Plough
Fig:7
I
H
A
B
G
K
E
D
F C

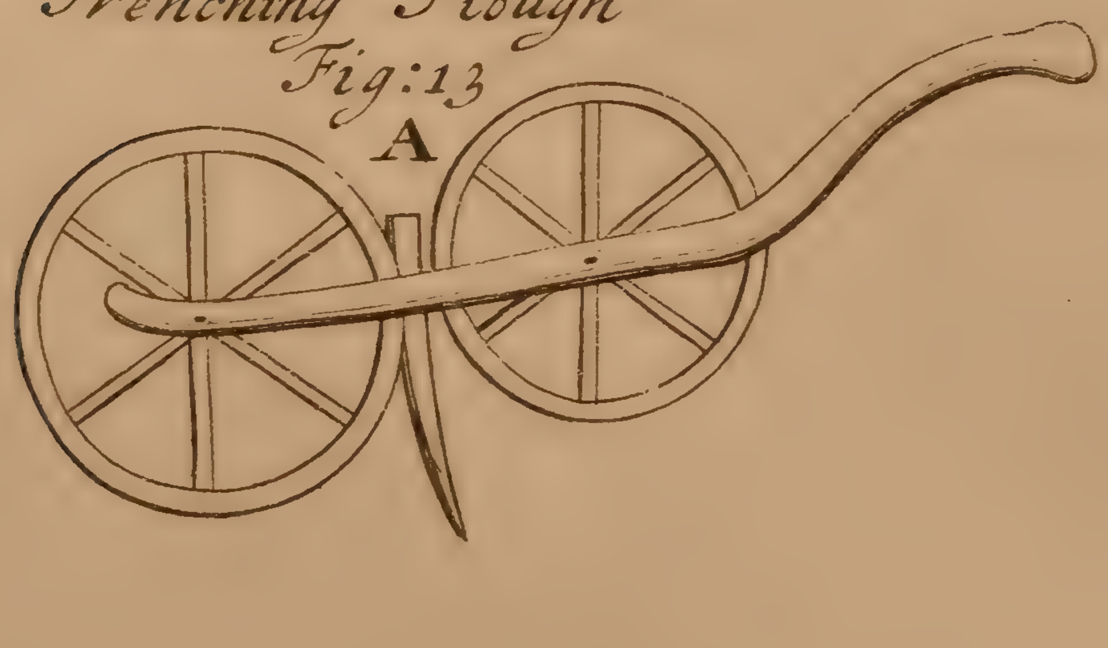

Lincolnſhire Plough
Fig:8

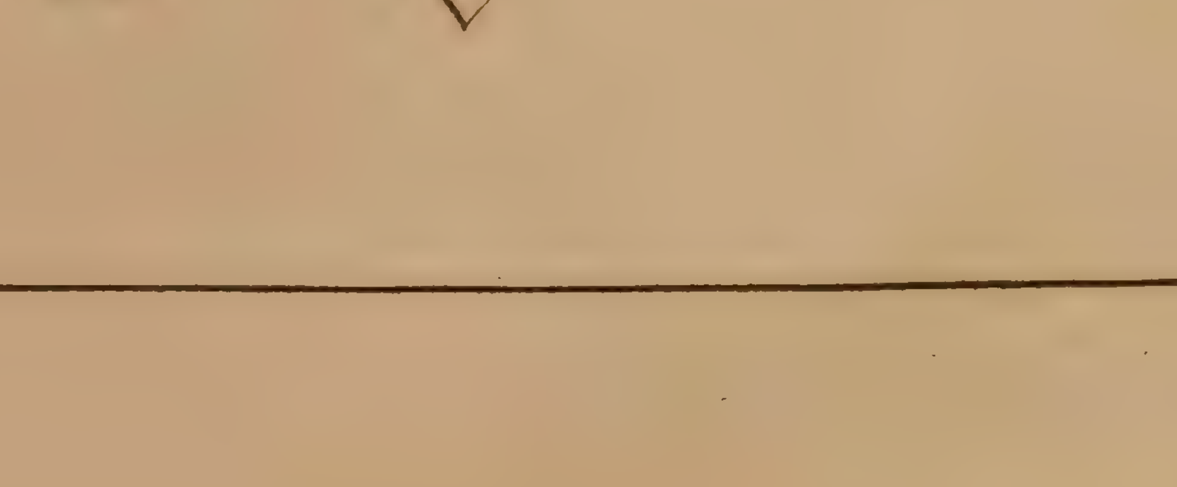

Dray Plough
Fig:9


Suſſex Single Wheel Plough
Fig:10


Cambridge ſhire Plough
Fig:11

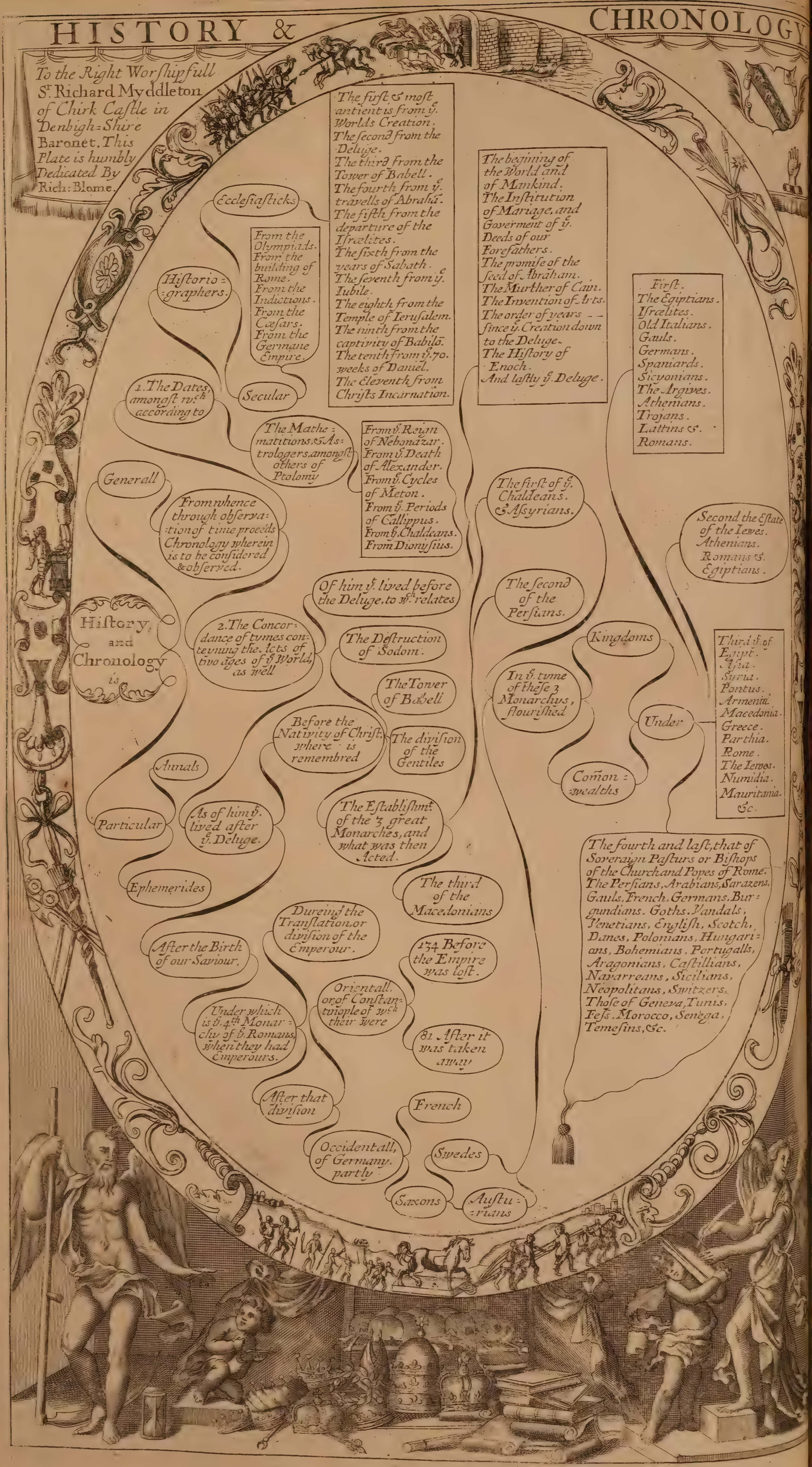

Spainſh Plough
Fig:12


Trenching Plough
Fig:13


Spades
14
15
16
B
C
D
E

HISTORY & CHRONOLOGY

To the Right Worshipfull
Sr. Richard Myddleton
of Chirk Caſtle in
Denbigh-Shire
Baronet. *This*
Plate is humbly
Dedicated By
Rich: Blome.



History, and Chronology is

Generall

From whence through obſervation of time proceeds Chronology wherein is to be conſidered & obſerved.

1. The Dates, amongſt wch according to

Eccleſiaſticks

The firſt & moſt antient is from ye Worlds Creation.
The ſecond from the Deluge.
The third from the Tower of Babell.
The fourth from ye travells of Abrahã.
The fifth from the departure of the Iſraelites.
The ſixth from the years of Sabath.
The ſeventh from ye Iubile.
The eighth from the Temple of Ieruſalem.
The ninth from the captivity of Babilõ.
The tenth from ye 70. weeks of Daniel.
The Eleventh from Chriſts Incarnation.

Hiſtoriographers.

Secular

From the Olympiads.
From the building of Rome.
From the Indictions.
From the Cæſars.
From the Germane Empire.

The Mathematitions & Aſtrologers, amongſt others of Ptolomy

From ye Reign of Nebonazar.
From ye Death of Alexander.
From ye Cycles of Meton.
From ye Periods of Callippus.
From ye Chaldeans.
From Dionyſius.

2. The Concordance of tymes conteyning the Acts of two ages of ye World, as well

Of him yt lived before the Deluge, to wch relates

The begining of the World and of Mankind.
The Inſtitution of Mariage, and Goverment of ye Deeds of our Forefathers.
The promiſe of the ſeed of Abraham.
The Murther of Cain.
The Invention of Arts.
The order of years since ye Creation down to the Deluge.
The Hiſtory of Enoch.
And laſtly ye Deluge.

The Deſtruction of Sodom.

The Tower of Babell

The diviſion of the Gentiles

As of him yt lived after ye Deluge.

Before the Nativity of Chriſt, where is remembred

The Eſtabliſhmt of the 3 great Monarches, and what was then Acted.

The firſt of ye Chaldeans & Aſſyrians.

The ſecond of the Perſians.

The third of the Macedonians

In ye tyme of theſe 3 Monarchies, flouriſhed

Kingdoms

Comonwealths

Under

First.
The Egiptians.
Iſraelites.
Old Italians.
Gauls.
Germans.
Spaniards.
Sicyonians.
The Argives.
Athenians.
Trojans.
Lattins &
Romans.

Second the Eſtate of the Iewes. Athenians. Romans & Egiptians.

Third ye of Egipt. Aſia. Syria. Pontus. Armenia. Macedonia. Greece. Parthia. Rome. The Iewes. Numidia. Mauritania. &c.

The fourth and laſt, that of Soveraign Paſturs or Biſhops of the Church and Popes of Rome. The Perſians, Arabians, Sarazens, Gauls, French, Germans, Burgundians. Goths. Vandals, Venetians, Engliſh, Scotch, Danes, Polonians, Hungarians, Bohemians, Portugalls, Aragonians, Caſtillians, Navarreans, Sicilians, Neopolitans, Switzers, Thoſe of Geneva, Tunis, Feſs, Morocco, Senega, Temeſins, &c.

After the Birth of our Saviour.

Under which is ye 4th Monarchy of ye Romans, when they had Emperours.

Dureing the Tranſlation, or diviſion of the Emperour.

After that diviſion

Orientall, or of Conſtantinople of wch their were

134 Before the Empire was loſt.

81 After it was taken away

Occidentall, of Germany partly

French

Swedes

Saxons

Auſturians

Particular

Annals

Ephemerides

Peter, *Wedneſday*, and *Paul*, *Monday*; then the next Day after, *Peter* may have *Thurſday*, *John*, *Wedneſday*, and *Paul*, *Tueſday*: Laſtly, on the Day following, *Peter* may reckon *Friday*, *John*, *Thurſday*, and *Paul*, *Wedneſday*, and ſo of the reſt; ſo that in one and the ſame Week in reference to 3 Men, *Thurſday* will be thrice reckoned.

Hence comes the Solution of a common *Paradox*, maintaining, That it may ſo happen, that two *Brothers* Born at the ſame time, ſhall alſo die together, and yet one live longer than the other, becauſe he hath numbred more Days.

HISTORY.

AS the ancient *Philoſophers* have very properly Defin'd Time to be *Menſura Motus*, the the Meaſure of Motion; ſo *Hiſtory* may not unfitly be Defin'd *Menſura Temporis*, the Meaſure of Time. But to give a more exact Definition, *Hiſtory* is the written Account of Memorable Things tranſacted, and of Perſons tranſacted, and of Perſons tranſacting, from the Creation of the World to this Time. It is by *Cicero* more Elegantly and Rhetorically ſtyl'd *Teſtis Temporis, Lux veritatis, Vitæ Memoriæ, Domina Vitæ, Nuncius Antiquitatis, &c. The witneſs of Time, the Light of Truth, the Life of Memory, the Miſtreſs of Life, and the Meſſenger of Antiquity.*

The Diviſion of *Hiſtory* is according to many Authors, threefold, *viz. Eccleſiaſtical* and *Prophane*; *Ancient* and *Modern*; and *Univerſal* and *Particular*: But ſince there is no Eſſential difference between *Ancient* and *Modern*, I ſhall only make uſe of a twofold Diviſion, *viz.* Firſt into *Eccleſiaſtical* and *Prophane*; next into *Univerſal* and *Particular*; the laſt of which is included in each Branch of the Firſt, that is to ſay, both *Eccleſiaſtical* and *Prophane*, is ſubdivided into *General* and *Particular*.

Eccleſiaſtical Hiſtory is that which treats moſt peculiarly of the Affairs of the *Church*; that is, of the Adminiſtration of Affairs by Perſons who profeſs an *Eccleſiaſtical Function*.

The Firſt, and principal part of *Eccleſiaſtical Hiſtory*, is that of the *Holy Scriptures*, viz. The *Old* and *New Teſtament*: The *Old Teſtament* contains the Creation of the *World*; the Tranſgreſſion and Fall of *Adam*; the univerſal *Deluge*; the Re-peopling of the *World* by the Sons of *Noah*; the Off-ſpring of *Abraham*, multiplied according to God's Promiſe, from the Twelve Tribes of *Iſrael*, into a numerous People; God's deliverance of the Children of *Iſrael*, by the Hands of *Moſes* and *Aaron*, from the *Ægyptian* Bondage; their ſlow Marches, and long Sojourning in the Wilderneſs; their ſeveral Victories under *Joſhua*, and the reſt of their Judges, until that compleat Conqueſt of the Land of *Canaan*; the riſe of their Kingdom under *Saul*; the progreſs thereof under *David* and *Solomon*; the Diviſion thereof into two diſtinct Kingdoms, *viz.* of *Judah* and *Iſrael*, with the double Race of Kings from *Rehoboam* King of *Judah*, and *Jeroboam* King of *Iſrael*, to the *Aſſyrian*, and *Babyloniſh Captivity*; the return of the *Jews* from *Captivity*; the rebuilding of the *Temple*, and of the *Walls* of *Jeruſalem*, by the Intereſt of *Ezra*, and *Nehemiah*, with the Kings of *Perſia*.

The *New Teſtament* contains the Incarnation and *Nativity* of *Jeſus Chriſt*; the Addreſs of the *Eaſtern Magi* to Him with their Preſents; His conveyance into *Egypt* from *Herod*'s Tyranny; *John* the *Baptiſts* Preaching, Baptiſm and Execution; *Chriſt's* Temptation by *Satan* in the Wilderneſs, and his Conqueſt over him; His diſputation in the Temple, his Preaching to the Multitude and his Diſciples; his ſeveral Miracles; His laſt Supper; His apprehenſion through the Treachery of *Judas*; His Trial, Crucifixion and Reſurrection; His appearing amongſt his Diſciples after his Reſurrection. His Aſcenſion into *Heaven*, and his ſending down the Holy Ghoſt upon the Apoſtles in cloven Tongues; the firſt planting of the Chriſtian Religion by the Preaching, Sufferings, Miracles and Writings of St. *Peter*, St. *Paul*, after his Converſion, and other Apoſtles, and Miniſters of the Goſpel.

The reſt of the Eccleſiaſtical Hiſtory continuing from the time where the Holy Scriptures end, contains all matters relating to the State of Chriſtianity from that time until this: The antient Fathers, what Times they flouriſhed, with an Account of their Writings: The Exemplary Lives of the Primitive Chriſtians, and their patient ſuffering under the *Ethnick Roman* Emperours, particularly the Ten cruel Perſecutions, firſt under *Nero*, laſtly under *Diocleſian*; The Chriſtian Faith firſt openly poſſeſs't, and aſſerted by *Conſtantine* the Great in the Year of our Lord 306: The Succeſſion of the *Popes* of *Rome*, from *Linus* to this preſent *Clement* XI. The Tranſactions of the 20 General Councils from the firſt General Council at *Nice*, *Anno.* 318, to the Council of *Trent*, *Anno* 1563; The Conteſt betwixt the Catholicks of the *Latin*, and the *Arrians* of the *Greek* Church, as alſo about Image-Worſhip; The firſt Commencement of the Biſhop of *Romes* claiming Supremacy over all the reſt of the Chriſtian Biſhops, and Patriarchs in the time of the Uſurping Emperor *Phocas*, *Anno* 601. The 26 Antipapal Schiſms or Factions of one Pope ſetting up againſt another from *Novatianus* againſt *Cornelius*, *Anno* 255, to *Felix* againſt *Eugenius*, *Anno* 1439. The Reformation of Religion in *England*, *Germany*, *Denmark*, *Sueden*, *Switzerland*, part of *France*, and elſewhere in *Europe*; and the great Animoſities betwixt thoſe of the Romiſh-Party, and thoſe of the Reformation.

Prophane Hiſtory contains the various Accidents, Events and Occurrences in the World in Secular Matters; The Acts and Deſigns of eminent Men, whether good or bad, both in Peace and War; The ſtrange alterations and viciſſitudes of human Affairs; The Fall and decay of Empires, Kingdoms and States, with the riſe and growth of others.

Moſt of our late Writers of univerſal Hiſtory agree in this one Method, that is, of carrying on the main Stream or Current thereof through the 4 chief

Empires, or, as ſome call them, Monarchies of the World, *viz.* the *Aſſyrian*, *Perſian*, *Grecian* and *Roman*.

The *Aſſyrian* Monarchy or Empire, which may alſo be called the *Babilonian*, in regard the chief Seat of the Empire was for the moſt part at *Babilon*, until the Empire came to be divided into a double Empire, *viz.* that of the *Babilonians*, and that of the *Medes*, which was begun by *Belus*, vulgarly called *Jupiter Belus*, and is thought by many to be the ſame with *Nimrod* mentioned in Holy Scripture; others account *Ninus* the Son of the ſaid *Belus*, to be the firſt *Aſſyrian* Monarch; however there are named (and for the moſt part only named) about 37 Monarchs from the original thereof to *Sardanapalus*, who being totally overthrown, by his two Vice-Roys *Beloch* of *Aſſyria* and *Arbaces* of *Media*, the Empire was divided, and there Sprung up a double Race of Kings, *viz.* of *Babilon* from *Belochus*, and of *Media* from *Arbaces*. The laſt of this *Median* Race was, *Aſtiages*, whoſe Grand-Child *Cyrus* by the Daughter of *Mandana* a *Perſian* by the Fathers ſide, got the Kingdom from his Grand-Father, and United the *Perſian*, and *Medes* into one Empire.

This Grand Monarchy began about the Year of the World 1820. contemporary with which was, firſt the *Sicyoninan* Kingdom, much of the ſame origen begun by *Ægialus*; next the *Argive* Kingdom begun, *Anno Mundi* 2100, by *Inachus*, whence deſcended the Family of the *Inachidæ*, after whom ſucceeded the *Dardanidæ*, and laſtly the *Mycenæans*. The Kingdom of *Athens*, began by *Cecrops*, *Anno Mundi* 2426, and of *Lacedamon* by *Leles* about the Year 1500, the antient Kings of *Latium* from *Janus*, *Anno Mundi* 2700, and after them of the *Silvian* Race from *Æneas*, *Anno* 2803; and after them the *Roman* Kings from *Romulus*, *Anno* 3231, to *Tarquinius Superbus*, *Anno* 3446. The Kings of *Troy* from *Dardanus*, *Anno* 2600, to King *Priamus*, in whoſe time, *Troy* was Burnt and Sack't by the *Greeks*. The *Corinthian* Kingdom from *Siſyphus*, *Anno* 2573. The antient *Macedonian* Kings from *Caranus*, *Anno* 3170.

The ſecond Grand Empire called the *Perſian* Monarchy, was begun by *Cyrus*, *Anno* 3425, and rendred the more potent by the Addition of the *Median* Kingdom, which he got by conqueſt from his Grandfather *Aſtiages*, as beforementioned. This Empire laſted not very many Ages, for it was not much more than 250 Years from its firſt Riſe, before it was brought to a Period by the Conqueſt of *Alexander*, Son of King *Philip* of *Macedon*, commonly ſirnamed the Great. Contemporary with this Monarchy, were the Great and Noble Actions of the *Athenian* and *Spartan* Common-Wealth. The Original of the *Roman* Republick, after the Expulſion of their Kings, *Anno Mundi* 3475, under the Annual Government of *Conſuls*, and Victorious Progreſs thereof.

The third Pancraſtick Dominion, called the *Greek* Empire, is liable to ſome diſpute as to its Exiſtence, Original, and Duration; for the heighth of the *Grecian* Glory, and ſucceſs was under the *Athenians*, and *Lacedemonians*; but theſe two People being in thoſe Days both Republick, the time of their Flouriſhing could not properly be ſaid to be one of the ſaid Monorchies; beſides in their higheſt pitch of their Glory and Grandure, they were Contemporary with the *Perſian* Monarchy, to which at firſt they were a Terror, afterwards by turns, an Aid and Aſſiſtance againſt each others dreaded Power; whereas all the 4 Empires muſt needs be reckoned each Succeſſive to the other; ſo that we may juſtly reckon this *Greek* Monarchy to be a mighty Blaſe of an Empire, riſing out of the *Macedonian* Kingdom; being raiſed to its heighth of Splendor, by the Great Succeſs of King *Philip*, who ſubdued the reſt of *Greece*, and the great Succeſs of his Son *Alexander*, who about the Year 3650 and odd, with a ſmall Army quickly overthrew the whole Power of *Perſia*, and carried Terror to the remoteſt parts of the Eaſtern World; but the Pride of this Great Conqueror was ſoon laid low, and ſmall was the Fruit Reap'd of all his mighty Conqueſt; for he was taken out of this Life in the Flower of his Age, and both his Paternal and ſubdu'd Dominions parcel'd out into ſeveral Kingdoms and Principalities, by his Succeſſors the Grand Captains of his Army; the chief whereof were, Firſt, the Remnant of the *Macedonian* Monarchy, from *Caſſander*, the Son of *Antipater*, *Anno Mundi*, 3663, or thereabouts, to *Perſeus*, who was overcome by the *Romans*, 3816. Secondly, The Race of the *Ptolemies* in *Ægypt*, from *Ptolemæus Lagi*, *Anno Mundi*, 3660, or thereabouts, to *Cleopatra*, the Siſter of *Ptolemeus Bacchus*, and Miſtreſs of the Great *Roman* Captain *Marcus Antonius*, with whom ſhe died, to avoid being carry'd in Triumph to *Rome*, *Anno Mundi*, 3954. Thirdly, the Kingdom of *Syria*, from *Seleucus Nicanor*, *Anno* 1672, to *Antiochus*, 12th Son of *Euſebes*, Sirnam'd the *Aſian*, *Anno* 3718. Contempory with this Renowned, but ſhort liv'd Monarchy, was the growing greatneſs of the *Romans*, under their Conſular Government, during thoſe above-mentioned *Dynaſtys*, which Sprung out of the *Greek*, or *Macedonian* Empire. The moſt noted Kingdom beſides, was that of *Pergamus* in *Aſia*, from *Phileratus* the *Eunuch*, *Anno* 3700, to *Attulus* Son of *Eumeches*, who dying, made the Common-Wealth of *Rome* his Heir.

The 4th and laſt great Predominant Power of the World, the Greateſt without all doubt of all the reſt, and of the longeſt continuance by far, eſpecially ſince to this Day (in Name and Title at leaſt) it remains in being, is called the *Roman* Empire; for it may very well deſerve the Name of an Empire, long before it could be called a Monarchy; which was not until the *Cæſars* had wreſted the Supream Power from the Senate of *Rome*, and aſſumed the Title Imperator, attended with Regal Authority and Dignity; whereas *Romes* Dominions were extended to their utmoſt Bounds, under the Influence of a Common Wealth; and *Julius* was but the Senates Servant when he Conquered *Gallia*, and a great part of *Germany*; however ſince our Writers of Univerſal Hiſtory, have for the moſt part thought fit to commence that *Roman* Empire from its Imperial Monarchy; it will be convenient to ſubſcribe to the general Opinion, both as to the beginning, and continuance thereof; by which it will appear, that the greateſt part of the *Roman* Empire by far hath been Excluded out of *Rome*, having undergon ſuch an Alteration, and ſuch a Tranſplantation from one Seat to another, as no other Monarchy beſide, either before, or ſince. From *Julius Cæſar*, to *Conſtantine*, *Rome* was the Seat, which was about 350 Years, and in that time it ſuffered much of Alteration and Diminution. The choice of the Emperor was all this while, and for the moſt part long after, at the Armies pleaſure; and it remained in the *Julian* Race but till *Coccius Nerva*. *Conſtantine* the Great, the firſt Chriſtian Emperor, at leaſt that openly profeſs't himſelf ſo, removed the Seat of the Empire from *Rome*, to a new City of his own building upon the *Thracian* Coaſt, called from thence *Conſtantinople*,

nople, or *Conſtantine*'s City; ſo it continued all the time of *Theodoſius*, ſirnam'd the Great, who divided the Empire between two Sons, *Arcadius*, and *Honorius*, whence ſprung a double Race of Emperors, *viz.* the Eaſtern of the Line of *Arcadius*, Reigning at *Conſtantinople*, and the Weſtern of the Line of *Honorius* Reigning at *Rome*; but this Weſtern Empire was ſoon brought to a Period by the incurſion of the *Goths*, *Huns*, and *Vandals* into *Italy*. Three times in one Age was *Rome* taken, and ſack't by theſe Invaders, but the third time it was taken, *viz.* in the Year of our Lord 475, by *Odoacer* King of the *Heruli*, the Imperial Line was totally expelled *Rome*, and ſhortly after a new Kingdom erected by the *Goths* in *Italy*. Thus *Rome* which had been the Miſtreſs of the World for ſo many Ages, and the Seat 'till of late of the greateſt Monarchs of the World; had now loſt all its Glory, and become a common City; but that it ſeems it was from its firſt Foundation to the Worlds end, deſign'd for an Empire in ſome ſort or other; and now a greater Empire ſeems to attend it, by how much the Spiritual Sword aws more than the Temporal, for not long after the time now mentioned, the Biſhop of *Rome* began to claim Superiority over all other Biſhops; and by that means hath ever ſince kept under his Obedience and Subjection all the Princes and Potentates of *Europe* (ſome few only excepted ſince the Reformation) more than ever any Emperor kept the leſſer Kings his Tributaries. The Empire thus overthrown, however the Eaſtern Emperor kept a kind of Vice-Roy in *Italy*, with the Name of *Exarch*, who held his chief Seat at *Ravenna*. In this Eſtate continued the Succeſſion of the Eaſtern Emperors, till *Charles*, ſirnam'd the Great of *France*, had the Title of *Roman* Emperor given him by Pope *Leo* III. for the Aid given his Succeſſor *Adrian*, againſt the *Exarchs* of *Ravenna*, and *Deſiderius* King of the *Longobards*; ſo that a new *Roman* Empire was raiſed again in the *Weſt*, if it may be truly ſtiled a *Roman* Empire; which neither had its Seat at *Rome*, nor any continual claim from the firſt *Roman* Emperors, but was only grounded upon a Title given by a Pope of *Rome* to a *French* King. For ſome Ages the Imperial Title continued to the Succeſſor of *Charles the Great*, and had reſidence ſometimes in *France*, and ſometimes in *Germany*; but from the time of *Henricus Auceps*, to this preſent *Leopoldus Ignatius*, the Imperial Seat hath been continually in *Germany*. From the Inauguration of *Charles the Great*, to the time of *Frederick* of *Habſpurg*, there ſtill remained a Series of Eaſtern Emperors at *Conſtantinople*, ſo that all this while, namely for the ſpace of about 650 Years, there was again a double Succeſſion of *Roman* Emperors, Eaſtern and Weſtern, though the truth is, which cannot be well underſtood how either of them could pretend to much more than a bare name, or Title of *Roman* Emperors, excepting that the *Conſtantinople* Succeſſion was more clearly Built upon the old Foundation; ſince all the old *Roman* Conqueſt was fall'n in piecemeal, and was now almoſt reduced to nothing; ſo that no wonder the riſing Greatneſs of the *Ottoman*, ſo eaſily overpower'd the fallen Greatneſs of the *Roman*. It was in the Year of our Lord 1453, that *Conſtantinople* was taken by *Mahomet* I. and *Conſtantine* the Emperor, Son of *Joannes Emanuelis* ſlain. In a *Conſtantine* this *Dynaſtie* began, and in a *Conſtantine* it ended; and with it according to the Opinion of ſome, all that can rightly be ſtiled the *Roman* Empire, the *Ottoman* Power ſucceeding as a Fifth Monarchy in the room thereof.

Contemporary with this great *Roman* Power, and Name, have been ſeveral other great Kingdoms, States, and Principalities, namely, with the virile Age of the Common-wealth: The Kingdoms of *Pontus* and *Bithynia*, and the Remnant of the *Macedonian* and *Syrian* Kings, all ſubdued by the *Romans*; Great *Mithridates* of *Pontus*, *Perſeus* of *Macedon*; and *Antiochus* of *Syria*: The *Carthaginian Common-wealth*, ſubdued alſo by the *Romans*, after the total Overthrow and Deſtruction of *Hannibal*: The Kingdoms of *Mauritania*, and *Numidia* in *Africa*; the latter overthrown by the *Romans* after the Vanquiſhing of *Jugurth*; with the Weſtern and Eaſtern *Roman* Emperors, from firſt to laſt. The ſeveral Succeſſions of the *Perſian* Kings, *viz.* the *Arſacidæ*, or *Parthian Race*: The *Perſian* Line reſtored, the *Saracens*, the *Tartars*, the *Armenian Turks*, and of late years the *Sophies*, with the Succeſſors of *Conſtantine*. The Kingdom of the *Goths* erected in *Italy*, from *Theodorick* to *Tejas*; afterwards of the *Longobards*, from *Albovin* to *Deſiderius*, *Anno Dom.* 774. The *Merovingian* Race of Kings in *France*, from *Pharamond* (*Anno Dom.* 400) to *Childerick* III. *Anno Dom.* 750, or thereabouts. The *Viſigoths* in *Spain*, from *Athaulphus* the Brother of *Alaricus*, *Anno Dom.* 415, to *Alphonſus* II. *Anno Dom.* 800. The *Saxon Heptarchy* in *England*, from *Hengiſt* King of *Kent*, *Anno Dom.* 457, to *Crida* King of the *Mercians*, *Anno Dom.* 1626. The Ancient Kings of *Scotland*, from *Fergus*, *Anno Dom.* 422, to *Achajus*, about the Year 800. The *Vandals* in *Africa*, from *Geiſerick*, *Anno Dom.* 427, to *Gilimer*, taken Priſoner by *Beliſarius*, *Anno* 534; and after them the *Saracens*. The beginning of the *Venetian Common-wealth*; with the *Weſtern Empire*, entituled from *Charles the Great*, the Succeſſors of the ſaid *Charles*, who from him had the Imperial Title themſelves; and after them the other Line of *French* Kings, from *Hugo Capet*, *Anno Dom.* 987, to this preſent King *Lewis* the 14th. The Remainder of the ſaid Succeſſion of the Kings of *Spain*, from *Ramirus* the Firſt (about the Year 800) to this preſent *Charles* the Third. The *Saxon Monarchy* in *England*, from King *Egbert*, *Anno Dom.* 800, or thereabouts, to King *Harold*, *Anno* 1066; and after that the Succeſſion of the Kings of *England*, from the *Norman* Conqueſt by Duke *William*, to her preſent Majeſty Queen *Anne*. The Remainder of the *Dynaſty* of *Scotland*, from *Achajus* to her preſent Majeſty *Anne* Queen of united *Britain*. The Remainder of the *Dynaſty* of the Kings of *Spain* from *Alphonſus* the Second, *Anno* 800, to this preſent King *Charles* the *III*. The Kingdom of *Portugal*, as taken out of the reſt of *Spain*, from *Henricus Burgundus* (*Anno* 1090) to the preſent King. Not to mention the Kingdoms of *Denmark* and *Sweden*; the ſeveral States and Principalities of *Italy*, ſince the decay of the *Roman* Monarchy there, as the Common-wealths of *Venice*, *Genua*, &c. The Dutchies of *Ferrara*, *Parma*, and *Placenza*, *Modena*, *Mantua*, *Savoy*, the Kingdom of *Naples*, which with the Dutchy of *Milan* is now under *Spain*; And the Dukedom of *Florence*. Thus you have a general view of Hiſtory from the Creation to this preſent Time, as far as our deſign'd Brevity will allow.

OPTICKS and PERSPECTIVE.

OPticks is a mathematical Science that treats of the *Sight* in general, and of every thing that is ſeen with *direct Rays*; and explains the ſeveral Properties and Effects of Viſion in general, and properly of that which is direct and ordinary. So that the direct Method to handle *Opticks*, is to conſider the two parts of it, which are *Sight* and its *Object*. *Sight* may be conſider'd either as to the *Subject* or *Manner*.

The *Subject* of *Sight* is the *Eye*, which is the wonderful Organ or Inſtrument of *Sight*. The *Eyes* are plac'd in two large Cavities, hollow'd out of the Bones of the Scull on each ſide of the Noſe. The Eye has four Tunicles, of which one is call'd *Common*, and the other three *Proper*.

The common Tunicle is call'd *Adnata*, and ſprings from the *Pericranium*, and is ſpread over all the White of the Eye, above the *Sclerolica*, reaching as far as the *Iris*. By this the Eye is kept firmly within its Orbit, from whence it is alſo call'd *Conjunctiva*. It is of very exquiſite Sence, and has many capillary Veins and Afteries creeping thro' it, which are moſt conſpicuous in an Ophthalmy, or Inflammation of the Eyes. Under this Tunicle are the Tendons of the Muſcles extended and expanded to the Circumference of the *Iris*, which increaſe its Whiteneſs.

In order to diſcover the proper Tunicles of the Eye we muſt firſt look into the *Optick Nerves*.

The *Optick Nerves* are the ſecond Pair, which beſtow on the Eyes the faculty of Seeing. They ſpring from the upper ſide of thoſe unequal Protuberancies of the *Cura* of the *Medulla oblongata*; from whence being carry'd forward, and ſomewhat downwards, after having fetch'd a compaſs, they meet one another about the *Infundibulum*, where they are united by the cloſeſt Conjunction, but not Confuſion of their Fibres, which run parallel lengthways in theſe Nerves, as they do in all others.

They are obſcurely hollow until they be united; but after their hollowneſs cannot be diſcern'd. This hollowneſs may be ſhew'd in a large Beaſt newly kill'd, and in a clear light. They are very ſoft ſo long as they are within the Skull; but having paſs'd the *Os ſphenoides*, they become ſomewhat more firm and hard. The reaſon of which Alteration ſeems to be; that within the Skull they are only clad with the *Pia mater*; but as they go out they aſſume a ſecond Coat from the *Dura mater*.

From the whole Subſtance of theſe Nerves, *viz.* from their two Membranes, and the inner Medullar, and fibrous Subſtance, are the three [proper] Tunicles of the Eyes fram'd; for the *Cornea* or *Sclerolica* proceeds from the *Dura mater*, the *Choroides*, or *Uvea* from the *Pia Mater*, and the *Relina* from the marrowy Subſtance.

From the *Dura mater* ſprings the utmoſt Coat of the Nerve; and from this the Tunicle that is ſpread next under the *Adnata*, call'd *Sclerolica* from its hardneſs; but in its forepart where it covereth the *Iris* and *Ripilla*, it is nam'd *Cornea* from its tranſparency, tho' ſometimes this latter name includes the whole Tunicles, as well behind and on the ſides, as before.

That which lies under the *Cornea*, is much thinner than it, and is called *Choroides*, from its reſembling the Membrane *Chorion*, wherein the *Fœtus* is included in the Womb. Its fore part is otherwiſe call'd *Uvea*, becauſe it is ſomewhat the colour of a Grape. This ſprings from the *Pia mater*, and is ſpread from the bottom, or centre of the Eye behind, all over the Eye to the *Pupilla*; to whoſe Circumference when it is come, 'tis grown double, making with one part the *Iris*, with the other the *Ligamentum ciliare*.

On the inſide it is of a duskiſh Colour [in Man] but blacker on the outſide. But where it makes the *Iris*, it is of divers Colours reſembling the Rainbow, from whence it borrows its name. Yet in ſome it is more Blew, in others Black, in others Grey. This Tunicle is perforated before as wide as the *Pupilla*, or Sight of the Eye, to permit the Rays of viſible Species, to paſs into the Cryſtalline Humour.

Next unto which Cryſtalline Humour lies the *Ligamentum ciliare*, the ſecond part of the duplicated *Uvea*. This conſiſts of ſlender Filaments, or Fibres, like the Hairs of the Eye-lids, running like ſo many black Lines drawn from the Circumference of the *Uvea* to the ſides of the Cryſtalline Humour, which they encompaſs; and widen, or conſtringe as there is occaſion, by contracting or opening the *Foramen* of the *Uvea*.

The third Tunicle is made of the Medullar Subſtance of the Optick Nerve, and is called *retina*; this ſeems to be the principal Organ of Sight. For as Dr. *Briggs* well argues, neither the Cryſtalline, nor the Tunicle *Choroides*, are at all fit for this uſe. This latter part, riſing from the *Pia mater*, cannot communicate the Impreſſion of the Rays to the medullar part of the Brain which it does not at all touch: Whereas the medullar Fibres of the *Retina* have communication with it, as ſpringing from it, and therefore can well perform that Office. The Fibres of this Tunicle are extended from the bottom or inner Centre of the Eye, where the Optick Nerve enters it as far as the *Ligamentum ciliare*, to which it affords animal Spirits for the continuance of its motion. If one take this *Retina tunica*, and put it into warm Water, ſhaking it a little, to waſh off the mucous Subſtance which cleaves to it, and then hold it up to the Light, theſe Filaments will appear very numerous like the Threads of the fineſt Lawn.

Next to the Tunicles of the Eye are the Humours contain'd in them to be conſider'd; and theſe are three in number, *Aqueus*, *Cryſtallinus*, and *Vitreus*. The ſecond weighs as much again as the firſt, and yet not ſo much as the third by a ſixth part. The Cryſtalline is moſt denſe of Conſiſtence by much; and the Glaſſie more denſe than the Watry.

The *Aqueous* Humour is outermoſt, being pellucid, and of no Colour, as neither are the other two. It fills up that ſpace that is betwixt the *Cornea*, and the Cryſtalline Humour before. If any thickiſh Particles ſwim in it, then Gnats, Flies, Spiders, and the like will ſeem to be flying before the Eye.

But if thoſe Particles grow ſtill thicker, and cloſe together, ſo as to make a Film, and this be ſpread before the Hole of the *Pupilla*, then is the Sight quite taken away, which Diſeaſe is called a Cataract.

This Humour is very clear and thin, and therefore eaſily diſſipible; but by which way its Expence ſhould be ſupply'd, is difficult to determine. Some think it is fed by the Arteries, out of which this Water iſſues thro' they know not what Glands, others derive it from the Nerves, and a third ſort from the Lympheducts.

The *Cryſtalline Humour*, ſo called from its being as clearly tranſparent as Cryſtal, is placed betwixt the Aqueous and the Vitreous, but not exactly in the Middle or Centre of the Eye, but rather towards its fore-part. It is incloſed as it were in the boſom of the vitreous Humour; and is flattiſh on the foreſide, but rounder behind. It is more bright and thick than either of the other two.

It has been the common Opinion, That it is inclos'd in its proper Membrane, which is called either *Cryſtallina* from its tranſparency, or *Aranea* from its moſt fine Contexture. But Dr. *Briggs*, a very accurate Anatomizer of the Eye, denies any ſuch Tunicle, affirming, that it is meerly adventitious when the Humour is expos'd for ſome time to the Air, or is gently boild.

As to the Collection or Reception of the Rays of things viſible, this Humour is the primary Inſtrument of Sight, tho' the *Tunica Retina* is the Principle as to Perception, becauſe thro' it the Rays are communicated to the common Senſory.

The *vitreous Humour*, ſo called becauſe it is like to molten Glaſs; is is thicker than the Aqueous, but thinner than the Cryſtalline; and much exceeds them both in quantity, for it fills up all the inner or hinder Hemiſphere of the Globe of the Eye, and a pretty deal towards the lateral Superficies of the former. It is round behind, but hollow in the middle forwards, to receive the Cryſtalline into its Boſom.

The *Manner of Seeing* is call'd *Viſion*; which is a Senſe, whereby from the various motions of viſible Rays collected in the Cryſtalline and Vitreous Humours, and darting from the *Tunica Retina*, the Colours of viſible Objects are perceived, with their diſtance, greatneſs, figure, and number. As to the manner how this noble Senſe of Seeing was produced, there were many Hypotheſis among the Ancients.

1. The *Stoicks* imagined, that certain viſual Rays went from the Brain thro' the optick Nerve and Eye, and from thence to the Object; and there, juſt like a blind Man's Staff, feel out the figure, colour, and dimenſion of the Object.

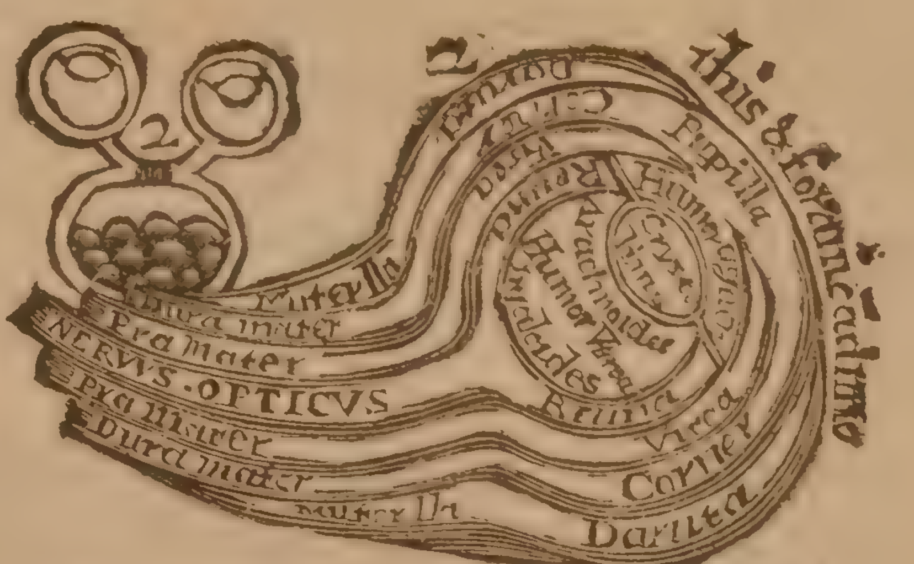
2. The *Pythagoreans* thought, that there went ſome viſual Species from the Eye to the Object, which were immediately reflected back again from thence to the Eye, and ſo produced *Viſion*.

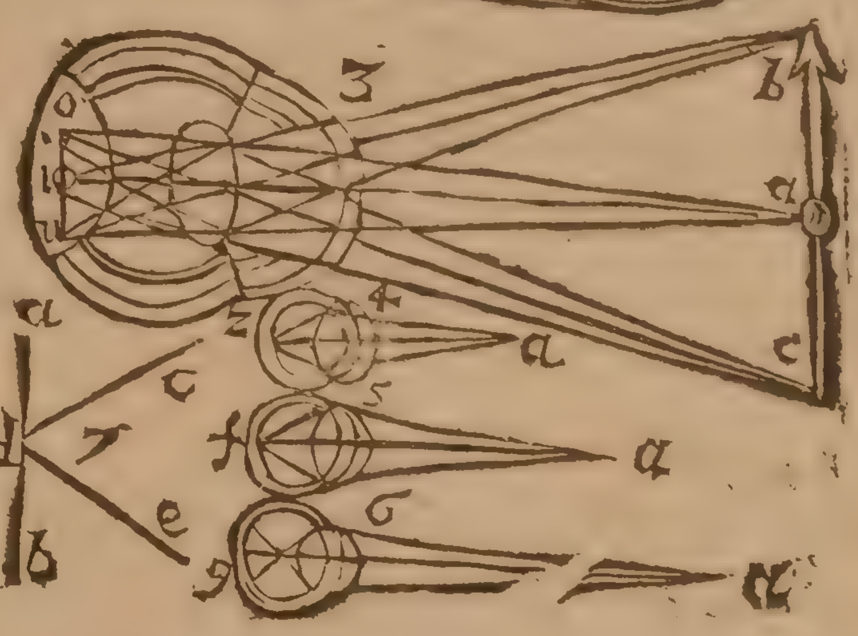
3. *Plato* ſuppoſed, That both from the Eye and the Object there came ſubſtantial Effiuvia, which meeting half way, and encountring the ocular Effluvia, the latter were beat back again to the Eye, and there communicated the Impreſſion they had received from thoſe Effluvia which came from the Object; and ſo cauſed the Senſe of Seeing.

4. *Ariſtotle* aſſerted, that the Colours of all Objects did move the tranſparent Medium, as that did the Eye, and thereby communicate their Images to the Brain, or the *Commune ſenſorium*.

5. *Epicurus*, judiciouſly rejecting the notion of any Emanation of viſible Species from the Eye, and not thinking the Action of the intermediate Air or Medium ſufficient to account for Viſion, righly concluded, That the Senſe of Viſion was produced by a ſubſtantial material Efflux from the Object to the Eye.

6. *Cartez*, ſuppoſes Viſion performed by bare motion only, without any material Emanation from the Object; but only, that the Light (which with him alſo is not a Body, but the motion of the finer Parts of the *Medium*) moves the Eye juſt after the ſame manner as the Object is ſuppoſed to have determined it; which motion is continued along the optick Nerve, up into the Brain, where it moves the *Conarion* or *Glandula Pinealis*, with him, the ſeat of the Soul; and by that means produces internal Senſation, and enables the Soul to judge accordingly.





How Viſion is perform'd we may learn from this *Diagram*, fig. 3. Suppoſe *b*, *a*, *c*, an Object, 3, 4, *u*, *i*, *o*, the Globe of the Eye, furniſhed with all its Coats and Humours.

1. From each Point of the Object we may conceive Rays flowing to the Pupil of the Eye 3, 4; theſe by means of the Coats and Humours of the Eye, and eſpecially by the cryſtalline Humour, are refracted and brought together on the *Retina* or Fund of the Eye in the point *i*, and there the point *a* is repreſented.

What is here ſaid of the point *a*, and its repreſentation at *i* may be underſtood of all the other points of the Object, as of *b* and *c*, and their repreſentations at *o* and *u*. For according to Sir *Iſ. Newton*'s beſt Hypotheſis of Light, each Ray hath its innate Colour and ſo will repreſent it where it falls.

2. As in a dark Chamber that has a Hole furniſh'd with a convex Glaſs, if the Paper which is to receive the Image in the diſtinct Baſe, be either nigher to, or farther from the Glaſs, than its due diſtance, the repreſentation thereon is confuſed: For then the radious Pencils do not exactly determin with their Apices on the Paper; but thoſe from one Point are mixt and confuſed with thoſe from the adjacent Points: So in the caſe of *plain Viſion*, 'tis requiſite that the Pencils ſhould exactly determin their Apices at *o*, *i*, *u*, on the *Retina*, or elſe Viſion is not diſtinct. Therefore Nature has ſo contriv'd the Eye, that it ſhould have a Power of adapting it ſelf in ſome meaſure to nigh and diſtant Objects, for they require different confirma-

firmation of the Eye, becauſe the Rays proceeding from the luminous Points of nigh Objects, do more diverge than thoſe from remote Objects. But whether this variety of Conformation conſiſts in the Cryſtallines approaching nigher to, or removing farther from the *Retina*: Or in the Cryſtallines aſſuming a different Convexity, ſometimes greater, ſometimes leſs, according as is requiſite, is left to the ſcrutiny of others; and particularly the curious Anatomiſts. This only may be ſaid, that either of theſe Methods will ſerve to explain the various *Phænomina* of the Eye: And that both theſe may attend each other, *viz.* A leſs Convex-Cryſtalline requires an Elongation of the Eye, and a more Convex-Cryſtalline requires a ſhortning of it; as a more flat Convex-Object Glaſs, or of a larger Sphere, requires a longer Tube; and one Protuberant, bulging, or of a ſmaller Sphere, requires a ſhorter Tube.

3. We perceive the Rays from each point of the Object, are all confuſed together; but by means of the Humours and Coats, each Cone of Rays is ſeparated, and brought by itſelf to determin on its proper Point on the *Retina*, there painting diſtinctly the vivid Repreſentation of the Object, which Repreſentation is there perceived by the ſenſitive Soul.

4. We are likewiſe to obſerve that the repreſentation of the Object *b*, *a*, *c*, on the Fund of the Eye *o*, *i*, *u*, is inverted: For ſo likewiſe it is on the Paper in a dark room; there being no other way for the radious Cones to enter the Eye, but by croſſing the Axis in the Pole of the Cryſtalline, or Glaſs.

But how it comes to paſs, that the Eye receiving the repreſentation of a part of an Object on that part of its Fund which is lowermoſt, or nigheſt the Centre of the Earth, perceives that part of the Object as uppermoſt, or fartheſt from the Centre of the Earth? In anſwer to this let us imagin that the Eye in the point *u* receives an impulſe or ſtroak by the Protruſion forward of the luminous Axis *b*, *u*, from the point of the Object *b*: Muſt not the viſive Faculty be neceſſarily directed hereby to conſider this Stroak as coming from the top *b*, rather than from the bottom *a*, and conſequently ſhould be directed to conclude *u* the repreſentation of the top.

Therefore we may be ſatisy'd, by ſuppoſing a Man ſtanding on his Head: For here, tho' the upper part of Objects are painted on the upper parts of the Eye, yet the Objects are judged to be erect. And from this poſture of a Man the reaſon appears, why the words *fartheſt from*, and *nigheſt to the Centre of the Earth*, rather than *upper*, and *lower*, are generally uſed. For in this poſture, becauſe the upper parts of the Objects are painted on that part of the Eye nigheſt the Earth, tho' really the upper part of the Eye, they are judged to be fartheſt from the Eye. What is ſaid of *Erect* and *Reverſe*, may be underſtood of *Siniſter* and *Dexter*.

5. The Image of an erect Object being repreſented on the Fund of the Eye inverted, and yet the ſenſitive Faculty judging the Object erect, it follows, That when the Image on an erect Object, is painted on the Fund of the Eye erect, the Senſe judges that Object to be inverted.

6. The magnitude of an Object, is eſtimated by the Angle the Object ſubtends before the Eye, and this is called the *optick Angle*. The point which is the Vertex of the optick Angle, is variouſly aſſign'd by various Authors; others in the Vertex of the Cryſtalline; others in the Vertex of the outward Coat or Cornea of the Eye; but 'tis a matter of no great conſequence wherever we place it; for according to the bigneſs of the Angle, the Image on the Eye is bigger or leſs.

7. The fault of their Eyes who are *Purblind* or Short-ſighted proceeds from hence, that in them the Cryſtalline is too convex, as in Figure the 6, uniting the Rays before they come at the *Retina*. And therefore they are helped by *Concave-glaſſes*, which take off from the too great Convexity of their Cryſtalline, ſome part of its refractive Power: Or rather theſe Concaves make the Rays diverge ſo, that their Cryſtalline ſhall be ſufficient only to bring them again together, ſo that they be not touched 'till they arrive at the Fund of the Eye.

Myopes are alſo helped, by holding the Object very near; for then the Rays that fall on their Eye from any ſingle point, and conſequently their too Convex-Cryſtalline does but ſuffice to bring together on the *Retina*.

8. On the contrary the Eyes of old Men have their Cryſtayine too flat, to make them meet on the *Retina*, but beyond it as in Figure 4. Wherefore for their help it is requiſite, that they add the adventitious Convexity of a Glaſs; that both it and the Cryſtalline together, may be ſufficient to unite the Rays juſt at the *Retina*. And from hence it appears, that Spectacles help old Men, not by magnifying an Object, but by making its appearance diſtinct; for old Men cannot read the largeſt point without Spectacles, and yet with Spectacles they read the ſmalleſt; tho' theſe with Spectacles do not appear ſo large, as thoſe without Spectacles.

9. What is ſaid of the confuſed or diſtinct repreſentation of a Point in the Object, may be underſtood of the confuſed or diſtinct repreſentation of the whole Object; at leaſt, for thoſe parts that lie pretty nigh adjacent to that Point that is looked at. For here we do not ſee a Point in the ſtrict Senſe of the Mathematicks, but in the Phyſical Senſe, for the ſmalleſt part imaginable; and the whole Object conſiſting of ſuch Points, what is ſhewn in one Point, may be underſtood of every Point in the Object.

Diſtinct Viſion, is cauſed when the Pencils of Rays from each Point of an Object, do accurately determin in correſpondent Points of the Image on the *Retina*.

Confuſed Viſion, is cauſed when the Pencils do intermix one with another.

Clear Viſion, is cauſed by a great quantity of Rays in the ſame Pencil, illuminating the correſpondent Points of the Image ſtrongly and vigorouſly.

Faint Viſion, is when a few Rays make up one Pencil. And tho' this may be *diſtinct*, yet 'tis *dark* and *obſcure*: at leaſt, not ſo *bright* and *ſtrong* as if more Rays concurred.

The Object of *Sight* is *Light* and *Colours*, of which an account wou'd be more juſtly given under the Article of *Phyſicks* or *Natural Philoſophy*. All that ſhall be ſaid here is only an Abſtract of Sir *Iſ. Newton*'s Doctrin concerning them.

1. Light conſiſts of an infinite number of Rays right-lin'd and parallel, but of different degrees of Refrangibility when meeting with a different *Medium*.

2. Each Ray according to its degree of Refrangibility, when ſo refracted, appears to the Eye of a different colour.

3. The leaſt refrangible Rays appear of a deep Scarlet, the moſt refrangible of a Violet-bleu, the Intermediate proceeding from Scarlet to Yellowiſh, then to Light-green, and ſo to Bleu.

4. The Colours ariſing from the different refrangibility of Light are not only the more noted Colours of Red, Yellow, Green, Blue, but alſo all the intermediate degrees of Red to Yellow, of Yellow to Green, *&c* differing as the degrees of Sound from Grave to Accute; in which there are not only the Notes of common Denomination, but alſo indefinite intermediate degrees of Sound, which are as diſtinct different Sounds as the other.

5. Whiteneſs, ſuch as the Sun's Light appears, containing all the Degrees of Refrangibility, is conſequently made up of all the above mentioned Colours.

6. Simple or homogenial Colours are ſuch as are produced by homogenial Light or Rays, that have the ſame degree of Refrangibility; and mixt Colours are ſuch as are produced by Rays of different Refrangibility.

7. Rays of the ſame Refrangibility produce the ſame Colour, which Colour is not alterable by repeated Refractions, only made more ſtrong or faint as the Rays are united or ſcattered.

8. All Bodies appear of this or that Colour, according as the Surfaces are adapted to reflect only the Rays of ſuch a Colour, at leaſt, in more plenty than the reſt.

Of PERSPECTIVE.

BY *Perſpective* we behold, and draw the likeneſs of all *Magnitudes* in the manner and form as they ſhew themſelves to the Eye. The Matter to be ſeen is Magnitude, and the manner of Seeing is by Radiations of Light, either direct, reflected, or refracted. Likewiſe, a Magnitude is that which has form, and is either a Complication of Points, Lines, or Superficies, of which we have treated in *Geometry*.

To draw the Appearance in Lines is the chief part in this Art, by which the *Idea* conceiv'd in the Mind by Sight, or otherwiſe, is brought to Light.

A Radiation is a Beam of Light, conveying the likeneſs of the thing to the Sight, and the knowledge of it to the Underſtanding. Direct Radiations are thoſe which conſider the direct or ſtrait Beams, that paſs between the Eye and the Object. Reflected Radiations are thoſe that conſider the reflection of Beams, with their ſhape upon any poliſh'd Body, which properly belongs to *Catoptricks*. Broken Radiations are thoſe that conſider the breaking of Beams, as they are to be ſeen through a Glaſs, or a Criſtal cut into ſeveral Plains or Superfices: And this part properly belongs to *Dioptricks*.

The active part of *Perſpective* is either Ichnographical, Orthographical, or Scenographical. Ichnography, is the deſcription of the plain Baſe, or the bottom of any Body, or Building, and is either Geometrical, or Scenographical; the Geometrical is that which gives the Sight of the Bottom, or Baſe of any Body, or Building; the Ichnography-Scenographical is the appearance of the ſame Baſe in Section, or through a Mirror erected upright on the ſame Plain on which the Baſe ſtands. Orthography is the Viſion of the fore-right Side of any Plain, or Superficies which lies Equidiſtant to a right Line paſſing through the outward or convex Centers of both Eyes continued to a due length; ſo that Perſpective Orthography is the delineation of the apparent right Plain. Scenography is the deſcription of a Plain, or other Figure, that declines from that Plain which makes Angles with a fore-right Plain. Between the Orthograpick and Scenographick Viſion there is this differenee; the Orthographick repreſents the Side of a Body, or Building, as it is beheld, when the Plain of the Glaſs is plac'd Equidiſtant to that ſide; but the Scenographick expreſſes the Side of a Body, or Building, as it appears through a Glaſs raiſed obliquely to the ſaid Side, or making an Angle with it.

The Baſe of any thing is the Plain, Flat, or Floor, on which any ſolid Body or Object is plac'd or rais'd.

The Altitude is the perpendicular ſpace of place, betwixt the Baſe and the Eye, or height of the Viſual Point above the Baſe. The Viſual Point is a Point in the Horizontal Line, in which all the Beams of the Eyes unite. The Horizontal-Line is a Line that proceeds from the Center of the Eye, to the Viſual Point, parallel to the Horizon of the Earth.

The Diſtance is the ſpace on the Baſe, between the Glaſs and Point in the Baſe, that lies directly under the Eyes.

The Section is a Plain of tranſparent Matter (as of Glaſs) rais'd upright on the Plain of the Baſe ſtanding before you, parallel to a ſtrait Line, paſſing through the Convex-Centers of both Eyes. Now without the underſtanding of this Section or Glaſs, 'tis impoſſible to attain to the Knowledge of Perſpective, and by Conſequence to give a reaſon for the difference betwixt the Orthographick, and Scenographick Figures.

If the Glaſs is plac'd near the Viſual Point, and remote from the Object, the Figure which is ſeen will be very ſmall; becauſe all Rays comprehending the Orthographical, and Scenographical Figures fall into the Viſual Point, as their Common Center. If the Viſual Point be more rais'd (tho' at the ſame Diſtance) the Scenographick Figure or Form will appear much larger. And by reaſon the Viſual Radiations are higher, the various Perpendiculars rais'd on the Section, or Glaſs, cut them in wider diſtances, as being more remote from the Glaſs. If the Glaſs incline to the Viſual Point, the Scenographick Viſion will be longwiſe between the Viſual Point and the Object; But if the Glaſs recline from the Viſual Point, the Scenographick Figure will appear rounder, and begin to reſemble the Orthographick. But if the Glaſs is fix'd Equidiſtant to the Baſe, or Plain the Object ſtands upon, the Scenographick and Orthographick reſemblance will be one and the ſame.

Diagonals, or Lines of Diſtance, are ſuch as are drawn from the Point of Diſtance, to any other Point higher, or lower than the Horizon.

The Object is that Form, Body, Figure, or Building intended to be expreſs'd in Perſpective Proportions.

The General Practice of Perſpective.

LET the Object you are to draw, ſtanding on your right Hand, be alſo plac'd on the ſame Hand of the Viſual Point; and that on the left on the ſame ſide of the ſaid Point, and that which is oppoſite before in the middle of it.

Let every Line which in the Object is Strait, Parallel, or Perpendicular to its Baſe, be alſo ſo in its Scenographical Delineation.

Let thoſe Lines that are in the Object Equidiſtant to the returning Line, be drawn in the Scenographical Figure, from that Point found in the Horizon.

Let the Lines which in the Object return at right Angles from the fore-right ſide, be drawn Scenographically from the Viſual Point.

The Center in any Scenographical Regular Figure, is found by drawing croſs Lines from oppoſite Angles, for the Point where the Diagonals croſs in the Center.

In Drawing a Perſpective Figure, where many Lines come together, for the directing your Eye, you may draw the Diagonals in Red; the Viſual Lines in Black, and the Perpendiculars in Green, or any other different Colour.

A Ground Plain of Squares is alike, as well above, as below the Horizontal Line; However, the more it is diſtant above or below the Horizon, the Squares will be ſo much the wider and larger.

Let all Strait Lines which in the Object return from the fore-right ſide, run in a Scenographical Figure into the Horizontal Line.

In Drawing Arches, Circles, Croſſes, Ovals, Spirals, or the like Figures in the Roof of a Room; firſt drawing Ichnographically, and ſo with Perpendiculars from the moſt eminent Points, carrying it up to the Ceiling; from which ſeveral Points carry on the Figure. And in ſetting off the height of Pedeſtals, Columns and meaſure the Height from the Baſe-line upward, in the Front or fore-right ſide; and a Viſual Ray drawn, that Point in the Front ſhall limit the Altitude of the Column all the way, behind the fore-right-ſide, even to the Viſual Point.

Thus having conſider'd the Diſtance, Height and Poſition of the Figure, and drawn it accordingly, with the Side or Angle againſt the Baſe; raiſe Perpendiculars from the ſeveral Angles, or deſign'd Points in the Figure to the Baſe, and transfer the length of each Perpendicular from the place where it touches the Baſe, on the ſide oppoſite to the Point of Diſtance; and ſo will the Diametrals drawn to the Perpendiculars in the Baſe by Interſection, with the Diagonals drawn to the ſeveral transferr'd Diſtances, give the Angles of the Figure: And ſo Lines drawn from Point to Point, will Circumſcribe the Scenographical Figure.

If in a Landskip there be any ſtanding Waters or Rivers, place the Horizontal Line level with the fartheſt ſight of it. In deſcribing things at a great Diſtance, the proportion as to Magnitude, and Diſtance muſt be obſerv'd, which appears from the Object to the Eye. And if there be any Houſes or other Edifices, conſider their Poſition, to find from what Point in the Horizontal Line, to draw the Fronts and Sides of them.

In Colouring and Shadowing of every thing, obſerve the ſame in your Picture, which you do by your Eye, eſpecially in Objects that are near; but according as the Diſtance grows greater and greater, ſo the Colours muſt be fainter and fainter, till at laſt they loſe themſelves in a Darkiſh Sky-colour.

Of Catoptricks *and* Dioptricks.

THE Catoptricks are beſt ſeen in a common Looking-Glaſs, where if the Glaſs be exactly flat, the Object is in all reſpects like its Original, or Patern; but if it is not flat, the reſemblance alters from its Original, and that more or leſs, as the Glaſs differs from an exact Plain.

In Drawing of Catoptrical Figures, the Surface of the Glaſs is to be conſider'd, upon which the Reflection is to be; for this you muſt make a particular Ichnographical Draught, which on the Glaſs muſt appear to be a Plain full of *Squares*; on which Projection transfer what ſhall be drawn, on a Plain, divided into the ſame Number of like Squares; where though the Draught may appear very confuſed, yet the Reflection of it on the Glaſs, will be very proportional and regularly compos'd.

The Dioptrick, or Broken Beam may be ſeen in a Tube, through a Cryſtal, or Glaſs, whoſe Surface is cut into many others, by which the Rays of the Object are broken.

Of SCULPTURE in General.

SSulpture is an Art, by which, in taking away, or adding to Matter, all ſorts of *Figures* are form'd; either in *Clay*, *Wax*, *Wood*, *Stone*, or *Metal*. This ſort of Work is done either by *Hollowing*, as in *Metals*, *Agats*, and other Stones, or working in *Relievo*, as in *Statues* and *Baſs-Reliefs*. *Statues* are Figures which are ſeen on all ſides, and *Baſs-Reliefs* are never ſeen entirely. The Ancients Invented them to repreſent Hiſtories, and make a kind of *Pictures* to adorn their Theaters, Triumphal Arches, and other Edifices.

There are three ſorts of *Baſs-Reliefs*; in ſome the Figures appear ſo rais'd, that they ſeem to be almoſt diſſever'd from their Ground: In others, they are half out, and the *Relievo* is much leſs: And in the laſt Kind, they are ſtill leſs rais'd, and have very little *Relievo*; as in *Urns*, *Medals* and *Coins*.

'Tis very difficult to find out the *Inventers* of *Sculpture* in the Obſcurity of paſt Ages: Its Antiquity appears in Scripture, where we read of *Laban's Idols*, which *Rachael* carry'd off with her, and the *Golden Calf* the *Iſraelites* erected in the Wilderneſs. As to the Profane Authors who have Written of it, ſome will have it, that a Potter of *Sicyone*, Nam'd *Dibutades*, was the firſt *Sculptor*, and that his Daughter gave a Beginning to *Painting*, in drawing the Picture of her Lover on the *Shadow*, which the *Light* of a *Lamp* mark'd againſt a Wall. Others maintain, that this Art had its Origin in the Iſle of *Samos*, where a certain *Idoneus* and his Contemporary *Theodorus*, Invented and Work'd in it along Time before *Dibutades* was hear'd of: And that *Damaratus*, Father of the firſt *Tarquin*, bryught it into *Italy*, when he fled thither; for bringing with him *Eucirapes* and *Eutigrammus*, two Excellent Workmen in this Art, they Communicated it

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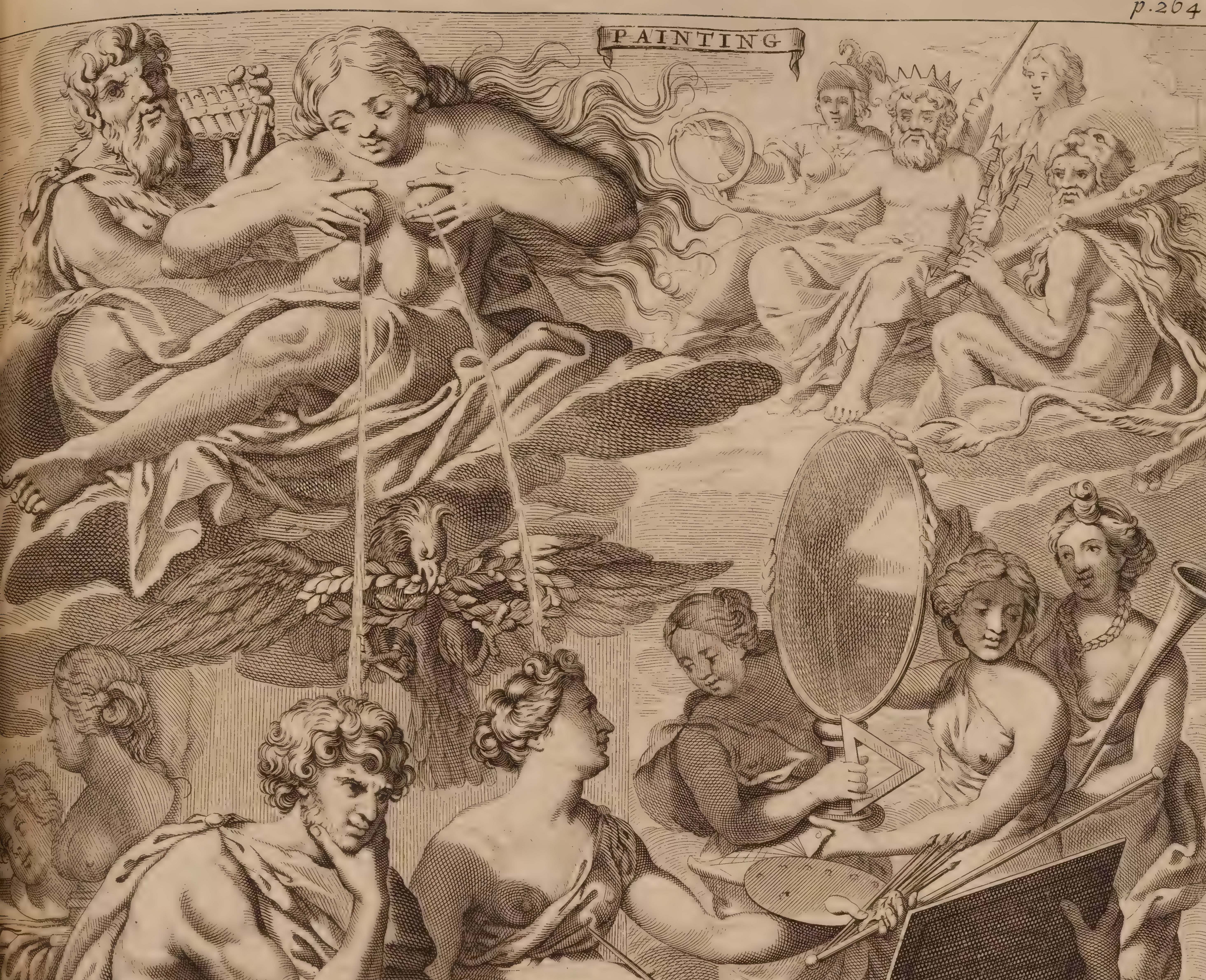

PAINTING
F. H. Van Hoven sculp.

To the Right Honble Charles Bodvell,
iſcount Bodmyn Grandſon and
heyre to the Right Honourable
ohn Earle of Radnor &c.^{a}
This Plate is humbly dedicated by Richard Blome.

QVÆ SUPRA

particularly to the *Tuſcans*, who apply'd themſelves to it, and ſucceeded in it.

They add, That *Tarquin* afterwards, ſent for one *Taurianus*, a Celebrated Sculptor, to make the Statue of *Jupiter* in Molten Earth; as alſo four Horſes of the ſame Matter, to be plac'd in the Frontespiece of the Temple of that Idol. 'Tis thought the ſame Sculptor made an Image of *Hercules*, which was a long while to be ſeen at *Rome*, and was call'd *Hercules of Molten Earth*, on account of its Matter.

There were ſeveral *Sculptors* at that time in *Greece* and *Italy*, who wrought in Earth. We Read of one *Caleoſtenes* an *Athenian*, who made his Name and Houſe Famous, for the great Number of *Earthen* Figures with which it was fill'd; and of one *Demophilus* and *Gorſamus*, who were alſo *Painters*, and Embelliſh'd the Temple of the Goddeſs *Ceres* with Pictures and Earthen Images: For all the Images of the *Pagan* Deities were, at firſt, made only of *Clay*, or *Wood*; and 'twas not ſo much the Brittleneſs and Cheapneſs of the Matter, as the Luxury and Riches of the People, that brought Marble and other Precious Metals into Uſe in its Place.

However, as Rich as the Matter was which the *Sculptors* made uſe of, they never left off working in *Earth*, for they have always form'd their Models of it; and whether they cut their Statues in Marble, or caſt them in Metal, they have ever made a Model with *Clay* before they undertook ſuch ſort of troubleſom Works. 'Twas doubtleſs this which gave occaſion to *Praxiteles* to ſay, That the Art of making *Earthen* Figures was the Mother of the Art of making Figures in Marble and Braſs, which did not begin to appear in Perfection, till about Three hundred Years after the Foundation of *Rome*.

Phidias of *Athens*, who Flouriſh'd then, Surpaſt all that went before him, as well in working in Marble, or Ivory, as in all ſorts of Metals. But ſoon after there aroſe ſeveral Excellent Artiſts, who carry'd the Art of *Sculpture* to the greateſt height it ever cou'd Boaſt of; For in *Sicyone* liv'd *Polycletes*, whoſe Figures were Admir'd by all the World, and the *Models* of all that Study'd in this Art. Then appear'd *Myron*, who was Inimitable in every Thing he did. *Lyſippus*, whoſe Name will Live as long as *Alexander*'s, and who alone had the Favour to Caſt the *Figure* of that Prince in Braſs. *Praxiteles* and *Scelas*, who made admirable Figures; and the Horſes that are at this Day to be ſeen at *Rome*, before the Pope's Palace of *Montecavallo*. This *Scepas* had ſeveral Competitors, as *Briaxis*, *Timotheus*, and *Levehares*, who was employ'd about the Famous Tomb of *Mauſolus*, King of *Caria*; *Ceſeſidorus*, *Canaclius*, *Dædalus*, *Buthieus*, a Diſciple of *Myron*'s; *Newratus*, *Euphranor*, *Theodorus*, *Xenorales*, *Phiromachus*, *Stralenieus*, *Antigonus*, who Wrote a Treatiſe of his Art; thoſe incomparable Workmen who made the *Laocoon*, *Ageſandes*, *Polydorus*, and *Athenedorus*, Three worthy of Immortal Praiſe for ſo Fine a Piece of Work; and an infinite Number of other Artiſts, the Names of ſome of whom are ſtill remember'd, and the reſt are Periſh'd with their Works. For tho' formerly there were ſo great a Number of *Statues* in *Greece* and *Italy*, that in *Rome* only there were thought to be more than living Men, yet a very ſmall quantity are now left, eſpecially of Fine nes.

When *Marcus Scaurus* was *Edile*, his Poſt obliging him to prepare every thing for the Publick Spectacles, he Adorn'd the Pompous Theatre which he Built, with 8000 Statues, and tho' *L. Mummus* and *Lucullus*, brought a great quantity with them out of *Aſia* and *Greece*, there were left above 3000 at *Rhodes*, as many at *Athens*, and more at *Delphos*. But what is more Surprizing is the greatneſs of the *Figures*, which the Ancient Artiſts had the boldneſs to undertake. Among thoſe *Lucullus* brought to *Rome*, there was one of *Apollo* 30 Cubits high: The *Coloſſus* which the *Rhodians* erected to the Honour of the *Sun*, and was the Workmanſhip of *Caroles*, Diſciple to *Lyſippus*, ſurpaſt this *Apollo* very much, for it was 70 Cubits high. The Statue of *Nero*, which *Zenodorus* made, after he had done that of *Mercury* in *France*, muſt alſo be of a prodigious Bigneſs, ſince it was 110 Foot high. Nevertheleſs, 'tis obſervable, that *Sculpture* did not remain above 150 Years after *Phidias*'s Time, when it began inſenſibly to Decline: Not but that there have been ſeveral Excellent Pieces of *Sculpture* made in *Greece* and *Italy*, but not of ſo great a *Gout* and ſuch excellent Beauty.

Beſides that, the *Greek Statues* are moſt Eſteem'd for the Excellence of the Workmanſhip: There's this difference between them and the *Roman*, that the greateſt part of the former, are almoſt always Naked, after the manner of thoſe that exercis'd themſelves at Wreſtling, or other Bodily Exerciſes; in which the Glory of Youth, in thoſe Days, conſiſted; whereas, the *Roman Statues* are cover'd with Habits, or Arms, and particularly the *Toga*, which was the greateſt Mark of Honour among the *Romans*.

The beginnings of *Sculpture* were in *Clay*, not only to make Statues at firſt, but when the Sculptor undertook any thing conſiderable, to make *Models*; which, as I have obſerv'd, was, and is ſtill, always done in Clay, or Wax.

How to make Figures of Clay, *or* Wax.

There's no need of many Tools to make Figures of *Clay*, or *Wax*; the Clay is plac'd on an Eaſel, and the Sculptor begins and finiſhes the Work with his Hands. Thoſe that are uſed to it, never make uſe of any thing but their Fingers, except three or four pieces of Wood, which are Roundiſh at one End, at the other Flat, with a ſort of Claws and Teeth; the Name they give them, is *Ebauchoir.* * They are about 7 or 8 Inches long; thoſe with Claws are to ſmooth the Stuff; the other, which have Teeth, are to ſcratch it, the Workmen not affecting to let it appear ſleek.

*A Hatchet.

They are made of *Wax* thus; Take a Pound of Wax, half a Pound of Oaker, or Scammony, ſome mixt Turpentine and melt it together with Oil of Olives: Put more or leſs, according as you would have the Matter harder or ſofter; a little Vermilion alſo ſhould be mixt with it to give it a ſofter Colour. When the Compoſition is made, the Figure is work'd up with the Hand, and thoſe *Ebauchoirs* that the *Sculptors* make uſe of in their *Earthen* Figures. *Practice* is the principal Miſtreſs in this ſort of Work, which at firſt is not ſo eaſie as that in Clay.

Of Sculpture in Wood.

The firſt Thing that a Sculptor in Wood is to do, is to chuſe the beſt Wood he can, and that which is moſt proper for the Work he undertakes. If 'tis ſomething Great, requiring Strength and Solidity, he ought to take the hardeſt Wood and that which keeps beſt, as *Oak* and *Cheſnut*; but for things of moderate bigneſs, *Pear* or *Apple-Tree* will do. And becauſe the latter are alſo very hard, when the Artificers is to make Ornaments that ſhould be Delicate, they chuſe tender Wood, but however firm and cloſe, ſuch as the *Linden-Tree*, which Work is excellent for ſuch, becauſe the *Chizel* cuts more neatly and eaſily than any other Wood.

As to *Statues*, we find the Ancients made of all ſorts in Wood: There was one of *Apollo* of *Box* at *Sicyone*: That of *Diana* at *Epheſus* was of *Cedar*. As theſe two ſorts of Wood are very hard and uncorruptible, and chiefly *Cedar*, which according to *Pliny*, ſeems to be deſign'd never to have an End; the Ancients frequently made the Images of their Gods of it. In the Temple built in Honour of *Mercury*, on Mount *Cyllene*, there was an Image of that God made of *Citron* Wood, which was very much in Eſteem; the Image was 8 Foot high.

Cypreſs being a Tree which is not apt to Corrupt, nor be damag'd by Worms, *Statues* were alſo made of it; as alſo of the *Palm-Tree*, *Olive-Tree*, and *Ebony*, of which there was a Figure of *Diana* at *Epheſus*; as alſo of ſeveral other ſorts of Wood. In like manner there were *Images* of *Jupiter*, *Juno*, and *Diana*, made of the *Vine-Tree*, in other Places. About 100 Years ago, there was a French *Sculptor* at *Florence*, Nam'd *Maiſtre Janni*, who Carv'd in Wood to that Perfection, that he made as compleat Images in it as in *Marble*. *Vaſſari* mentions a Rock of his doing, which was look'd upon as a Wonder.

When a Figure or Piece is well wrought, the Sculptors ſay, 'tis well *Cut*. The Beauty of it conſiſts in its being cut tenderly, and when their appears neither dryneſs, nor ſtiffneſs in it.

If a *Sculptor* would undertake any great Work, tho' it be but of one Figure, he had better make uſe of ſeveral pieces of Wood than of one whole Piece, which, as well in Figures, as Ornaments, is apt to *Crack* and *Cleave*, for an entire piece of Wood may not perhaps be dry at Heart, tho' the Out-ſide ſeems very dry. It ought to have been cut 10 Years before the Sculptor works upon it in ſuch Performances.

A *Sculptor* in Wood uſes the ſame Tools as a *Joyner*.

Of Sculpture in Marble and other Stone.

Sculptors who work in *Marble* or *Stone*, make uſe of good Steel Tools, Strong and well Temper'd, according to the hardneſs of the Matter. The firſt Thing to be done, is to ſaw out of a great Block of Marble another Block, of the bigneſs the Workman has occaſion of, which is done with an Iron Saw, very ſmooth and without Teeth; and according as the Marble is ſawn, he throws Water and *Freeſtone-Duſt* † upon it. The *Freeſtone-Duſt* ſerves to ſaw the Marble, and the Water makes it fall off in ſoft Mire when its Strength is gone: it alſo hinders the Iron from heating itſelf.

Then the *Sculptor* ſmooths the Marble he intends to work, by taking away its Superfluities by main Blows with a *Beel* and *Point*. When he has ſmooth'd it fit for his Work, he goes over it again with a finer *Point*, call'd *Dogs-Tooth*, having two Points, but not ſo ſharp as the other.

He after that, makes uſe of his *Gradine*, which is a flat cutting Tool with three Teeth, but not ſo ſtrong as the *Point*: With this Tool, the Artificer works on to advance his Work: He then takes off with a ſmooth Chizel, the Scratches which the *Gradine* left on the Marble, and uſes it with Dexterity and Delicacy, to give ſoftneſs and tenderneſs to his Figure; till at laſt taking a *Raſp*, which is a ſort of File, his Work is in a condition to be Poliſh'd.

There are ſeveral ſorts of *Raſps*, ſome Strait, ſome Crooked, ſome Harder, ſome Softer the one than the other.

When the Sculptor has ſo far finiſh'd his *Sculpture*, there being certain Places and particular Pieces that require Poliſhing, he uſes *Pumice-Stone* and *Putty*, to make all the Parts ſmooth and ſleek: Then he goes over it with the *Tripoli*; and when he wou'd give it more luſtre, rubs it with Leather, and Straw-Aſhes. Beſides the Tools before-mention'd, Sculptors uſe the *Pick*, which is a ſort of *Hammer*, Pointed and ſharp at one End; at the other are Teeth made of good Steel and Squar'd, that they may be the ſtronger. It ſerves to break the Marble, and is us'd in thoſe Caſes where the Workman can't make uſe of his two Hands to manage his Mallet and Chizel.

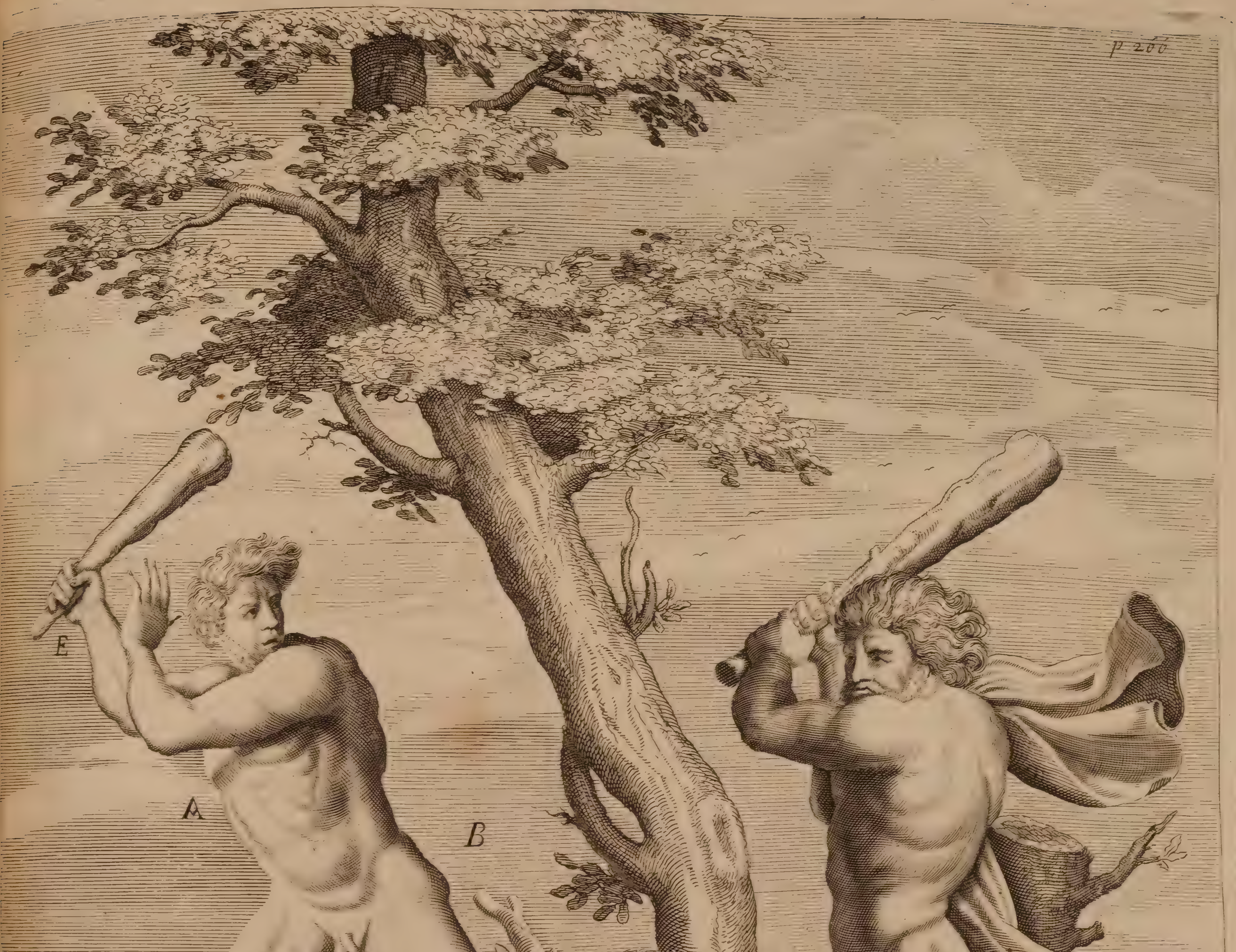
The *Bouchard* is a piece of Iron well Steel'd at the Bottom, and Pointed at both Ends like a Diamond; 'tis us'd to make an Hole of equal bigneſs, which can't be done with Cutting Tools. The *Bouchard* is beaten down with the *Beetle*, and the *Points* breaking the Marble, reduce it to Powder. Into the Holes Water is thrown from Time to Time, in proportion to the depth that is made, to waſh out the Duſt of the Marble and hinder the Iron's heating, which would ſpoil the Temper of the Tool, for the *Free-ſtone-Duſt* on which the Tools are Edg'd, is moiſten'd only to prevent their Heating, and that they may not loſe their Temper by being rubb'd when dry; for this Reaſon they wet alſo the *Trepands*, which otherwiſe are apt to grow hot in Trepaning, The *Sculptors* make uſe of them to drive into and pierce ſuch Places of their Figures as they cou'd not reach with their Chizel without endangering the ſpoiling of it, and breaking ſomething or other. When they work with the *Bouchard*, they put it through a Hole made in a piece of Leather, which is put over the Place they are hollowing, to prevent the Water's ſpirting up in the Workman's Face.

The other Tools neceſſary in *Sculpture*, are the *Roundel*, which is a ſort of Chizel made round. The *Hongnet*, which is a ſort of Pointed ſquare Chizel. Beſides which, the Sculptors muſt have a Compaſs to take all the Meaſures in their Figures.

When the *Sculptors* undertake any conſiderable piece of Work, whether *Statues*, *Baſs-Relieves*, or the like, they always make a *Model* in *Clay*, of the ſame bigneſs they intend their Figure ſhall be; and becauſe *Earth* or *Clay* ſhrinks as it grows dry, and is apt to break, it ſerves only for a Mould of Plaiſter, in which is made Figures of Plaiſter alſo. This they repair, and afterwards uſe for a Model, from which they take all their Meaſures, and govern themſelves in cutting the Marble. For their good Guidance in their Work, they put on the Head of this Model an *Immovable* Circle divided into Degrees with a *Movable* Rule fix'd in the midddle of the *Centre*, and divided alſo into Parts: At the end of the *Rule* hangs a Line with a Lead, by which they take all the Points that are to be the ſame on the Block, a Top of which hangs a Line in like manner as in the Model: However, there are excellent *Sculptors* who don't approve of this way, ſaying, if the Model ſtirs never ſo little, their Meaſures may vary, and ſo they make uſe of the *Compaſſes* in meaſuring all the Parts.

As to Figures made of hard Stone, ſuch as that of *Leu*, &c. the Artificers do the ſame as in working in Marble, excepting that the Matter not being ſo hard, their Tools are not ſo ſtrong, and ſome of them are of a different Form, as the *Raſps*, the *Hand-Saw*, the

† *Grais pile*

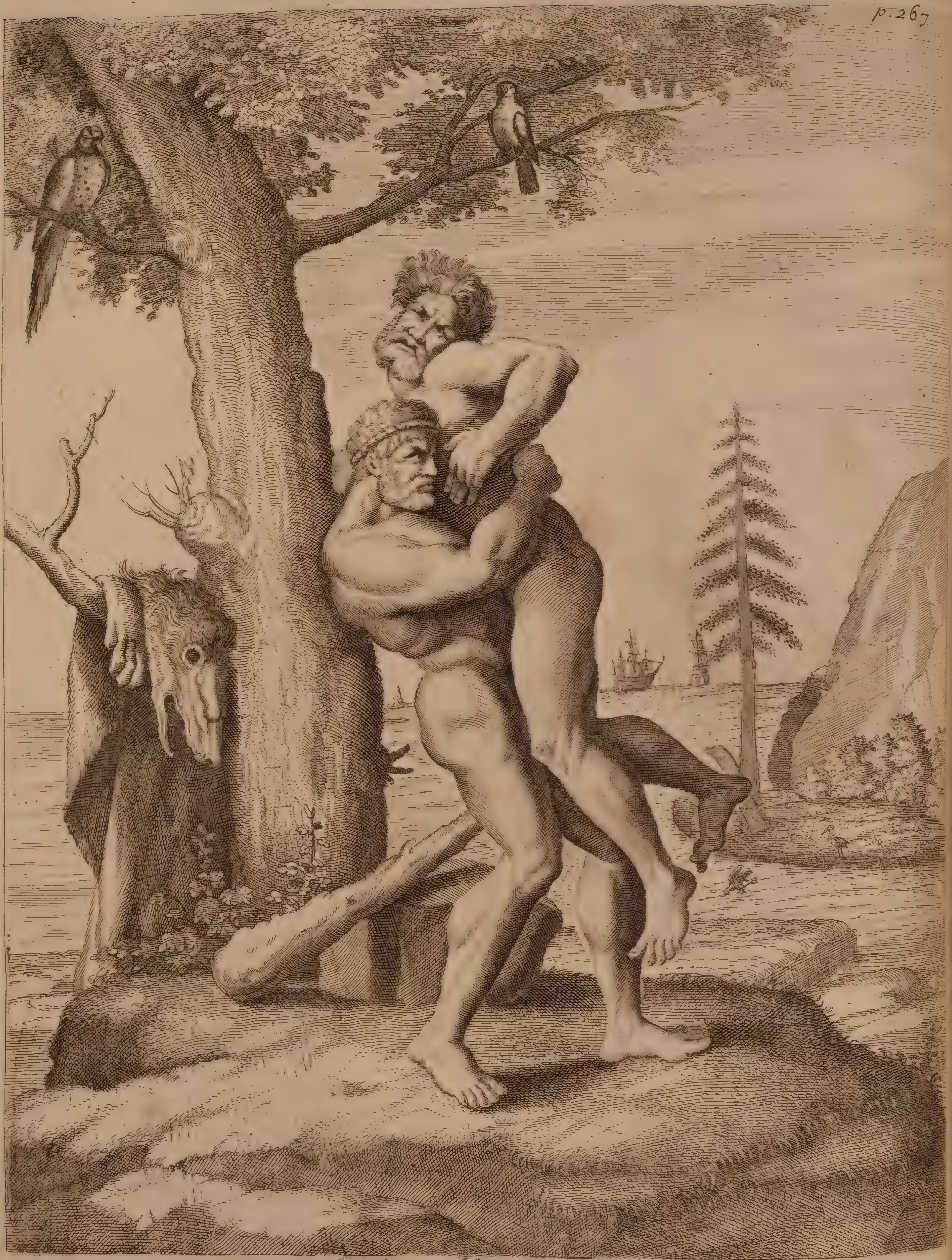


Painting

To The Honourable Collonell Robert
Feilding of Feilding Hall
in the County of Warwick
This Plate is humbly dedicated by Richard Blome.

EN ESPERANCE IE VIS

p.267



To the Right Worſhipfull S^{r}. Henry
Hobart of Blickling in Norfolk Knight
and Baronet, Son and heyre to S^{r}. John
Hobart of the ſaid Place Baronet deceaſed.

QUÆ SUPRA

This Plate is humbly dedicated by Richard Blome.

the *Ripe*, the *Streight Chizel* with three Teeth, the *Roundel*, and the *Grater*.

Sculptors have commonly a Bowl-Diſh in which they temper Plaiſter with the ſame Stone their Figures are made of, and make a Powder of it, with which they fill the little Holes, and repair the Defects they meet with in the Stone. That of *Tonnerre* is ſo plain, that it has no occaſion of it.

If they work in *Free-Stone*, they have Tools on purpoſe, for the *Free-Stone* is apt to Scale, and does not work like Stone or Marble.

How to Caſt Figures in Braſs.

I ſhall not treat here of the manner of the Ancients Caſting their Metals and making Figures, one may ſee by what *Pliny* ſays of it, That they ſometimes made a ſort of *Moulds* of Stone. *Vitruvius* mentions a kind of Stone which was found near the Lake of *Volſene*, and in other Parts of *Italy*, that wou'd endure the violence of the Fire, and *Moulds* were made of it to Caſt ſeveral ſorts of Works in.

Lib. 37. *c.* 4.

Lib. 2. *c.* 7.

The *Moderns*, who have work'd in *Italy* and elſewhere, have proceeded in it after different ways: Every Age has diſcover'd eaſier means of doing it; and it may be affirm'd, that never was a more eaſie Way found out to come to Perfection in theſe Things than what is now practis'd in *France*, where the Artificers know how to Caſt and Repair all ſorts of Figures after as Beautiful a manner as any thing that we ſee or have heard of in the *Antiques*.

The firſt Thing to be done towards Caſting a Statue, or any other Piece of Work in Braſs, is to make a Model of *Clay* prepar'd by the Potters, who mix Sand amongſt it, to prevent the Models cleaving or breaking in Drying. The beſt Clay that is made uſe of for this purpoſe at *Paris*, is dug at *Artueil*, and the Sand at *Belleville*.

When the Model is finiſh'd, a Mould of Plaiſter is put over it while 'tis freſh, becauſe the Parts are apt to ſhrink with Drying. He begins at the bottom of the Figure, which is made up of ſeveral Pieces from the Foot to the Knee, according to the bigneſs of the Model; for when the Pieces are too big, the Plaiſter is apt to Chap. Upon the firſt Piece another is plac'd always proportionable to the Figure, and ſo continued from one to another as high as the Shoulders, on which the Head is put.

'Tis to be obſerv'd, that if it is a Naked Figure whoſe Pieces, which form the Mould, being pretty big, may be peel'd off eaſily; there's no need of covering them with a *Shape.** But if the *Figure* is with *Drapery*, or accompany'd with Ornaments, which oblige the Artificer to make abundance of little Pieces to be the more eaſily peel'd off, he muſt then make great *Shapes*; that is, he muſt Cloath all thoſe little Pieces with other *Plaiſter* in great Bits, to encloſe the other, and Oil the great as well as the little Joynts, that they may not ſtick to one another.

* *Chappe.*

Shapes are great Pieces, diſpos'd in ſuch a manner that each of them encloſe ſeveral little ones, to which are fix'd little Rings of Iron to help peal them off the more eaſily, and to make them keep in the *Shapes*, by means of little Cords ty'd to the Rings, and put into the *Shapes*. The great and little Pieces are mark'd with Cyphers, Letters, and Cuts, to know them and ſet them the better together.

When the *Mould* of *Plaiſter* is thus made, it muſt lie by a little, and as ſoon as it is dry, and the Sculptor is about to uſe it, if he is Curious, he will not be contented with rubbing it with Oil, bnt will heat all the Parts of his Model, and then fill them with Wax, which de does, that the Wax-work may be the more Beautiful and more Perfect: For when they are only rubb'd with Oil, the Waxen Figure will commonly look mealy, becauſe the Wax always ſinks in ſome part of the Plaiſter; or rather the Plaiſter ſucks in part of the Wax, which will ſtill cauſe a more viſible Defect in the Picture, and the *Caſt* will never be ſo Fine.

The *Mould* being thus Oil'd, or rather Wax'd, when the Workman is about to Caſt a Figure in Braſs, he gathers all the little Pieces that are in each great piece of the *Shape*, which he preſently Oils all over with a Pencil, then with another Pencil he takes his Compound-Wax; that is, to ſix Pound of Wax, is put half a Pound of Hogs-Greaſe, and one Pound of *Burgundy-Pitch*, according to the Seaſon; for in Summer the Wax may be work'd up alone, the other Drugs being only to render it the more pliant and manageable: Of this ſort of Wax, either Simple, or Compounded, the Workman lays on to about the thickneſs of a Silver Penny on all the parts of the *Mould*; after which, he takes the ſame Compoſition and makes Cakes of it of an equal thickneſs, according as he deſires the Braſs ſhould come, which is generally the fourth part of an Inch. The Cakes he puts into the Cavities or Moulds, and Incorporates them with his Fingers, with the Wax that was lain on with the Pencil, in ſuch ſort, that they fill them all equally: He then takes an Iron *Grate*, which ſhould be three or four Inches broader than the Baſis of the Figure that is to be made, in which *Grate*, he raiſes once more Bars of Iron, turn'd according to the Altitude of the Figure, and pierc'd in ſeveral Places, to put Rods of Iron through of what Length ſhall be thought neceſſary to bear up the Soul, or *Nuclæus*, as *Vitruvius* calls it, of the Piece to be Caſt.

The Ancients made all the *Souls** of their Figures of *Potters Earth*, of Horſe-Dung and Chaff well beaten together, of which they form'd a Figure like to that of the Model. When they had well furniſh'd this Soul with Pieces of Iron along and athwart; according to its Altitude they Flea'd it; that is, they took off as much of the Thickneſs as they deſign'd for the Braſs. After they had let this *Soul* dry, they cover'd it all around with pieces and bits of Wax, which they took out of the *Mould*, and diſpos'd of them as I ſhall ſay hereafter.

* *The firſt rough Figure made by Stone-cutters ſo call'd.*

This way of forming *Souls* of Figures is practis'd by ſome Founders, eſpecially for great Braſs Figures, becauſe the Earth endures the force and violence of the Fire better than Plaiſter, which is commonly us'd in midling Figures, and ſuch as are Caſt in Gold and Silver.

However, Sculptors having ſeldom occaſion to make Figures of an exceſſive bigneſs, they uſe it alſo for thoſe in Braſs, but mix Brick-duſt well pounded and Sifted with it; and in working after this manner, they proceed thus.

They take the firſt Layes of the *Mould* fill'd with Wax, as has been ſaid, which they ſet from Bottom to Top on the *Gate*, about that Bar of Iron that is to ſupport the *Soul*, tying them faſt together with Cords, for fear the Pieces ſhould ſeparate from each other when the *Soul* is to be made. In order to make which, as ſoon as the firſt Lay of the *Mould* is diſpos'd of, the reſt are rais'd one after another, the Sculptor pours fine Plaiſter mixt with Brick-duſt ſifted; for the Brick-duſt helps the Plaiſter to reſiſt the Fire, and hinders its ſpreading. When the firſt Lay of the Mould is fill'd, the ſecond is done; and ſo the reſt one after another, till they are all rais'd; and the *Soul* is made of Brick-duſt and Plaiſter as high as the Figure is to be.

The Parts are rais'd up thus Piece by Piece, that the *Soul* may be the better manag'd; and to bear it up, Iron Rods are from time to time, put through the Principal Parts before-mention'd.

When all the Parts of the Mould are ſet together, and all the Cavities fill'd, the Shapes and all the Parts of the Mould are clear'd, beginning at the Top, and ending at the Bottom. And then the Figure appears entire, covering the Soul which is within it.

The Figure muſt be adjuſted and made like the Model after which it was form'd, and to make it the more perfect, the Workman may add to or diminiſh as is convenient in all the Parts, to give the more Grace and Expreſſion to certain Lines, for as to the *Altitudes* and the *Diſpoſition* of the Members, he cannot alter any thing without deſtroying the Work.

When 'tis in its Perfection the *Caſts* and *Eſvents* are laid. Theſe *Caſts* are Pipes of Wax made about an Inch thick, for Figures as big as the Life, they being always proportion'd to the bigneſs of the Work, and even to the Parts of the Body where they are plac'd. The *Events* are alſo Waxen Pipes, but a little leſs. Theſe Pipes are made in Moulds of Plaiſter, of what ſize the Artificer pleaſes, then they are cut to about four or five Inches in length. Thoſe that are to ſerve for the *Caſts* are plac'd one above another at ſix Inches diſtance in a right Line the length of the Figure, and ſome times nearer when there are *Draperies*, and there is occaſion of a great deal of Matter. When theſe Pipes are apply'd to and ſodder'd with the Wax on the Figure, ſo that the End which is not Sodder'd is erected, there's a great Pipe of equal Bigneſs faſten'd to the end of theſe little Pipes, from the Top of the Figure to the Bottom; all theſe Pipes great and ſmall ſerve for the Caſting the Matter; and thus three or four are made about a Figure, according to its Bigneſs and Diſpoſition; but at the ſame time, that theſe Pipes are made to ſerve for the Caſts, the Sculptor muſt apply overagainſt, and at the Side that is on the ſame Line, and at four Inches diſtance, leſs Pipes to ſerve for *Eſvents*, which are to be ſodder'd to the Figure, and a great Pipe which paſſes from Top to Bottom, like thoſe of the *Caſts*; and becauſe all the Wax, as ſoon as it melts, runs out of the Mould, as will be ſhewn hereafter, he is very careful to ſupply all the extremities of the Parts, ſtretching out from the Body of the Figure with theſe Pipes, as the Arms, Fingers, Drapery, and other Things, from whence the Wax muſt run. All theſe Pipes are hollow for their Lightneſs only, otherwiſe they might be fill'd, but then they would be too heavy: A ſufficient Quantity of them muſt be plac'd about the Figure; and the Workmen ſhould take care as mnch as poſſible, to put them in thoſe Places which he would have moſt ſupply'd with Metal, and which will be moſt eaſily fill'd up: Thoſe that are to ſerve for the Face, ſhould, as I have hinted, be much leſs than thoſe that are to ſerve for the Hands.

After having rang'd all theſe different Pipes the whole depth of the Figure, the great elevated Pipes deſign'd for the *Caſts*, meet at the Top two together, 5 or 6 Inches above the Figure, at a Bowl or Cup of Wax four Inches deep, and as many Diameter, to the Bottom of which they are fix'd. This Cup ſerves to receive the Metal, which communicates itſelf at the ſame time to the two Pipes. Thus if there are four elevated Pipes for *Caſts*, there are two ſorts of Cups, more or leſs, as the Artificer pleaſes, to carry the Metal to all parts of the Figure.

As to the Parts which ſerve for *Eſvents*, they run up to the height of the Figure, higher than the others, for there is no need of their being joyn'd together, nor of their having Cups.

The Waxen Figure being thus prepar'd and furniſh'd with *Caſts* and *Eſvents*, the *Sculptor* takes a Compoſition made of *Putty* and the Cement of *Crucibles*, well cleans'd and Pounded, which he tempers in an Earthen Pot, to the conſiſtence of a Colour for Painting, and a pretty bright one, then with a Pencil he carefully covers all the Figure with it, as alſo the Pipes, both thoſe for the *Caſts*, and thoſe for the *Eſvents*. This muſt be done ſeveral times, and the little Cracks which will happen in this Compoſition, muſt from time to time be fill'd. When all the Wax is well cover'd, he puts another ſort of Compoſition upon it with a Pencil; it is thicker, and has more ſubſtance; 'tis made of the ſame Ingredients as that before-mention'd, mingled with ſome Mould and Horſe-Dung. After ſix or ſeven of theſe *Lays*, another thicker than any of the reſt is laid on with the Pencil, made of Mould and Horſe-Dung: That being dry, another is put on, and then another, till Seven or Eight: At laſt a thicker ſtill is laid on with the Hand, compos'd alſo of Mould and Horſe-Dung; and this is follow'd by another; but the Workman muſt be ſure that every Lay is dry before another is laid on, and take care not to leave any Part of the *Naked*, or the *Drapery*, but what ſhall be equally cover'd with every Lay.

After this, he takes ſeveral flat Iron Bars of the height of the Figure, which at Bottom is faſten'd to Hooks that ſhould be at the ſide of the *Grate*, on which the whole Figure is plac'd; theſe Bars muſt be at 6 Inches Diameter from each other, and turn'd according to the *Altitude* of the *Figure*, in ſuch ſort, that they may joyn to the Mould, and coming from the Top, meet in a kind of Iron Circle, or Bands of Iron, which catches in the Hooks of each Bar. Then the Figure is girded from Space to Space, with other Iron Bands at the diſtance of 7 or 8 Inches; theſe Bars ought to be turn'd according to the diſpoſition of the Figure, and joyn'd with Iron Threads to the Bars that mount a-Top. When they are all joyn'd together and in a condition to bear up the Mould, the Artificer takes ſome heavy Mould mix'd with Horſe-Dung and Chaff, and covers all the Mould and Bars with it, inſomuch, that it appears to be only a Maſs of Earth of about five Inches thick: But it muſt be obſerv'd, That when a Naked Figure is to be Caſt which is only to be plac'd on its two Legs, the Right of the Legs and Thighs muſt be better ſupply'd than that of the Body with Earth, becauſe when the Mould begins to be ſeeth'd the lowermoſt part being ſooner heated than the middle of the Body; before the *Soul*, which is to the Right of the Belly and Shoulders, is ſeeth'd as it ought to be, the Legs and Thighs, which are not ſo big, will be burnt and conſum'd with the Fire before the Trunk is hot through: And this Caution is neceſſary in all the different Pieces of Work that can be made, if the Workman wou'd perform it with Judgment, and prevent ſuch ill Accidents as may happen on the like Occaſions.

When the Mould is finiſh'd after the manner I have been treating of, the Artificer orders a Hole to be dug four ſquare, large enough to contain the Figure

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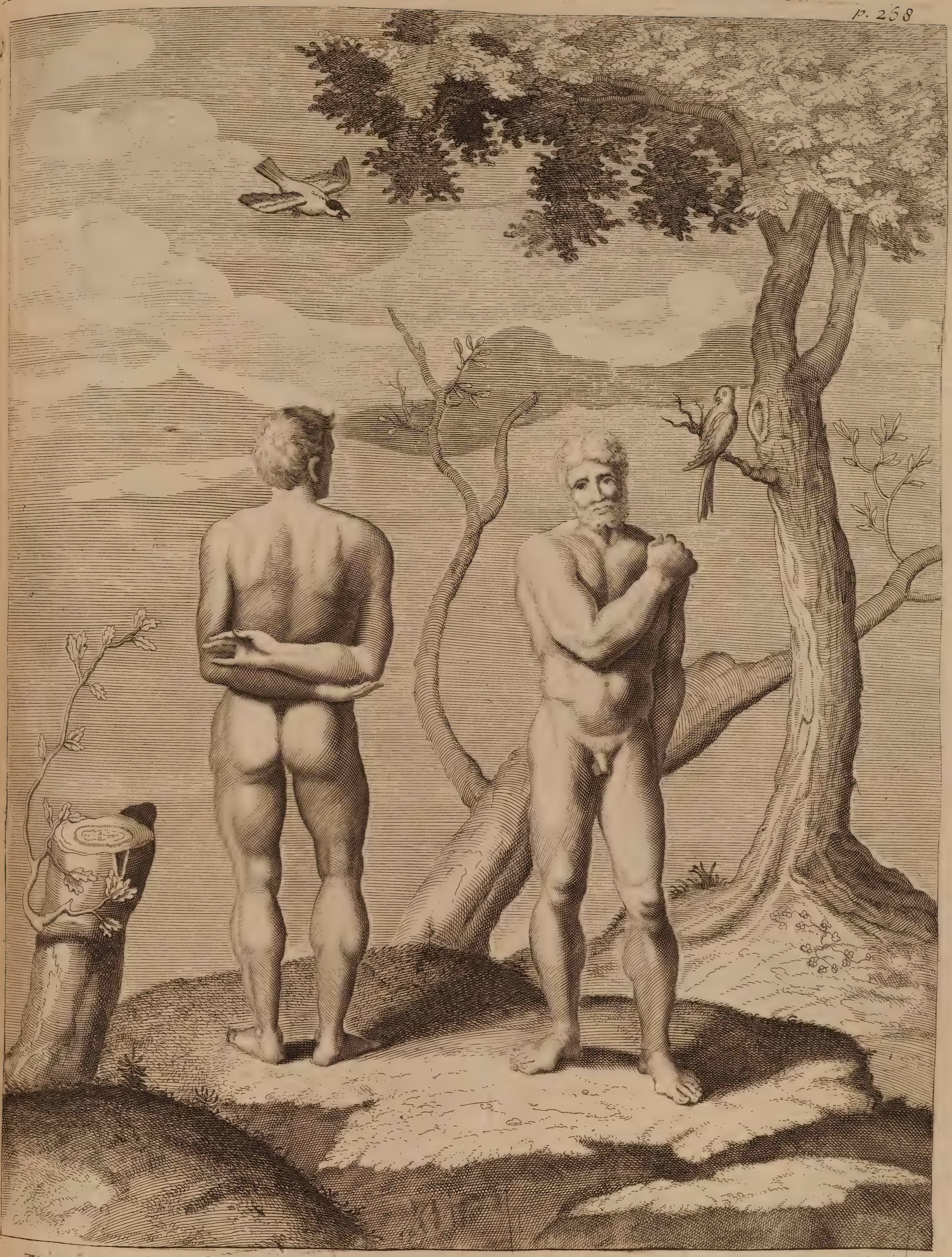
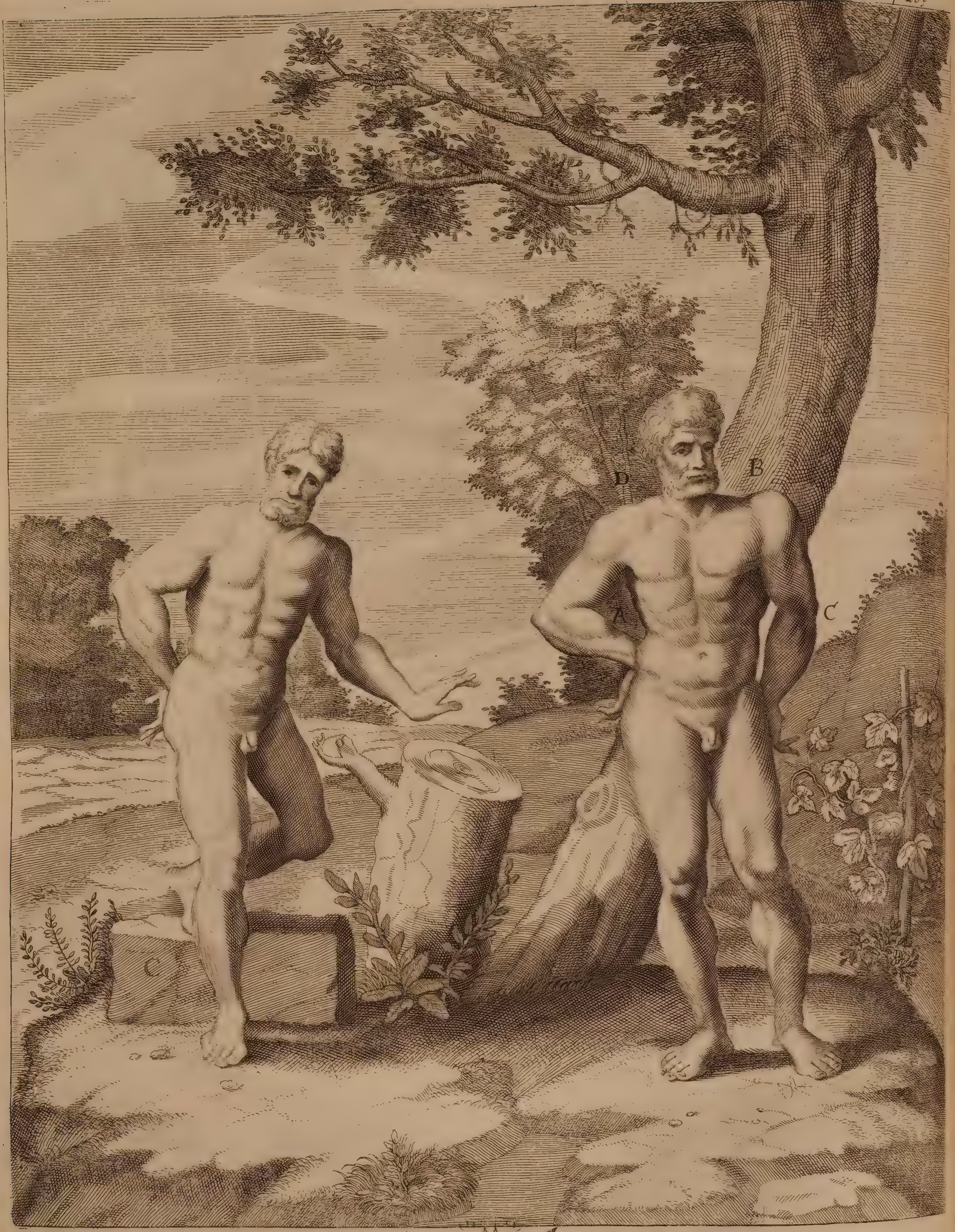


Painting

To the Right Worſhippfull Sr John Oſborne of
Chickſand in y^{e} County of Bedford Baronet
This Plate is humbly Dedicated by Ric: Blome.



PAINTING

To the Worshipfull Edward Montague of
Horton in ye County of Northampton Esq
This Plate is humbly dedicated by Ric: Blome

Figure, but it muſt have a wide Space of at leaſt a Foot, or Foot and half about it, and be deeper than the Mould is high; for at the Bottom it ſhould have a ſort of an Oven, whoſe Mouth muſt be on the outſide for the putting in of the Fire, and above that a ſtrong Iron Grate, ſtrongly ſupported by the Arch and Walls of the Oven, which ſhould be made of Free-Sone or Brick, as well as the four Sides of the Hole from Bottom to Top.

After the Grate is plac'd on the Oven at the bottom of the Hole, the Mould is let down with Engines, and the neceſſary Proviſion made for it, Pans are put under the Pipes that ſerve for *Caſts* and *Eſvents*, to receive the Wax that runs out of 'em; Then the Hole is cover'd with Plank, and by lighting a moderate Fire under the Figure, that and all the Place in which it is, is heated with a moderate Heat, till the Wax melts and runs out of the Mould, there remaining none behind, for if there was, it would cauſe a Deformity in the Figure, when the Metal ran into it. The Mould muſt not be ſo hot as to make the Wax boyl, which might hinder its running out entirely. When 'tis thought all the Wax is melted, which may be ſeen by the Quantity that comes out (for it muſt be weigh'd before it is put in) the Pans are taken away, and the Mouths of the Holes, at which the Wax ran out, are cover'd with Earth: All the void ſpace of the Hole between the Mould and the Walls, are fill'd with pieces of Brick thrown down ſoftly and without ranging in Order; and when that is done to the Top, a good Wood-Fire is made under the Furnace, the Flame being intermix'd with theſe pieces of Brick, cannot aſcend with Violence nor damnify the Mould, but communicates a Heat only in paſſing through thoſe pieces of Brick which it heats, ſo that it grows Red, as does alſo the Mould. After the Fire has burn'd about Twenty four Hours, and 'tis ſeen that the Bricks and Moulds are lighted from Bottom to Top, that Fire is let out, and the Mould grows cold again, all the Bricks being taken away that were about it; when the heat is quite gone, Earth is thrown into the Hole to fill up the Vacancy left by the Bricks, and as the Earth is thrown down, 'tis trod upon and preſt againſt the Mould; but it muſt be a little moiſt to be the better preſt and made a ſolid Body; yet not ſo moiſt as to communicate any of its humidity to the Mould, which therefore ſhould not be hot; for if there remains any Heat in it, 'twill imbibe the Moiſture, which will cauſe many Inconveniencies when the Metal comes to be caſt.

For the melting the Metal a Stove muſt be made by the ſide of the Hole, in which the Mould is: The Area of this Stove ſhould be two or three Inches higher than the top of the Hole, that it may be ſloping: It ſhould be built in the form of a Furnace, of good Tile-ſhards and Mould, bound with good Iron Hoops, and big enough for the intended Work. The Stove being finiſh'd deep enough to contain the Metal, two Mouths are made above it, one to throw the Wood into, and the other to fan and give it Air. When the *Stove* is very dry, a great Wood Fire is made, into which is thrown the Metal the Figure is to be Caſt in. There ſhould be a third Mouth at the ſide of the Hole, which muſt reach to the *Area* of the Stove; this Mouth ſhould be well ſtop'd with Earth while the Metal is melting, but ſo that it may be open'd when the Workman pleaſes, and by a Canal of Earth it has communication with a ſort of great Baſin made of Mould, and plac'd above the Figure, the middle of which Baſin is to anſwer exactly to the Cups, to which the *Caſts* I have mention'd are fix'd. The Workmen call this Baſin *Eſcheno*; it muſt be firm and made of good pounded Eerth very dry, for which End 'tis put into a Coal-Fire, well Dry'd, and afterwards Pounded. And to prevent the Metal running into the Cups, as ſoon as the Oven is open'd, there are Men ſet to cover them with a long Iron Bar thick at the End, and turn'd there like the Cup: There are as many of theſe Bars, and theſe Men, as there are Cups; that is, one or two, according to the Nature of the Work.

When the *Metal* is melted, the Workmen open the Iron Door, or rather unſtop the Hole, which is at the right of the *Canal*; this is done with a piece of Iron at the end of a long Pole; the Metal running out, immediately falls into the *Eſcheno*, where, when it is come, the Cover is taken off the *Cups*, the Metal enters into the Mould, and the Figure is form'd in an Inſtant.

When the Mater has thus fill'd the Mould, 'tis left three or four Days; then the Earth that was put about it, is taken off, by which means the Mould grows quite Cold; and when the Workman finds it has no more Heat in it, he breaks it, and diſcovers the Figure in Metal, with the *Lays* and *Eſvents* of the ſame Metal with itſelf: 'Tis Saw'd on the Place, to clean and get the Figure out the more eaſily: After that, 'tis cleans'd and ſcour'd with Water, and with pieces of Fir or other ſoft and ſpungy Wood, he rubs the Cavities of the Drapery and other Parts of the Figure. When 'tis a little Figure, he waſhes it with *Aqua Fortis*; and when that Water has had its effect, he waſhes it with common Water; after 'tis very well cleans'd, he Repairs it, if 'tis neceſſary to be Repair'd, for great Figures are never Repair'd at all.

The Tools he does it with are the *Burin*, the round and flat *Graver*, a little *Chizel*, Bodkin and *Riffloirs*, which are a ſort of File.

When the Figure is well cleans'd and repair'd, the *Sculptor* Colours it if he pleaſes: There are ſome who do it with Oil and Red Oaker; others make it turn Green with Vinegar; but in time the Braſs takes a Varniſh that bears upon the Black.

Thoſe that Gild them do it two ways, either with Leaf-Gold, or temper'd and mix'd with Quick-ſilver, which is the firſt and moſt excellent way, and made uſe of in little Figures; for this the Workman takes one part Gold, and the other Part *Quick-ſilver*, heats the Figure and puts on this Compoſition, which whitens it; and Reheating it, the Fire Exhales the *Quick-ſilver*, and the Figure remains Gilt. The other way is us'd in great Figures, and where Perſons would not be at much Expence, the Figure is ſcrap'd all over with little Files and other Tools, to make it Freſh and Clear; then 'tis heated and Leaf-Gold laid upon it, which is done four times.

Baſs-Reliefs are Caſt after the ſame manner as *Statues*; that is, the Mould is firſt fill'd with Wax, after 'tis laid on as thick as neceſſary, 'tis temper'd with Plaiſter or Earth, which is put on the Wax, to keep it in one Piece at coming out of the Mould, and to repair it the more eaſie; then 'tis cover'd as the Mould of Statues, with ſeveral *Lays* of Compoſition and Earth, but the Pipes for the *Caſts* and *Eſvents*, are put behind and on the edge of the *Baſs-Reliefs*, and ſome on the Figure. The reſt is done after the ſame manner as is mention'd for Statues.

As to the Metal which is us'd, that depends on the Founder's Choice, only to take care, that for one Pound of Wax, there be ten Pound of Metal, without allowance for Waſte, which may be conſiderable in great Figures. For fine Statues, the Allay of

The Metal is half Red Copper, and the other half Yellow. The *Ægyptians*, who are ſaid to be the Inventers of this Art, put two Thirds Yellow Copper, and one Third Red.

Yellow Copper is made with Red Copper and Calamine; a Hundred of Calamine increaſes Forty *per Cent.* Calamine is a Stone that gives a Yellow Colour, and is found in *France* and the Territory of *Liege*.

Good Red Copper ought to be Beaten, and not Melted, before 'tis us'd in Statues, neither ſhould it have any Allay of Lead.

Red Copper is Forg'd Hot and Cold; Yellow Copper when 'tis Cold only, it breaks if Hot. There's a ſort of *Metallick* Stone coll'd *Speller*, which comes from *Ægypt*, and gives Red Copper a finer Yellow than *Calamine*, but being ſcarcer and dearer than the latter, is rarely made uſe of.

We may ſuppoſe the *Oricalcum* was made of this ſort of Stone; for tho' ſome Authors talk of *Oricalcum* as a Simple and Natural Metal, yet all that have Written of it have talk'd ſo differently, that they have ſtill left room to believe 'tis a Compoſition of Copper, and another Metal or Earth, which *Feſtus* calls *Cadmea Terra*. And *Stephanus* de *Urbibus* in *Andira* ſays, there's an Earth in that Country which being mingl'd with Copper, makes *Oricalcum*.

There was another Compoſition of Metal, which the Ancients call'd *Electrum*, and was the fineſt of all; 'twas compos'd of two Thirds Silver, and one Third Copper. The Stones in *Corinthian* Copper was very much in Eſteem, becauſe 'twas held, that among that Copper there was a good mixture of Gold and Silver; but this Metal was never in uſe, till after *L. Mummius* burn'd the City of *Corinth*, and the *Statues* and other Works of different Metal, melting and mingling together, made a Compound Metal, which was very rich and known by the Name of *Corinthian* Braſs. For Bell-Metal twenty Pound of Tin is put to one hundred Pound of Copper; and for Pieces of Ordnance, ten Pound only: But this Compoſition is not proper for Figures, becauſe 'tis too hard and crumbly.

If the Sculptor wou'd make little Figures of Braſs, he melts the Wax which he puts into the *Mould* of *Plaiſter*: The Waxen Figure is taken out of the Mould in one Piece and hollow, which Cavity is fill'd with *Plaiſter*, and left to dry, that it may ſerve for the *Soul*; all the reſt is done as for great Figures.

Of Figures in Lead, Plaiſter and Stuck.

There are not ſo many Precautions neceſſary when Figures are Caſt in *Lead*, as when they are done in *Braſs*, becauſe *Lead* is not ſo ſtrong. The Workman only fills the Cavities with Earth well manag'd, of what thickneſs he pleaſes; then he fills all the Mould with *Plaiſter* or *Tile-duſt*, with which the *Soul* is made.

When the *Soul* is finiſh'd, all the Pieces of the Mould are taken aſunder to take off the Earth, and then being clos'd together again, they are put about the *Soul*, but at four or five Inches diſtance: That Interval is fill'd with *Coal* from Top to Bottom; all the Gaps between the Pieces of the Mould are fill'd with *Brick*, and the *Coal* being ſet fire to, 'tis all lighted: This is to ſeeth the *Soul* and dry the *Plaiſter Mould* which the Earth had wetted. When all the Coal has been well lighted, and after 'tis gone out of itſelf, the Workman takes a pair of Bellows and blows off the Aſhes that may have got into the Pieces of the Mould; then thoſe Pieces are joyn'd together again as before, about the Mould; all the *Chapes* are well ty'd with Cords, and cover'd with *Plaiſter*; after which the melted Lead is pour'd into the Mould, which Lead fills the Space that was taken up by the Earth; nor is it neceſſary to Earth the Mould as in Caſting in Braſs, unleſs 'tis for great Figures.

The Tools in Caſting in Lead are the ſame the *Plummers* uſe.

After what has been ſaid of making a Cavity for Caſting Wax, 'tis no hard matter to conceive how Figures are made of *Plaiſter*; for, it being eaſily temper'd and running as eaſily, 'tis pour'd into the Mould, and ſometimes the Figures are taken out all in one Piece, eſpecially when the Founder is Maſter of his Buſineſs and well Experienc'd in it. All the Art is to chuſe good *Plaiſter* in Stone, that there may be no Coal among it: It ought to be well Burnt, well Pounded, very White, ſifted thro' a fine Sieve: However, if 'tis a Great Figure, 'tis Moulded at ſeveral times, and even ſeveral Parts of the Figure in each piece of the Cavity are half fill'd before they are ſet together, that they may hold the better, and the better form all the Parts.

We ſee by what *Pliny* Writes, that the Cuſtom of making *Moulds* of *Plaiſter* is very Ancient, and that 'twas made uſe of about Earthen Figures and Plaiſter Figures a long time before 'twas known how to Caſt in Metal. He mentions the Works of *Arceſilaus*, a moſt excellent Artiſt in this kind of Work, who made the Model of a Cup for a *Roman* Knight, which by what he ſays, muſt be of very precious Matter, and a conſiderable Price.

Lib. 35. *c.* 3.

Several Statues are made in *Stuck*. Theſe Figures are for the Ornament of Cielings, Frieſes and Cornices. As to the making *Figures*, the firſt Thing is to form the *Soul* of Plaiſter or Lime-Mortar, and a Cement of Tile-Duſt, putting Bars of Iron into thoſe Parts of the *Figure* that have need being born up. When the Soul is form'd, 'tis then cover'd with *Stuck* to work out the *Figure*, for which the Workman has his proper Tools. In the Compoſition of *Stuck*, one Pound muſt be Marble-Duſt, and two Thirds Lime. There's a ſort of *Stuck* made of *Plaiſter-Stone*, manag'd as Marble; inſtead of which, ſometimes *Alabaſter* is made uſe of. As for Ornaments of *Baſs-Taille*, Moulds are us'd, that they may the more readily be made. The Artificer takes a Mortar compos'd of Lime and Sand, or Tile-Duſt, for the firſt Aſſay, and before 'tis quite dry, the *Stuck* is temper'd to a Compoſition that's neither too hard, nor too ſoft: When 'tis laid on the Place where the Workman would make an Ornament, he applies the *Mould* which the Artiſts call *Moulette*, made of *Plaiſter*, or a Compoſition of Wax, Roſin and Brick-duſt, more durable than *Plaiſter*. The Mould muſt be firſt powder'd with Marble Powder, and being put upon the *Stuck*, the Artificer ſtrikes it with a Mallet, and the Figure of the Mould remains on the *Stuck*; after this the Work is clean'd, that it may appear the more ſmooth.

Waxen Figures for *Portraits*, are alſo Caſt in *Moulds* of *Plaiſter*, and Colour'd afterwards as the Artiſt Pleaſes. 'Tis no new Invention, *Lyſiſtrates* of *Sicyone*, *Lyſippus*'s Brother, was the firſt that thought of making *Moulds* even on the Faces of *Perſons*. But neither *Ancients* nor *Moderns* valu'd much thoſe that apply'd themſelves to this ſort of Work, if they were not beſides excellent Sculptors, or able Painters:

Pliny L. 35. *c.* 12.

ters: For there's a great deal of difference between what is made in Wax from a Model, and what is only caſt in a *Mould* and Painted over; the firſt is a real Sculpture, and the other ſhould be look'd upon as a very indifferent Performance, and, if I may ſo ſay, the Work of a meer Labourer, and not an Artiſt.

Figures are not only made in Wax, but all ſorts of Fruits, which are painted according to their Natural Colours.

How to Engrave in Relievo, *or in* Concave.

There are ſeveral ways of Engraving in Metals and upon precious Stones, for *Relievo's* are made in both the one and the other, as well as Graving in *Concave*.

When an Artiſt would Engrave on Steel to make Medals, be begins with Deſigning his Subject whether an Effigies or Device, which he cuts out on Wax in *Baſs Relievo*: Then he makes a Punchion, and on one of the Ends, which ought to be of Caſe-harden'd Steel: He cuts out in *Relief* the ſame thing he made in Wax.

When the Punchion is in its Perfection, he tempers it to harden it, and then with a Mallet, or ſome ſuch Inſtrument, ſtrikes upon it to make the Impreſſion in a ſquar'd Piece, form'd like a Dye of Steel, before which he puts the ſquar'd Piece into the Fire to ſoften it, and make it the more eaſily receive the Impreſſion with the Punchion; for being ſtruck Hot and Cold, it receives in *Concave* what is in *Relievo*, on one end of the Punchion. The ſquar'd Piece not taking all the delicate Strokes of the Punchion, which commonly is us'd only for the Riſing of the *Relievo*, there's a great deal more to be done to finiſh the Concave, which is perform'd with Steel Tools, as little Chizels, Burins, ſharp Gravers, Echops, Rifflois, little Chizels with Files at the end, and ſeveral other Tools, ſome to Cut, ſome to Hew, ſome Streight, ſome Crooked, which the Artificer provides himſelf with, and tempers and rubs on a Pumice Stone. As the Punchion is made uſe of, 'tis from Time to Time bruſh'd with a ſort of Braſs Wyre.

When the Figures are finiſh'd, he Engraves the reſt of the Medal, as the Moulding of the Borders, the Letters, *&c.* for which he uſes the *Tracer*, the *Ingraler*, and other Punchions, well Steel'd and Temper'd; thoſe that are us'd for the Mouldings and Letters, are ſtruck and impreſt on the Punchion with a Hammer; for neither the *Burin* nor the little Chizel, can Engrave Letters to the ſame Perfection as theſe Punchions. There are abundance of other little Things neceſſary to be done in Medals, according to the Nature of the Deſign, which muſt be ſtruck alſo as well as Letters. As for the little Chizels, they are to be touch'd lightly with a Mallet, more or leſs, as the Work requires.

The ſame Tools are us'd in making Coins as in working with Punchions: They are Smaller or Greater, according to the Quality of the Work, as are little Hammers, or *Flatters*, which are us'd on the ſame Occaſion. *Dyes* are ſometimes Engrav'd without a Punchion; and when they have been Temper'd, Punchions may be made for 'em of the ſame form as the *Dyes*, and theſe *Dyes* are call'd *Matrices*.

Two things muſt be done to Work on Dyes for Medals; the firſt is an Impreſſion on Common Wax mix'd with Turpentine and blacken'd with Smoak. The ſecond is on Lead thus; The Lead being melted, is pour'd on a piece of Paper; then the Dye is ſtruck down upon it, and leaves the Figure on the Lead: By this means an Impreſſion of all the Concave is viſible, which is not ſeen in the Wax but in part.

When the *Dyes* are leſs Hollow, as are thoſe for Mony, beſides theſe two ways of making Impreſſion there's a third, which is thus; Put a ſquare Piece on the *Dye* of the ſame bigneſs, cover it with a Plate of Lead, upon which ſtrike with a Hammer, and the Impreſſion will remain on the Piece. When the *Dye* for a Medal is finiſh'd it muſt be Temper'd as the Punchion is, rub'd with Pumice-Stone Duſt and Water, and then bruſh'd with an Hair-Bruſh; after this, 'tis Poliſh'd with *Emery* and Oil, and when the Medal is ſtruck the Coyner makes uſe of Pincers, in which one *Dye* is plac'd on one ſide, and another on the other, to make the two ſides of the Medal; the *Dyes* ought to be plac'd directly above one another, with an equal Circumference: Inſtead of Pincers a Steel Box is ſometimes us'd, in which *Dyes* are put and held faſt, being faſten'd in with Vizes.

When the Pincer, or Box, is well prepar'd, the Coyner takes a piece of Lead or Tin, as big and as thick as the Medal, which he impreſſes between the two *Dyes*; when he makes Gold, Silver, or Copper Medals, he uſes this Impreſſion of Lead or Tin, which he Caſts in Sand, to mould Medals of what Metal he pleaſes; and becauſe they don't come very clean off the Sand, to perfect them, they are put again into the *Dyes*, and with a Machine, as a Preſs, or the like, the Matter is preſs'd between the two *Dyes*. This is done till the Coiner ſees they are Finiſh'd, which is try'd by feeling if they do not ſtir in the *Dyes* with the Hand, but are every where equally fill'd. Theſe Medals are not perfected till they are harden'd in the Fire, and put in the ſame *Dyes* ſeveral times, according to their *Relievo*, there being ſome that muſt be put in the Fire twenty times; and care muſt be taken every time to waſh off the Filth; and as the Medals ſpread out by the force of the Machine, the Matter that exceeds the due Circumference muſt be clipp'd or cut off; and that every time the Medal is put into the Fire till 'tis Finiſh'd, and has taken all the Impreſſion, as I have ſaid already.

When there is nothing more wanting to render it Perfect, 'tis put in the Fire the laſt time to give it a Colour, if 'tis of Gold, which is done by putting it into a Skillet over the Fire, with ſome *Saltpetre*, *Alum*, and *Vrine*; and becauſe the Colour is apt to Unpoliſh the Field, it muſt be put again in the ſame *Dye*, and the Men that work at the Preſs, pull it moderately, that the Medal may be Poliſh'd in the Field, and the Profils of the Figure be diſtinguiſh'd; for the Field of the Medal having been Poliſh'd with *Stone* and *Emery*, and the Figure-Work not Poliſh'd at all, but preſerving its roughneſs by the Temper, the Figures of the Medal remain Unpoliſh'd, in which the Beauty of the Work conſiſts,

The Inſtruments for preſſing the *Dyes*, are Preſſes or Ballances us'd in Coining: The difference between the Preſs and the Ballance is, that the force of the latter conſiſts in the two ends of an Iron Bar, where are two great Balls of Lead pull'd by two Men with Ropes, which acts the Vize of the Ballance that preſſes the *Dyes* and performs the Work.

The Preſs is the ſame Vize with one Bar of Iron pull'd by one End only without Ball or Ropes.

The Coin is made with the ſame Machines; 'tis however done after another manner than Medals. Mney *Dyes* are Engrav'd with the ſame Tools and after the ſame manner as Medals, but 'tis not neceſſary to mould the Species in Sand, as is done in Medals, becauſe of the difference in the *Relievo*; which is the reaſon that *Coin* is Stamp'd at once, and Medals are not ſufficiently impreſt till after ſeveral Stampings.

The Workmen begin with the Matter which is caſt in Plates, whether Gold, Silver, or Copper: The Plates are as broad as the circumference of the Species, but thicker then it ought to be when they are taken out of the Font. The Gold and Silver Plates are bruſh'd with Bruſhes made of Braſs Wire, the Copper are ſcrap'd with a Scraper, and Care is taken that there be no Sand nor Filth on them, for fear the Sand ſhould incorporate with the Matter. Theſe Plates are put between two Rollers which are in a Machine call'd a *Thinner*, to extend or lengthen them, then they are put into the Fire, and paſt through another Machine call'd a *Plater*. 'Tis in this *Plater* the Plates are brought to the thickneſs that the Species to be Coin'd ſhou'd have, then they are Cut with a *Cutter*, which is fix'd to the lower end of an Iron Tree, the higher end of which is a Vize, and turns with an Iron Barr mov'd by one Man only; and this at one Blow of the Hand, the Vize bending the Tree, and the Cutter which is as big as the Species, and fix'd as I have ſaid at the end of the Tree, reſting on a Plate of Iron which is call'd *Under-Cutter*, round and of the bigneſs of the Species, cuts off Pieces of the Plate or Metal to be Coin'd as large and as thick as they ought to be. The Surplus that remains in this Plate is call'd *Cizailles*, and is melted again into a Plate to continue the Work till it is all us'd.

When the Pieces are Cut, they are carry'd to the Scale to ſee which are Heavy and which Light, for the *Platers* thro' which the Plates paſs cannot be ſo juſt but there will be always ſome inequality, and ſome Pieces heavier than others, which are clip'd and reduc'd to the weight they ought to have; the lighter Pieces are re-melted, becauſe Matter cannot be added to them.

It muſt be conſider'd that the inequality which is found in theſe Pieces might ariſe as well from the quality of the Matter as that of the Machine, becauſe there will be Pores and void Spaces in melting the Matter, which will render theſe Parts Lighter; wherefore let the Machine or Mill be never ſo juſt, there will ſtill be difference in the weight of the Pieces, which obliges the Coiner to adjuſt them with the other, and when they are adjuſted, they are whiten'd if they are Silver, or a good Colour given 'em if Gold, which is done by Boyling in the ſecond Water, or with the Aſhes of Tartar and Salt: Silver may alſo be whiten'd after the ſame manner, but commonly 'tis boil'd in *Aqua Fortis* and with common Water, and being then thrown into freſh Water, all the Pieces are ſanded and rub'd in an Iron Sieve to take off what ſticks to them.

After this they are Coin'd as Medals are, by pulling, the difference is that Coins are ſtamp'd by putting one of the *Dyes* in a Box at the end of the Vize of the Ballance, and the other below in another Box, and under the *Dye* there's a Shell which ſerves to raiſe it up more or leſs as there is occaſion to ſtamp the Medal or Coins in theſe Places, where they were not enough Stamp'd. There's alſo a Spring at the Bottom of the Vize of the Ballance, which ſerves to lift it up when it has ſtamp'd the Metal. There's another little Spring on the Box, where the lower *Dye* is put for the Coins, and this is to take off the Species when it has receiv'd the Impreſſion, and to punch out the *Dye*. Coins are Stamp'd without Firing or Filing, ſo are Counters.

When Mony or Medals are made with a Hammer, they are call'd Coins properly, as alſo Piles and *Trouſſeaux*, but ſince the uſe of Mills has been found out, Hammering has not been practic'd.

Of Graving on Precious Stones, and on Chriſtal.

As to Graving on Precious Stones and Chriſtal, the Invention is very Ancient as well for the *Concave* as the *Relievo*; ſeveral Pieces in both kinds are to be ſeen, which ſhews us the wonderful Skill of the Ancient *Sculptors*, both for the *Beauty* of the *Deſign*, and the Excellency of the *Work*.

Tho' they Engrave upon almoſt all ſorts of Precious Stones, yet the moſt Finiſh'd Figures which we meet with are upon *Onyx*'s and *Cornelians*, becauſe they found theſe are more proper than others, on account of their being more firm, more equal, and Engraving cleanly, alſo on account of the ſeveral Colours that are in *Onyx*'s in rows one above another, by which means in their *Relievo*'s they ſo order it that the Ground is of one Colour, and the Figure of another, as we ſee in ſeveral fine Pieces, which is done with the Wheel and Emeril of Powder of Diamond, and the Tools we ſhall ſpeak of hereafter.

As to thoſe that are Engrav'd in *Concave*, they are the more difficult becauſe 'tis a ſort of Work in the Dark, and 'tis neceſſary to Judge aright of what is done to take Proofs every Moment by Impreſſion in Paſt or Wax. This Art which was loſt with others, did not begin to appear again till the time of Pope *Martin* V. the beginning of the fifteenth Century. One of the firſt that undertook to Engrave upon Stones was a *Florentine*, call'd *John*, and Sirnam'd *Deelle Corgnivole*, becauſe he uſually work'd on theſe ſort of Stones, others came after him who Engrav'd all ſorts of Precious Stones. In this way was the *Dominican*, Sirnam'd *de Camei* a *Milaneze*, who Engrav'd the Portrait of *Lewis* the *Moor* Duke of *Milan*, on a Ruby. Others afterwards repreſented greater *Figures* on fine Stones and *Chryſtal*.

To Engrave on Precious Stones or Criſtal, the Artificer makes uſe of the Diamond; for the Diamond, which is the moſt Perfect and hardeſt of all Precious Stones, cannot be Cut but by itſelf. The Workman begins by ſoddering two rough Diamonds at the end of two Sticks, big enough to be held firm in the Hand, and rub the Diamonds one againſt another, which is call'd *Egriſer*, and thus he gives 'em what Form and Figure he deſires.

In rubbing the two rough Diamonds, there falls off a Powder into a kind of Box, which is what the Jewellers make uſe of afterwards to poliſh their Diamonds, and they do it with a Mill turn'd by an Iron Wheel; on this Wheel is laid an Iron Pincer, to which anſwers a Shell of Copper: The Diamond is ſodder'd into this Shell with Tin Sodder; and that the Pincer may bear the harder on the Wheel, a great Plate of Lead is put upon it: The Wheel on which the Diamond is plac'd, is ſprinkled with the Powder that came from it and Oil of Olives: When the Jeweller cuts with *Facets*, he changes his Tools from time to time, according as his VVork Finiſhes, till 'tis in its laſt Perfection, as may be ſeen every Day at the Jewellers and Lapedaries. VVhen a Diamond is to be ſaw'd in two or more Pieces, the VVorkman takes the Diamond Powder well pounded in a Steel

Mortar and a Peſtle of the ſame ; 'tis Alloy'd with Water and Vinegar, or ſomething elſe, which is thrown on the Diamond as it is cut with Iron or Copper Wyre as fine as Hair. There are Diamonds cut with Tools made on purpoſe.

As to *Rubies*, *Saphires* and *Topazes*, they are cut and form'd on a Copper Wheel ſprinkled with Powder of Diamond and Oil of Olives: The Poliſhing is done on another Copper Wheel with *Tripoli* temper'd in Water. The Workman turns a Wheel with one Hand, and with the other he forms the Stone fix'd to a Stick faſten'd in an Inſtrument of Wood, call'd a *Quadrant*, becauſe 'tis compos'd of ſeveral Pieces that Quadrate together, and is mov'd by a *Vize*; which turning the Stick, forms regularly the different Figures the Lapidary would make on the Stone. As for *Rubies Ballais*, *Eſpinelles*, *Emeralds*, *Jacinths*, *Amethiſts*, *Granats*, *Agats*, and other ſorts of Stones which are not ſo hard, they are cut on a Leaden Wheel, ſprinkled with *Emeril* Duſt temper'd in Water; afterwards they are Poliſh'd on a Tin Wheel with *Tripoli*, in the ſame manner as above mention'd.

There are other ſorts of Stones, as the *Turquois*, the *Giraſole* and the *Opale*, which are poliſh'd on a Wooden Wheel with *Tripoli*.

To make and Engrave a *Vaſe* or Urn of *Agat Cryſtal*, or hard Stones, the Lapidary makes uſe of a Machine, which he calls a *Tower*, the ſame as the Pewterers uſe, excepting that inſtead of the Pewterers being diſpos'd to hold the Pots and Veſſels, which they work with Tools, this is commonly made to hold the different Tools that are apply'd to it: Theſe Tools as they turn, Form or Engrave the Veſſels that are preſented to them, to be faſhion'd and adorn'd in *Relievo* or *Deep*, as the Workman pleaſes, who changes his Tools according as he has occaſion: He alſo ſprinkles Powder of Diamond and Oil of Olives, or ſome other ſuch Duſt upon his Tools. There are ſome Stones that are hardly worth the Diamond Powder, and work better with other Duſt, as the *Jacinth*, the *Giraſole*, the *Turquois*, and ſeveral others, which ſeem to be of a Fat Nature.

When the Stones are Poliſh'd and are to be Engrav'd, either in *Relievo* or *Deep*, if they are in little pieces, as Medals or Seals, the Lapidary uſes a Machine call'd a *Little Tower*, which is nothing elſe but an Iron Wheel, the two ends of whoſe Axis turn, and are faſten'd in two pieces of Iron like Turner's Spectacles, which open and ſhut as one pleaſes, being half clove for that purpoſe, and joyning again at the Top by a *Traverſe*, which holds 'em, or made after any other manner. At one end of the Axis of the Wheel are put the Tools, which are lock'd and faſten'd in with a *Vize* and held ſo by it. This Wheel is turn'd with the Feet, and the Hand guides the Work againſt the Tool, which is of Iron; but if the Work be Great, 'tis ſometimes of Braſs: All Tools Great and Small are made of Iron or Braſs; ſome are like little Whirligigs, and are call'd *Saws*; ſome are term'd *Scabbards*, and have a little round Head like a Button; thoſe call'd Hinges are made in the form of an Iron Ring, and ſerve to lift up the Pieces: There are ſome Flat, and other different Sorts, which the Artificer cauſes to be Forg'd of ſeveral Sizes according to the Quality of the Work. The Tool is apply'd to the Stone, to be work'd not directly oppoſite to the end of the Tool, but ſide-ways, ſo that the Saw takes it off in turning againſt and as it were cutting it. The ſame way is practis'd in making Figures, Letters, or Cyphers, by ſprinkling Diamond Duſt and Oil of Olives; and ſometimes when the Workman would pierce any thing through, little Iron Bodkins are fix'd to the *Tower*, at the end of which there is a Diamond Enchac'd. When the Stones are Engrav'd in *Relievo* or *Deep*, they are Poliſh'd on Wheels of Bruſhes made of Hogs Briſtles and *Tripoli*, on account of the delicacy of the Work. And when there is a large Field, Copper or Tin Tools are made on purpoſe to Poliſh it with *Tripoli*, which are apply'd to the little *Tower* after the ſame manner as the Graving Tools.

Of Graving in Wood and Copper.

One of the greateſt pieces of Work which the Art of Imagery has found out to Eternize itſelf with, is Graving in Wood and Copper, by means of which, a great number of Stamps are taken off, that will multiply the ſame Deſign almoſt to Infinity, and ſhew the Artiſts Thoughts in different Places, which before could be only known by the Labour of his Hands.

'Tis to be wonder'd at, that the Ancients, who Engrav'd ſo many excellent Pieces of Workmanſhip on hard Stones and *Cryſtal*, never diſcover'd ſo fine a Secret, which did not indeed appear till after Printing; For the Impreſſion of Figures and Stamps, were not in uſe till about the end of the Fourth Century, when a Silver-ſmith of *Florence* found it out. *Albert Durer* and *Lucas*, were the firſt that brought Graving in Wood and Copper to any Perfection; and *Etching* was Diſcover'd about the ſame Time.

One *Hugo de Carpi* invented a way of *Graving* in *Wood*, ſo that the *Stamps* ſeem'd to be as if they were waſh'd with the *Claro Oſcuro*: To this End he made three ſorts of Plates of the ſame Deſign, which were pull'd one after another in the Preſs, to print the ſame Stamp: They were ſo Grav'd, the one ſerv'd for the great Lights, the other for the *Demi Eteintes*, and the third for the Out-Lines and ſtrong Shadows.

This Art of Graving in Copper or Wood, is brought to that Perfection, and become ſo Common, that the Quantity of Pieces done in it, is almoſt Innumerable. We may judge of it by the Collection of the Abbot *des Marolles*, which is now in the King's Library.

'Tis true, Graving in Wood is now-adays fallen to Decay, and there are no Artiſts capable of performing in it what was done a hundred and a hundred and twenty Years ago; becauſe doubtleſs they have found a greater facility in Engraving in Copper: However Wooden Plates are very uſeful, and much more convenient than others, on ſeveral Occaſions, eſpecially when the *Cuts* are for Hiſtories, to explain the Subjects; for as they are Printed with the Letter, ſo they ſave a great deal of Time and Expence, which Copper-Cuts and *Etching* take up.

Nevertheleſs *Etching* and Engraving in Copper, are now moſt in uſe; and there are an infinite Number of Excellent Pieces to be ſeen in both Kinds: *Etching* ſeems moſt proper for Great Deſigns, where the Workman wou'd ſhew more Art than Delicacy and Softneſs.

Thoſe that Engrave in Wood, begin with preparing a Plate of a bigneſs ſuitable to their Deſign, and very ſmooth on the ſide to be Engrav'd; they generally make uſe of Pear-Tree or Box: The laſt is beſt, becauſe more ſolid, and leſs ſubject to be Worm-eaten. On this Plate they Deſign their Subject with a *Pen*, in the ſame manner as if it were to be Printed. Thoſe that don't underſtand very well how to Deſign, as there are many that don't, make uſe of the ſame Deſign that is given them, which they

Paſte on the Plate with a Paſte made of good Flower, Water, and a little Vinegar: The *Lines* muſt be paſted to the Wood, and when the Paper is dry, the Graver waſhes it gently, and with Water and the top of his Finger, takes it off by little and little, till there remains nothing on the Wood but the Strokes of the Pen that form the Deſign, which mark on the Plate all that ſhould be ſav'd, and the reſt is cut off either with the point of a ſharp Cutting-Knife, or little Chizels, or Gouges, according to the Size and Fineneſs of the Work; for there's no need of any other Tools.

As to Engraving on Copper with the *Burin*, there is alſo no need of many Preparations: When the Plate, which ſhould be of red Copper, is well Poliſh'd and the Graver has made his Deſign upon it with his Drawing-Point, or otherwiſe, he wants nothing but a *Burin* well Sharpen'd and Temper'd, to Grave what he wou'd have repreſented on his *Stamp*, to which he gives more or leſs Force, according to his Work and the Figures he would repreſent.

He has alſo a Steel Tool ſix Inches long, at one End of which is a *Scraper* of a Triangular Form, ſharp at the three Edges to ſcrape the Copper, when 'tis neceſſary; at the other End is the *Burniſher* in the ſhape of a *Heart*, the Point of which is longiſh-round and a little flat; 'tis to poliſh the Copper, repair the Faults, and ſoften the Lines: To know how he goes on, and whether his Work is Good, he has a *Tampon* made of Felt or Cloth-Liſt blacken'd, with which he rubs his Plate as he Graves. Beſides this, he has a Sand-Bag made of Leather, on which he rubs the Copper as he works it.

As to *Etching*, there's more to be done: 'Tis requiſite that the Plate ſhould be well Poliſh'd and Clean; after which, the Graver heats it by the Fire, covers it with a hard or ſoft Varniſh, for there are two ways of Varniſhing; he then blackens the Varniſh, by holding the Plate on that ſide over the Smoak of a Candle. This being done, his next Work is to mark out his Deſign on the Plate, which is eaſier than when 'tis to be Engrav'd with the *Burin*, for he only rubs under the Deſign with Red Lead, or otherwiſe, and then putting it on the Copper to mark it out with the point of a Needle, the Red Lead that is behind the Deſign, being eaſily ſeen on the Varniſh, is the cauſe that the Graver follows better in this ſort of Work, the ſame Lines of the Deſign, and is more Correct in the Out-Lines and Expreſſion of the Figure than in the other: For which Reaſon the Painters, who have themſelves Engrav'd their own Works, Labour frequently to form the firſt Lines of Figures to preſerve the Force and Beauty of the Deſign. In *Etching* alſo more Art may be ſhewn, than in Stamps Engrav'd with the *Burin*, in which the Out-Lines are ſometimes Etch'd to render them the more Correct.

There is this further Advantage in *Etching*, That 'tis not only a more expeditious way of Engraving than with the *Burin*, but 'tis commonly a more Beautiful one in *Landskips*, where the *Trees* and *Fields* being touch'd with the greater facility, appear the more Natural.

'Tis alſo true, that there's ſometimes occaſion for touching certain Parts of an *Etching* which have not Force enough, over again with a *Burin*, where the *Aqua Fortis* has not eaten in enough; for 'tis difficult in a great Plate, to have all the Parts ſo equally eaten that there's nothing wanting in any of them.

The Engraver muſt not only with the point of his Needle, work up all the Parts of his Work, with the Force and Tenderneſs neceſſary to his Deſign, both in the *Diſtances* and the neareſt Places: He muſt alſo take care when he puts his *Aqua Fortis* on the Plate, that it does not eat in all Places alike; and this is done with a mixture of Oil and Candle-Greaſe.

For which purpoſe he has a ſort of a Wooden Caſe Pitch'd, to which he fixes his Plate a little *Sloping*, and throws *Aqua Fortis* upon it; ſo that it only runs over it, and falls again into an Earthen Pan which is under it: He is alſo careful when the Parts that ſhould be leaſt Eaten, have had enough of this *Aqua Fortis*, to take off the Plate and waſh it with clean Water; then he dries it gently by the Fire, covers the moſt diſtant Parts, and the Cutting, which he would have weakeſt, with Oil and Candle-Greaſe, that the *Aqua Fortis* might penetrate no farther, and covering it thus ſeveral times, and as often as he thinks it neceſſary, for thoſe Places which he wou'd have weakeſt, he always lets his foremoſt Figures be waſh'd with the *Aqua Fortis*, till he perceives it has eat in enough to expreſs the Force he deſign'd ſhou'd be expreſt in thoſe Parts of his Work.

Gravers make uſe of two ſorts of Varniſh, one ſoft, and the other hard: There are alſo two ſorts of *Aqua Fortis*, one call'd *White-water* and the other *Green*: The latter is made of *Vinegar*, *Common Salt*, *Sal Armoniac*, and *Verdegris*; this runs over the Plate, as I have ſaid, and may be made uſe of with both Varniſhes: On the contrary, the other is good only with the ſoft Varniſh, and is not thrown as the other: The Plate is put flat on a Table, and being border'd round with Wax, is cover'd with this *White-water*, which is temper'd more or leſs with Common Water.

As to the *Drawing Points*, the Engraver takes great or midling Needles, ſome ſharp at the Ends, and the others thicker, cut at the Point in the form of an Oval; theſe Tools, which are made of different Shapes and Sizes, are all that are neceſſary for this ſort of Work. Engravers have a Stone to whet them, and a Pencil made of a Weaſel's Tail, or a Feather, to wipe them, that they may take off from the Plate the Filth, or Varniſh, which comes off as it is Grav'd.

If the Reader's Curioſity ſhou'd carry him farther as to what relates to Engraving in Copper, and the Compoſition of Varniſhes for *Aqua Fortis*, he need only read *Abraham Boſs*'s Treaty, for the Author to the *Theory* joyn'd an admirable Experience of the Art, and omitted nothing that ought to be known in it.

This, as well as what follows concerning Painting, is Tranſlated from Monſieur Felibien's *Treatiſes on theſe Subjects. The* French Tongue *abounds more in Terms of Art, than ours; and our Artiſts are very often oblig'd to make uſe of 'em in the Sciences; which is the Reaſon they will often be found here in* French. *Perhaps ſome of 'em might have been render'd in* Engliſh, *but it muſt have been by an Artiſt only.*

Of the ORIGIN and Progreſs of
PAINTING.

'TIS not to be doubted but *Painting* is as old as *Sculpture*, both having the ſame Principle, which is *Deſign*: But 'twill always be difficult to find out the certain Time and Place where this Art firſt appear'd: The *Ægyptians* and *Greeks*, who pretend to be the Inventors of all the *Fine Arts*, did not fail to aſſume the Glory of being the firſt *Sculptors* and firſt *Painters*. However, it being hard to ſee clear into a Matter, which is obſcur'd by ſo great a number of Years, which hides its Origin, we muſt be ſatisfy'd with knowing concerning Painting, That after having as well as other Arts, had ſmall Beginnings, it arriv'd at Perfection among the *Greeks*; and that the Chief Schools of this Illuſtrious Science, were at *Sicyone*, *Rhodes*, and *Athens*. From *Greece*, it paſt into *Italy*, where it was in great Eſteem towards the End of the *Common-wealth*, and under the firſt *Emperors*; till Luxury and War having at laſt diſſolv'd the *Roman* Empire, it remain'd entirely Extinct, as well as the other Sciences and other Arts, and did not begin to appear again in *Italy*, till two or three Centuries ago, when the *Italians* ſet about recovering it, and from the Hands of certain *Greeks*, got the deplorable Remains of it. The *Florentines* were the firſt who acquir'd any Reputation in it; nevertheleſs, 'twas a long while before there aroſe any conſiderable *Painters*; *Ghirlandio*, *Michael Angelo*'s Maſter, got the greateſt Eſteem, tho' his Manner was very dry and *Gothick*; but his Diſciple *Michael Angelo*, appearing afterwards under *Julian* the IId. Eclips'd all that went before him, form'd the *Florentine* School, and bred many Diſciples.

Pietro Perugino, had alſo *Raphael Urbin* for his Diſciple, who ſurpaſt his Maſter by much; and even *Michael Angelo* himſelf Re-eſtabliſh'd the *Roman* School, compos'd of the moſt Excellent Artiſts that have yet appear'd. At the ſame time roſe that of *Lombardy*, and grew into Credit under *Giorgioni* and *Titian*, whoſe Maſter was *Giovanni Bellini*.

There were in *Italy* other Particular *Schools* under different Maſters, as *Leonard di Vincis* at *Milan*; but the three firſt are only reckon'd *Schools* as being the moſt Illuſtrious, and the others became ſo from them. Beſides theſe, there have been Painters on this ſide the Mountains, who had no Commerce with thoſe of *Italy*, as *Albert Durer* in *Germany*, *Holben*'s in *Swiſſerland*, and ſeveral others of different *Names*, who Work'd in *France* and *Flanders*; but *Italy* and *Rome* particularly were the Places where this Art was practis'd in its greateſt Perfection, and where Excellent Artiſts have riſen from Time to Time.

To *Raphael*'s *School* ſucceeded that of the *Carrache*'s, which has laſted almoſt to the preſent Time in their Diſciples. 'Tis true, there are few Great Painters now in *Italy*, and their Art ſeems at laſt to be tempted, if we may believe Monſieur *Felebien*, by the Careſſes of the *French*, to paſs into *France*, ſince the King erected *Academies* for ſuch as Practiſe it, which, continues he, gives us room to hope, that we, in *France he means*, ſhall ſee Painting Flouriſh as much with us as it has done elſewhere, and be carry'd to as high a degree of Perfection.

The French *are eternally Vain, and Monſieur* Felebien, *whom we have been all along Tranſlating, there being no Author who has Treated ſo well of the Sciences in ſo little a Compaſs, adds ſomething which wou'd have look'd leſs Vain, had it been Engliſh'd when 'twas Written*; tho' it being the Nature of the *French* to Study War more than the Arts, we have Reaſon to doubt, Whether they can apply themſelves enough to Painting to excel in it, as other Nations have done. *From their Succeſs in their late Wars, they ſeem to have as good a Genius for Painting, and may eaſily arrive to as much Glory by the Pencil, as they have done by the Sword. What he adds afterwards is to the Purpoſe, ſo we proceed.*

Of PAINTING in General.

PAINTING is an Art which by Lines and Colours repreſents on an equal Surface all the Objects in Nature, inſomuch that there is no Body but what it takes cognizance of, and is known in it. The Image it makes, whether it conſiſts of ſeveral Bodies together, or of one in particular, is call'd a *Picture*, in which there are three Things to be conſider'd, *Compoſition*, *Deſign* and *Colour*, all which Three depend on Underſtanding and Execution, term'd the *Theory* and *Practice*; *Underſtanding* is as the *Father* of *Painting*, and *Execution* as the *Mother*.

Compoſition, which others call alſo *Invention*, comprehends the *diſtribution* of *Figures* in the *Picture*, the Choice of the *Attitudes*, the Adjuſting the *Drapery*, the Convenience of the *Ornaments*, the Situation of *Places*, *Buildings*, *Landſkips*; the ſeveral *Expreſſions* of the Motions of the Body, and the *Paſſions* of the Soul: In ſhort, every thing the Imagination can form to itſelf, and which cannot be imitated from Nature.

Deſign has for its Object the Figure of the Body to be repreſented, and ſhews it ſuch as it appears ſimply by *Lines*. This Part concerns *Painters*, *Sculptors*, *Architects*, *Gravers*, and generally all the *Artiſts* whoſe Works require *Grace* and *Proportion*. For this the Knowledge of *Anatomy* is neceſſary, which is to underſtand *Bones*, *Muſcles*, and *Sinews*, as they appear outwardly in Humane Bodies. 'Tis Deſign that ought to place *Figures* on a Center and Poiſe, either by their proper *Weight*, or by one that's accidental, that they may appear firm in all the Actions the Painter wou'd repreſent to imitate well the ſeveral *Motions* that are in *Nature*.

Colouring has for its Object *Colour*, *Light*, and *Shadow*; for 'tis in putting on the *Colours* that the *Friendſhip* or *Antipathy* between them is obſerv'd, as alſo their *Union* and *Sweetneſs*, that the Painter conſiders how much force *Relievo*, Boldneſs and Grace he ought to give to his Pictures, that he makes Remarks on the *Lights* more or leſs evident. In ſhort, by *Colours* he manages all his *Lights* and *Shadows*, which are the Life of *Painting*.

The *Habitude* a Man acquires in theſe three principal Parts of *Painting*, is called a *Manner*, which is either Good or Bad, according as the *Painter* has practis'd more or leſs after the Truth with Judgment and Study. But the beſt Painter is he who has no *Manner* at all, the good or bad Choice he makes is call'd a good or bad *Gout.* Thus in the Compoſition of a Hiſtory, when the *Figures* are well diſpos'd with fine *Groupes*, and a good Choice of *Attitudes*, according to the neceſſity of the Subject, when the Situation and the Plan of Places are agreeable to Nature, and nothing is omitted of every thing neceſſary to the *Expreſſion*, 'tis ſaid, *That is well Invented.*

If all the Parts are beſides of a great *Deſign*, well Finiſh'd, and pronounc'd with Force and Purity; if nothing appears Mean, Obſcure or Doubtful in it, 'tis ſaid, *That is well Deſign'd*, and of a *Great Manner*.

If the *Light* is well choſen to put the foremoſt *Figures* forward; if 'tis well ſpread o'er the whole; if it diminiſhes by little and little, and with Sweetneſs, and terminates in a large Shadow, and is at laſt Inſenſible and of no Colour, 'tis ſaid that is of *Great Relievo*, and there's a *great deal* of Force in it, *That the* Clairo Oſcuro *is well Perform'd.*

If among the *Lights* and *Shadows* we ſee the true *Teint* of Nature; if we meet with Maſſes of Colours where the Painter has carefully obſerv'd that Friendſhip, and that Simpathy which ought to be between them, whether between the Fleſh and the Drapery, or one Drapery with another, or in the true *Teint* of Landskips; ſo that all appears ſo artfully bound together, that there's no ſeperating them, but there's ſuch a Union, that the whole Picture ſeems to be Painted at once, and with the ſame Pallet of Colours; 'tis then ſaid, *That is well Colour'd.*

Beſides this there are certain Elegancies that ſhine by Places in theſe three Parts of Painting, as Figures ſhine in the parts of *Rhetorick*, which advance, and make the Works of the greateſt Painters ſo very much above others. But above all *Proportion* ſhou'd be minded, and an Agreement of all the Parts one with another.

Grace is a Divine Part, which few Perſons have poſſeſt, and cannot be defin'd, but in ſaying that 'tis a *Graceful* Beauty in a *Figure*, which proceeds from a certain turn, and a nobleneſs of *Attitude*, eaſy and proper to the Subject, and Charming to the Eyes.

Of DESIGN.

What is commonly call'd *Deſign* in *Painting*, is an apparent *Expreſſion*, or viſible *Image* of the Thoughts of the Mind, and that which is firſt form'd in the Imagination. As this *Image* of our Thoughts are *Expreſt* after different Manners, the *Artiſts* have given it ſeveral Names, according as 'tis more or leſs Finiſh'd. *Sketches* are *Deſigns* of the firſt Productions of the Hand, Miſhapen and Imperfect, ſet down only with the Pen, or the *Crayon*: And thoſe where the *Out-lines* of the *Figures* are Finiſh'd, are term'd properly *Deſigns*.

The Art of Drawing the *Out-lines* of Figures is the Foundation of *Painting*; for when the Figures are well *Deſign'd*, there's nothing to be done, but to add *Lights* and *Shades*, and apply the Colours according to the Nature of the Body, which is alſo a great Secret in this Art; but *Deſign* goes a great way in diſcovering its Myſteries, and without it, let a Painter know ever ſo much of *Lights* and *Shades*, and of the Nature of *Colours*, 'tis impoſſible for him to do any thing Perfect.

When a Man wou'd *Expreſs* a Subject, if he makes uſe of nothing but a *Crayon* or Pen, tho he finiſhes the Work in all its Parts and obſerves *Lights* and *Shades*, yet it is call'd a *Deſign*, only diſtinguiſh'd by the Colour of the *Crayon*, or the *Ink* that is us'd. Some with the Pen make uſe of Tallow temper'd, others of Red Lead, others of Black Oaker; and thus each to his Fancy. Nothing is ever properly call'd Painting be it what it will, but when Colours ground up with Oil or otherwiſe, are us'd; for tho' very Beautiful Figures are made with *Paſtels*, or *Crayons* of different Colours, which have almoſt the ſame effect as *Painting*, 'tis however never call'd *Painting*, tho' to expreſs the Beauty of the Work, it may be ſaid, *That is well Painted.*

Of Painting in FRESCO.

Of all the ſeveral kinds of *Painting* practis'd at this time, 'tis certain that an excellent Artiſt can ſhew his Art moſt in that of *Freſco*; and no piece of Work will admit of ſo much *Vivacity*: But to perform it well, the Painter muſt be a good *Deſigner*, be very Experienc'd and Skilful in what he ſets about, otherwiſe his *Painting* will appear Dry and diſagreeable, becauſe the Colours do not mix as in Oil, as I ſhall ſhew hereafter.

This *Painting* is againſt Walls and Cielings newly Plaiſter'd with Mortar made of Lime and Sand, but the *Plaiſter* muſt not be laid on faſter than the Painter can Paint it, and no more be prepar'd than can be painted in a Day while the Plaiſter is freſh and moiſt.

Before the Painter begins to Work he makes *Cartoons* or *Deſigns* upon Paper as big as the Painting he intends, which he ſticks to the Wall, one part after another as he carries on his Work, and half an Hour after the Plaiſter is made, well beat, and refin'd with the Trowel.

The *Plaiſter* muſt be made of River-Sand well ſifted, or other good Sand temper'd with old Lime, which he will ſift alſo, for fear there ſhould be little Stones among it as it often happens, when the Lime is not Good, well Burnt, and well Cool'd. At *Rome* they make uſe of *Pozzolano*, a ſort of Sand dug out of the Earth in digging of Wells. The Body of the Wall on which this *Plaiſter* is to be laid, ſhould be rough Caſt with *Plaiſter* made of Lime and Sand; and when the Place is expos'd to the Weather, all the Maſon's Work muſt be of *Brick* or *Rubble* well Dry'd.

When the *Plaiſter* is to be laid on *Free-ſtone*, there ſhou'd be a ſort of little Wall made two or three Inches thick of Grind-ſtones faſten'd together with Cramps of Iron in all the Joints of the great Stones. As for the Mortar us'd by the Maſons and to rough Caſt them, the Cement of Lime is Good, but the Plaiſter ſhould be of Lime and Sand.

The Ancients Painted upon *Stuck*; and it may be ſeen in *Vitruvius* what Care they took to have good *Cruſts* or *Plaiſters* in their Buildings, as well to make 'em Beautiful as Durable. However, the Modern Painters have found out, that Plaiſter of Lime and Sand is the moſt convenient for *Painting*, becauſe it does not Dry ſo ſoon as *Stuck*; and further, becauſe being Grayiſh, 'tis more proper to lay the Colours on than ſo white a Ground as *Stucco*.

Lib. 7. *c.* 3.

In this ſort of *Painting*, the Painter rejects all Compounded and Artificial *Colours*, and moſt part of Minerals. He hardly uſes any thing elſe but *Earths* that will keep their Colours, and defend themſelves againſt the burning of the Lime by reſiſting the Salt in it, which *Pliny*

Lib. 37. *c.* 7.

call

calls the *Bitterneſs*; and that the Works may be always *Fair*, it muſt be done with Diſpatch while the *Plaiſter* is moiſt, and never touch'd over again Dry, with a temper of Whites of Eggs, Size, or Gum, as a great many Painters do, becauſe thoſe Colours grow Black, and have not that Vivacity which appears in thoſe that were put on at the firſt Stroak; but eſpecially when the Painter works in the open Air. This touching over again is to no purpoſe.

The Colours us'd in FRESCO.

White is made of old Lime and white Marble Duſt, near as much of one as of 'tother; ſometimes a Fourth part of the white Marble-Duſt will do, which depends on the Quality of the Lime, and is found out only by Practice. If there is two much Marble, the White blackens.

Oaker, a Browniſh Red, is a Natural Earth.

Oaker Yellow, is a Natural Earth which turns Red by burning.

Yellow-Dark, or *Ruth-Oaker*, is alſo a Natural and ſlimy Earth, and is taken up in the Water in Iron Mines; when 'tis Calcin'd, it takes a fine Colour.

Yellow of Naples is a kind of Slime, which gathers about Sulphur-Mines, and tho' 'tis made uſe of in *Freſco*, 'tis not of ſo good a Colour as that which is made of *Earth*, or *Yellow Oaker* with White.

Red Oaker is a Natural Earth found in *England*, and ſerves inſtead of *Lake*. The Ancients had a Colour which it now loſt; 'twas as lively as *Lake*; for in *Titus*'s Baths at *Rome*, there's a Chamber, where there ſtill remains in the Cieling, ſome Ornamental Works in *Stuck*, enrich'd with Bands of Gold, Azure, and a Red which ſeems to be *Lake*.

Earth Green, of *Verona* in *Lombardy*, is a Natural Earth hard and Dark.

Earth-Green, another that's Lighter.

Lapis Lazuli is a very hard Stone and difficult to be Prepar'd; 'tis Calcin'd in the Fire, then pounded very ſmall in a Mortar, mix'd with Wax and Roſin, of which a ſort of Paſte is made, which is moulded and waſh'd in clean Water: What comes out firſt is beſt; and its Beauty diminiſhes till it is reduc'd to a Gravel like *Lees*. This Colour ſubſiſts and keeps better than any other. 'Tis to be temper'd on the *Pallet* when us'd with Oil, and not Ground: 'Twas formerly ſcarcer than at preſent; however, being ſtill Dear, it may be ſpar'd in *Freſco*, where *Amel* has the ſame Effect, eſpecially in Cielings.

Amel is a Blue Colour, has a little Body; 'tis us'd in great Landskips; it muſt be calcinated in an Iron Box, to make it the more Brown and Beautiful.

Earth of *Cologne*, is a Ruſſet-Black, apt to turn Red.

Earth Black of *Germany*.

There's another Earth of *Germany*, which is a Natural Earth with a bluiſh Caſt, like the black of a *Coal*; *Printers* make uſe of this Black.

There's another Black us'd made of the *Lees* of burnt Wine, which the *Italians* call *Feſcia di Botta*.

Theſe are the beſt Colours for Painting in *Freſco*. All thoſe that are of Natural Earths are Good; they are ground and temper'd with Water. Before the Painter ſets to Work, he prepares all the chief *Teints*, and puts them in ſeparate Earthen Pots. It muſt be obſerv'd, that all the Colours brighten as they grow dry, except Red Varniſh, which the *Italians* call *Pavonazzo*; the *Browniſh Red Oaker*, *Ruth-Oaker*; and the *Blacks*; particularly thoſe that paſs through the Fire.

The *Painters* generally try their Colours on a dry ſmooth Tile; for the Tile preſently imbibing all that is moiſt, in them, and drying them, they ſee by it what Effect they will have when they are us'd.

Of Painting in DISTEMPER.

Before a *Fleming*, Nam'd *John Van Eyck*, but better known by the Name of *John* of *Bruges*, found out the Art of *Painting* in Oil, all *Painters* work'd in nothing but *Freſco*, *Temper*, and *Diſtemper*, as 'tis commonly call'd, whether it were on Walls, or on Boards, or any where elſe. When they made uſe of Boards, they often paſted on ſome fine Cloath with good Paſte, to hinder them from parting; they then laid on a *Layer* of *White*; after this they temper'd their *Colours* with Water and Paſte; or rather Water and Yolks of Eggs beat together with little Fig-Tree Branches, the Milk of which mixing with the Eggs, with this Mixture they painted their Pictures.

All *Colours* are proper in this ſort of Work except the white of *Lime*, which is never us'd but in *Freſco*. *Azure*, and *Ultramarine*, muſt be us'd, with a Paſte made of *Glove-skin*, or *Parchment*, for the Yolks of Eggs will make the Blue Colours turn Green, which they do not with Paſte nor Gum, neither on Walls, nor Boards. If the Work is on Walls, care muſt be taken that they be dry: The *Painter* muſt even lay on two *Layers* of Paſte quite hot before he applies the Colours, which if he pleaſes he may alſo temper with Paſte, for that Compoſition of Eggs, and the Milk of the Fig-Tree Branches, is only to touch the Work over again the more conveniently, and that he might not be oblig'd to uſe Fire, which is neceſſary to keep the Paſte hot. However, 'tis certain, that the Colours with Paſte keep better. And thus have all the *Deſigns* or *Cartrous* for Tapiſtry, been painted on Paper. This Paſte, as has been ſaid, is made of Glove-skin or Parchment.

When a *Painter* wou'd work upon Cloath, he muſt chuſe that which is Old, half us'd, and very ſmooth; then preſs pounded *Plaiſter* with Glove-skin Paſte, and when that Compoſition is dry, put another *Layer* of the ſame *Paſte* over it.

All the *Colours* are pounded with Water, each by itſelf; and as the Painter wants them for his Work, be tempers them with *Paſte-water*; or if he will only make uſe of the Yolks of Eggs, he takes Water to which he puts one Glaſs of Vinegar to the ſame Quantity of Water, the Yolk, White, and Shell of an Egg, with ſome ends of Fig-Free Branches cut into ſmall Pieces, and beats them well together in an Earthen Pan.

If he wou'd Varniſh the Picture when 'tis finiſh'd, he need only rub them with the white of an Egg well beaten, and then put one Layer of Varniſh over it; but this is ſeldom done, unleſs 'tis to preſerve it from Water: For the greateſt advantage of *Diſtemper* is that it has no glittering, and all its *Colours* look dead, by which means they appear in all ſorts of *Lights*, which Oil *Colours*, or Colours in *Diſtemper* when Varniſh'd, do not do.

Of Painting in OIL.

The Ancients knew nothing of the Art of Painting in *Oil*; 'twas, as has been hinted, a *Flemiſh* Painter who found it out, and practis'd it in the beginning of the fourteenth Century. We may truly ſay, that *Painting* then receiv'd a very great Help, and a wonderful Conveniency, for by this means, the *Colours* of a Picture keep a long while, and a Luſtre and Union are added to them, of which the Ancients were Ignorant, what ever *Varniſh* they made uſe of to ſpread over their *Painting*; and yet all this Secret, which lay hid ſo long, conſiſts in nothing but in grinding the *Colours* with Oil of Nutts or Linſeed Oil: 'Tis true, this ſort of Work is very different from thoſe in *Freſco* and *Diſtemper*; for the Oil not drying ſo ſoon, the work muſt be touch'd over ſeveral times. Thus however the Painter has the Advantage of more Time to finiſh his Picture, and touch over again all the Parts of the *Figurss*, which he that works in *Diſtemper* and *Freſco* has not. The Oil alſo gives the Work a greater Force, becauſe the Black becomes more *Black* when 'tis temper'd with Oil, than when 'tis temper'd with Water. All the *Colours* runs better together, are more Soft, more Delicate, and more Agreable, there being a Union and Tenderneſs in this *Manner*, which is not in any other.

One may Paint in *Oil* againſt Walls, on Wood, on Cloath, on Stones, and all ſorts of Metal. The thing on which the *Painter* intends to Paint, muſt in the firſt Place, be prepar'd by a *Primer*, as the Artiſts call it, which ſeems to make the Ground, and renders the Field very equal and ſmooth. If he is to Paint againſt a Wall when 'tis very dry, he muſt lay on two or three *Layers* of boyling hot Oil; and that as often as he thinks requiſite, even till he perceives the Plaiſter is greaſie and imbibes no more Oil. He then takes *White Chalk*, *Red Oaker*, and *other Earths*, and grinds them to a Conſiſtence, of which he lays a *Layer* on the Wall; when that is dry, he *Deſigns* his Subject, and aftewards Paints upon it, mixing a little *Varniſh* among his *Colours*, that he may not be oblig'd to Varniſh them when Painted.

Some prepare the Wall otherwiſe, to dry it the more, that the Moiſture may not make the *Colours* ſcale off, as it often happens, by the Oil's oppoſing it and hindring its coming out, they make a Plaiſter of Lime and Marble-Duſt, or a Cement of pounded Tiles, which they beat with a Trowel to fine it, and then lay on the Linſeed Oil with a great Bruſh. After this they prepare a Compoſition of *Greek Pitch*, *Maſtic*, and *Varniſh*, which they boil together in an Earthen Pot, and then ſpread it over the VVall with a Bruſh, and Chafe it in with a hot Trowel, to extend and ſmooth it the better: Afterwards they lay on *Chalk*, *Red Oaker*, &c. as above-mention'd, before they *Deſign* any thing.

Some have ſtill another way; they make a Plaiſter of Lime-Mortar, with a Cement of Tile and Sand, and when that is dry, they make another of Lime and Cement well Sifted and droſs of Iron, as much of one as of 'tother; all which being well pounded and incorporated together with Whites of Eggs and Linſeed Oil, they make one of the fineſt *Plaiſters* in the World: But Care muſt be taken not to leave the *Plaiſter* while 'tis freſh laid on, nor till well ſpread all over with the Trowel, and ſmooth every where; for otherwiſe 'twill cleave in ſeveral Places. When 'tis dry, they lay on the *Colours*, as before is mention'd.

When the *Painter* would Paint upon *Wood*, he bruſhes it firſt very well with a Bruſh, and then lays on a *Layer* of *White*, temper'd with *Paſte*, before he covers it with *Oil*: Now-a-days Cloth is moſt made uſe of, eſpecially for great *Pictures*, becauſe 'tis more eaſily carry'd from one Place to another than Wood, which is heavy, and beſides apt to Crack. The *Painters* generally choſe *Ticking*, or the ſmootheſt Cloth they can get; and when 'tis well ſtretch'd upon a Frame, they lay on a *Layer* of *Paſte-water*, and then rub it over with a Pumice-Stone to take off the Knots; the *Paſte-water* ſerves to ſmooth down all the little Threads in the Cloth, and fill the little Holes, that the *Colours* may not paſs over them: When the Cloth is dry, they lay on a Colour that will not kill the other Colours; as *Red Oaker*, which is a Natural Earth of Subſtance, and with which they ſomtimes mix a little white Lead, that it may dry the ſooner. This Colour is firſt ground with Oil of *Nut*, or *Linſeed Oil*, and to lay it on of what thickneſs they pleaſe, they have a great Knife on purpoſe for that uſe. When it is dry, they rub it over again with the *Pumice-Stone* to ſmooth it; then if they pleaſe, they lay another *Layer* compounded of *White-Lead*, and a little of the *Black* of *Coal*, to make the Ground *Greyiſh*; and in both ways they put on as little Colour as they can, that the Cloth may not break, and the Colours that are to be laid upon it may keep the better. If the Prim'd Cloth is not thus at firſt Oil'd, but the Painter falls to *Painting* at once, the *Colours* will look better, and remain more Beautiful. In ſome Pieces of *Titian* and *Paulo Veroneſe*, 'tis obſerv'd, that their firſt Lay was of *Diſtemper*, on which they afterwards painted with Oil Colours; by this means their Works look'd the more Lively and Freſh; for the *Diſtemper* attracted and imbib'd the Oil that was in the Colours, and was the cauſe that they remain'd more Beautiful, the Oil taking off a great deal of their Vivacity: For which Reaſon, thoſe that would have their Pieces keep freſh, make uſe of as little *Oil* as they can, and keep their Colours the firmer by mixing with 'em a little Oil of *Spike*, which ſoon Evaporates, but ſerves to make them Run the better, and renders 'em the more pliable in Working. Another Cauſe of *Colours* loſing their Beauty, is when the Painter works 'em too much in mixing them; for being jumbled together, they Change and Corrupt one another, and take away their Vivacity: Wherefore he muſt be careful to uſe them properly, and lay the *Colours* each in its Place, without mingling them too much with the Pencil or Bruſh; alſo nor to temper Adverſe Colours together, as *Blacks* with others, particularly *Smoak Black*, but uſe them apart as much as poſſible: And when he wou'd give the more Force to his Work, he ſhou'd ſtay till 'tis dry to touch it over again with Colours that will not damnify the others. Practice teaches this, and *Painters* may obſerve it if they have not thought of it before, being taken up with the main of their Subject. 'Tis a conſiderable Thing towards the preſervation of the Beauty of their *Pictures*; for there have been ſome which have been much upon the Eaſel and yet the Colours have not been laſting, becauſe thoſe who us'd 'em work'd and jumbled them too much together with the Bruſh and Pencil through too much *Fire*. Thoſe who Paint with Judgment, lay 'em on with leſs Precipitation, put them thicker, cover and recover their Carnations ſeveral times, which the Painters call *Well Kneading*.

As for Painting the Cloth at firſt with a Lay of *Diſtemper*, 'tis true, that is not often done, becauſe it may then ſcale and will not roll up but with difficulty; for which Reaſon *Painters* have been contented to make a Print of Colours in Oil, But when the Cloth is good and very Fine, the leſs Colour is put on it in *Priming* is the better, and the Painter muſt always be careful that his Oil and Colours be good. Thoſe who to ſave Mony, make uſe of bad Oil and bad Colours in laying on their Primes, that they may be the ſooner dry, find their Pictures very much damnify'd by it, and the Beauty of the Colours ſoon Effac'd.

When a Painter is to work on Metal, Marble, or aay other Stone, he ueed only lay on a thin *Layer* of Colours before he *Deſigns* any thing, and not at all on Stones, where he would have the Ground appear as in Marble, when it is of an extraordinary Colour.

All the Colours us'd in *Freſco*, are good in Oil, except *Lime-White* and Marble-Duſt; but what follow may be made uſe of, as

White-Lead taken from Common Lead that has been bury'd. After it has lain in the Ground ſeveral Years, Scales come upon the Lead, which changes Colour, and turns to a beautiful *VVhite*. Tho 'this White ſubſiſts in Painting, it has ſtill a very bad Quality, but the Oil Corrects it by grinding it on a Stone.

Cerus, is alſo the ruſt of Lead, but fouler.

Maſticot Yellow and White, is made of Lead calcinated.

Red Arſenick is us'd with Calcinating and without: to Calcinate it, 'tis put into an Iron Box, or in a Pot well ſtopp'd: But few People Calcinate it, or indeed uſe it, becauſe the Vapour is Mortal, and 'Tis very dangerous to make uſe of it.

Red-Lead taken out of Lead Mines, 'tis not much us'd, becauſe 'tis, an Enemy to other Colours.

Vermilion taken out of Silver Mines, it being a Mineral, does not keep in the Air.

Lake, which is made with *Cochineal* or *Brazil* Wood, or other Woods, there being ſeveral kinds of it. This Colour keeps not in the Air.

Aſh Blues and *Aſh Greens*, ſeldom made uſe of but in Landskips.

Indico is alſo us'd in *Skies* and *Draperies*: when 'tis well us'd, it keeps beautiful a long time: Too much Oil muſt not be mix'd with it; lay it a little brown, becauſe 'tis apt to Change; 'tis made uſe of in Painting with Succeſs, it being good for *Greens*.

The *Avignon* Grain, which is temper'd and boilt. Then the Aſhes of Vine-twigs or Chalk, are thrown in to give it a Snbſtance, as is done in *Lake*; and after that, 'tis all ſqueez'd thro' fine Lawn.

Smoak-Black, which is a bad Colour, but eaſie to Paint black *Draperies*.

Bone-Black and burnt *Ivory*, which according to *Pliny*, was Invented by *Apelles*.

Verdigreaſe is the Plague of all Colours, and enough to ſpoil a whole Picture if the leaſt part of it enters in the Priming of the Cloth, yet 'tis a beautiful and agreeable Colour; ſometimes 'tis Calcinated to take off its malignity; but 'tis dangerous to Calcinate as well as red *Arſenick*; and let it be ever ſo purify'd, it muſt be us'd alone, for 'twill ſpoil All the Colours that are mix'd with it: 'Tis made uſe of becauſe it dries very much, and only a little of it is mixt with *Blacks*, which never dry alone. The Painter muſt take care he does not uſe the Pencil with which he painted *Verdigreaſe*.

There are other ſorts of compounded *Colours* that are not made uſe of in Oil.

As to *Oils*, the beſt that can be us'd in Painting are Oil of *Nuts* and *Linſeed* Oil.

Oil of *Spike* ſerves to make the Colours run better, and renders the touching the Picture overagain the more eaſie; it alſo takes off the glittering of a Picture, and is proper to do the ſame by the Filth, and to clean it; but the Painter muſt have a care it does not take off the Colour. 'Tis made of *Lavender* Flowers.

There's another Oil drawn rom Roſin, which the *Italians* call *Aquadi Raſa*; and We, *Oil of Turpentine*. 'Tis good to touch the Picture over again with; but eſpecially to mix with *Ultramarine* and *Amels*, becauſe it helps ſpread 'em and evaporates immediately. When the Artiſt would make uſe of it, 'tis not neceſſary he ſhould uſe much of other Oil, which will only turn the Colour Yellow.

The Painters uſe alſo *Oil* of *Nuts* boil'd up with the Scum of *Lead*, in which Silver has been melted by a quick and great Fire. To this is added an Onion whole and peal'd, which is taken away after it has boil'd. This takes away from the Oil its greaſie Quality and makes it clearer.

There's ſtill another ſort made by boiling *Oil of Nuts* with Powder of *Azure* and *Amel*: When it is all Boil'd, the Oil is let ſtand a little and the Top taken off. This is to temper *White* and the other *Colours* which the Painter wou'd have keep clean.

As to *Varniſh*, there are ſeveral ſorts, ſome of *Turpentine*, others of *Spirit of Wine*, *Maſtick*, *Gum Lake* and *White Amber*. This Varniſh is us'd on Miniatures and Stamps. The Painter muſt chuſe the whiteſt Gums he can get.

If he wou'd make a Varniſh to dry preſently, he takes *Turpentine* in a Viol, and puts to it an equal quantity of *Spirit of VVine*, then ſhaking them together Varniſhes what he has occaſion of.

The Painters principal Tools are the *Grind-ſtone* and *Muller*, the *Amazette*, a piece of Wood, Horn, or Braſs, with which the Painter takes up the Colours when he grinds 'em on the Grind-Stone; a *Knife*, an *Oil-Cup*, a *Penciller*, in which he cleans his Pencils, a *Pallet*, a *Porte-Crayon*, a *Reſting-Stick*, a *Chevalet* and Cloth.

Of the different manner of Colouring.

Few *Colours* are us'd when the Painter wou'd have all the *Figures* of his Picture appear of one Colour only, as in the way of *Claro Oſcuro*; or when he wou'd imitate the *Baſs Relievo's* of Marble, Stone or Braſs: Several Pieces in this kind may be ſeen at *Rome* in *Freſco*, upon the Walls of Houſes, done by *Polydore* and other Great Painters. When theſe ſort of Paintings are of a *Yellowiſh* Colour, 'tis call'd *Waxwork*, becauſe 'tis in imitation of Wax. In all Painting where the *Lights* and *Shades* are obſerv'd, the Picture ſeems to be but of one Colour. The little Pictures made to imitate Emboſt Work, whether in *Freſco*, *Diſtemper*, or *Oil*, are ſometimes term'd *Camayews*, becauſe they repreſent thoſe ſorts of Stones.

There's ſtill another way of Painting in *Black* and *VVhite*, but 'tis only done in *Freſco*, to keep in the Air; the *Italians* call it *Sgrafitto*, or *Scratch'd Work*, becauſe 'tis indeed a *Deſign* ſcratch'd out only, which is done thus, Make a Mortar of *Lime* and common Sand, and give it a blackiſh Caſt by mixing burnt Straw with it, make a ſmooth Plaiſter of it, and cover it with a Layer of Lime-white, or any ſmooth and white Plaiſter; after that, put on the *Cartoons* to Deſign what you intend upon it, and Engrave it afterwards with a ſharp Iron Bodkin, which diſcovering the plaiſter of Lime white that hides the firſt Black *Plaiſter*, cauſes the Work to appear as if Deſign'd with Pen and Ink. When that is done, go over all the White, which ſerves for the Ground, with a Water Tint a little dark, to make the Figures appear like thoſe that are waſh'd on Paper; but if the *Painter* does *Groteſque* Figures only, or *Foliages*, he only Shadows the Ground a little with that Water, near the *Out-lines* that are to bear the Shadow.

There being nothing that agrees better together than *Sculpture* and *Painting*, the *Painters* not only adorn their *Pictures* with *Statues* and *Baſſo Relievo*'s, but *Sculpture* is alſo ſometimes mix'd with *Painting*; this is commonly done for *Groteſque* Work, part of which will be of *Relievo* in *Stuck*, and the other of ſeveral Colours, or of *Black* and *White* only, for a *Groteſque* is a Licentious Repreſentation, in which the Workman takes all ſorts of Liberty, and all ſorts of Ways are to be ſeen in it, as *Relievo*, painting in *Freſco*, and in *Oil*. A great part of the Ornamental Work of the Ancients was of this kind, as may be ſeen in ſome Remains of it at *Rome*, and at *Pouzzuolo* near *Naples*.

Of MINIATVRE.

As to thoſe who work in *Miniature* and upon *Vellum*. Thoſe Colours that have the leaſt Body are beſt and moſt convenient: Thus they very happily uſe *Carmine*, Beautiful *Lakes* and *Greens*, made of the *Juice* of Herbs and ſeveral ſorts of Flowers. This kind of *Painting* takes up more time than any other, and is done only with the point of the *Pencil*. There are ſome *Painters* who uſe no White, but to heighten their Pieces, make the Vellum Ground ſerve inſtead of it. The *Lakes* appear in proportion to the Colour and Force in the Figures. Others, before they go to Work, ſpread a very thin *Layer* of White-Lead on the Vellum, on which they afterwards paint by *Dotting*: For ſuch is the way of painting in *Miniature*. When the Colours are laid on flat without Dotting either in Vellum or Paper, 'tis call'd *VVaſhing*. The Colours are temper'd with Gum *Arabick*.

They work alſo with Light Colours on Silk and Silver, as in the *French* King's Tapiſtry and other Pieces at the *Hotel* of *Conde*, *Deſign'd* by *Nicolo*. Thus far Monſieur *Felebien*. *What follows is taken from the Old Edition concerning working in Miniature.*

Take an ordinary plain Card, or a pure thick and ſmooth Vellum, poliſh them well, and with thin white Starch paiſt on what you Paint a piece of an *Abortive*, the Outſide outwards, and when 'tis dry, poliſh it as follows. Make the Grinding-ſtone clean, and lay the Parchment Side downwards, then poliſh it with a Tooth on the Back-ſide; after which that ſide towards the Stone will be ſmooth: Lay on your Card a primer of Fleſh-Colour before you begin to Work, temper'd according to the Complexion of the Party, whoſe Picture is to be drawn: If Fair, let it be white *Lake* and red *Lead*: If Brown, mix a little *Red Oaker*: Let this Primer be Fairer than the Natural Complexion, becauſe you may darken it in Limning, but not lighten it; for the general way is to work them down whole. Lay the Ground or Primer, with a greater Pencil than ordinary, ſmooth, and clean of Spots, Hair, or duſt; fill your Pencil full of Colour, rather thin than thick; lay it on very thick with two or three ſweeps, and cover rather more than leſs, leſt you be not able to follow the ſame Colour afterwards. Beſides, if you are long in laying on your Primer, the *Abortive* will become rough, and riſe from the Card. Next take a large Shell of Mother of *Pearl*, and before you begin to Work, temper certain little heaps of Shadows for the Face, and lay them handſomly round about the borders of the Shell; in all theſe Shadows mix a little White: For the Red in the Cheeks, Lips, *&c.* temper Lake, Red-Lead, and a little White together; for the Blue, Indico and White, not Black, is us'd in the Face. For the fine blewiſh and greyiſh Colour, take White, a little *Engliſh* Oaker, and a little Indico; to theſe add ſome *Maſticot* or *Pink*, which will give the Shadow a good Grace, provided 'tis not too Green; for the deeper Shadows, white *Engliſh Oaker* and *Vmber*: For the dark and hard Shadows, *Lake* and *Pink* mixt with *Vmber*, they make an excellent Fleſhy Shadow.

Of Painting upon GLASS.

The Artiſts paint in Oil upon *Glaſs*, as well as upon *Jaſper* and other Precious Stones; but the fineſt way of doing it, is to paint under the Glaſs; that is, to do it ſo, that the Colours may ſeem through it: In order to this, the Workman goes to Work in a manner quite different from the Common ways, for he at firſt lays on the Light Colours, and thoſe which are laſt laid on when the Painters work on Cloth or Board, and that which ſerves for the Ground, is laid on the other Colours.

After the ſame manner is the painting on Glaſs with *Gum* or *Glue*; and this way is brighter than that with *Oil*. When the Work is done whether in *Oil* or *Diſtemper*, the Colours are cover'd with *Leaf Silver*, which gives a greater Luſtre to thoſe that are Tranſparent as *Lakes* and *Greens*. There is alſo a way of painting upon Glaſs with the uſe of Fire, but that belongs rather to the Glaſiers Trade than the Noble Art of *Painting*.

Of ENAMELLING.

There's another ſort of *Painting* which is done on Metals, and upon Clay, with *Amells* melted down. The way of Enamelling upon Clay is very Ancient, for in the time of *Perſenna*, King of the *Tuſcans*, there were Enamel'd *Vaſes* made of different Figures in his Territories which however, were not to be compar'd with thoſe made ſince at *Faienza* and *Caſtello Duzanti*, in the Dutchy of *Vrbin* in *Raphael* and *Michael Angelo*'s Days.

Several of theſe *Vaſes* are to be ſeen, the *Deſigns* of which are much more conſiderable than the *Colouring*; becauſe the Art of painting Figures in Colours was not then diſcover'd no more than painting them on Metal, of which *Vaſes*, Baſins and other Works, were then made that are only Black and White, with a light touch of Carnation, for the Face of the Figures and other parts of the Body, as is to be ſeen in thoſe call'd *Emaux de Limoges*: In which neverthele ſs fine pieces of Work were made in *France* in the Reign of *Francis* I. as to what relates to the *Deſign* and *Claro Oſcuro*; for as to the other Colours, the Enamelling even on Gold, was not better than that on Copper.

In thoſe Days all Enamelling, as well on Gold, as on Silver or Copper, was commonly nothing but of clear and tranſparent Amells, and when thick Amells were us'd; the Artificer only laid on Earth-Colour flat and ſeperately, as is now ſometimes done in Enamelling ſome Pieces of *Relievo*: But the way of Painting with thick and Opake *Amell* as 'tis practis'd in our Time, was not known, nor the Secret of Compoſing all the Colours, as is done now-a-days.

In uſing Clear *Amells*, the Workman only grinds them with Water, for they can't bear Oil, as thick *Amells* can; they are laid on flat and harden'd with the Metal on which they are put: Pieces are ſometimes made, in which all the Field is in *Amell*, and without a Border, which is difficult becauſe clear *Amells* in melting are apt to mix together, and the Colours to be confounded, eſpecially when the Pieces are ſmall. There are ſeveral little Remains of this ſort of Work that were made in the Reigns of

Charles IX. and *Henry* II. of *France*, was of a midling bigneſs: But the leaſt piece of Work ever made in this ſort of Painting, was for the Lid of a Box, done by *Pierre Chartier de Blois*, which I have ſeen; the Figure is a Garland of Flowers.

All ſorts of *Enamelling* cannot be made uſe of indifferently on all ſorts of Metal; Copper, which takes thick *Amells* very well, will not endure clear; a Layer of Glaſs, or Black *Amell*, muſt be firſt laid on, and on that a Leaf of Silver, which takes the *Amells* that are apply'd: Nevertheleſs, of all thoſe that are proper for Silver, with which all ſorts of Amell, as well Clear as Opake, do not well agree; there are none of the Clear ones, but the *Sea-green*, *Azure*, Green and Purple, that have a very good Effect: But Gold takes all the Kinds of them, as well Clear as Opake. 'Tis true, the clear *Purple* does not look ſo well on Gold as Silver, becauſe the Yellow Colour changes that of the Purple, and gives it a Fading Caſt.

The Workman muſt alſo make uſe of the fineſt Gold, for clear Amels put on baſe Gold grow dim, that is, there will be a certain black Miſt upon it, which obſcures the Colour of the Enamelling, takes away its Vivacity, and gathers all about it as if it was of Black Lead.

Red Amell to be fit for uſe ſhou'd be very hard, and as the Workman ſay, *hard to Burn*; that which is ſoft and eaſy to Burn is not good, 'twill grow foul in a very little time; the Red are Red only by Accident, and never come out of the Fire but Yellow, and not Red when they are apply'd to the Gold, but they redden as ſoon as they are taken out of the Fire.

The moſt beautiful clear Reds are made with calcin'd Copper, the Ruſt of Anchor Iron, Orpiment and calcin'd Gold, which are prepar'd and put with proportion into a Melter made of Cryſtal, *&c.*

As to working with thick and opake Amels, 'tis an Invention of latter Times, and yet admirable Pieces have been done in this manner, Portraits, and even Hiſtorical Compoſitions as well Painted as in Oil; having this advantage, that their Varniſh and Luſtre never wear off.

Before the Year 1630. this ſort of Painting was unknown, it being five Years after that *Jean Toutin* a Goldſmith of *Chaſteaudun*, who Enamell'd perfectly well with common and tranſparent Amels, ſet himſelf to find out a way of uſing Amells for dead Colours, to expreſs ſeveral *Teints*; accordingly he try'd them in the Fire, and finding they preſerv'd their Luſtre he at laſt diſcover'd the Secret, communicated it to other Artificers, who afterwards contributed all to bring it more and more to Perfection.

Dubie a Goldſmith, who work'd in the Galleries of the *Louvre*, and *Gribelin*, *Toutin*'s Diſciple, were two of the firſt; *Morliere*, a Native of *Orleans*, who liv'd at *Blois*, follow'd them, and apply'd himſelf particularly to Enamelling Rings, in which he got a great deal of Reputation. He had for Diſciple *Robert Vauquer* of *Blois*, who ſurpaſt all the others in *Deſigning* and *Colouring*, he Died in 1670. *Pietre Chartier* of *Blois* contriv'd to make Flowers, in which he ſucceeded to Perfection. Soon after ſeveral Perſons at *Paris* apply'd themſelves to this ſort of Painting, of which kind abundance of Medals and other little Pieces were made. They began even to make Enamell'd Pictures, inſtead of thoſe in *Miniature*; the firſt that appear'd finiſh'd and in lively Colours, were thoſe that *Jean Petitot* and *Jacques Bordier* brought from *England*, upon which *Louis Hance*, and *Louis du Guernier*, both excellent Painters in *Miniature* attempted to do the ſame, to which the latter apply'd himſelf with ſo much Care and Application, that his Succeſs was extraordinary, and the more for that of all the Painters in *Miniature*, none cou'd *Deſign* like him. He even ſought after and found ſeveral *Tints* for the Beauty of *Carnations*, which had not been diſcover'd before, and if he had liv'd longer, he wou'd perhaps have had the Honour of carrying this ſort of Work to its higheſt Degree of Perfection.

However, thoſe that are made at preſent are ſo fine, that if the Ancients cou'd have any Knowledge of them, they wou'd envy us the Glory of this rare *Invention*; even they who were the *Inventers* of ſo many Things, and left us hardly any thing new to *Invent* in the *Arts*.

This Painting to be perfect ſhou'd be done on Golden Plates, becauſe other Metals want its Purity. Copper Scales and caſts forth Vapours, and Silver turns the White Yellow, for tho' the Amell ſticks to red Copper, 'tis but imperfectly, it being very apt to crack and break, and the Colours looſe their Force and Beauty, becauſe of the Impurity of the Copper as I have already obſerv'd. Theſe Golden Plates ought to be a little Hollow on one ſide, and rais'd on t'other, for which reaſon they are almoſt always of a Round or Oval Figure; for if they are Flat, the Gold is apt to work in the Fire, and make the Amell ſplit; neither alſo ſhou'd they be too thick, 'tis ſufficient if they can ſuſtain the Amell which is at the bottom and a top of it. They are only ſtrengthned all round by a Circle a little thicker.

When the Plate is entirely even, the Workman puts at the top and bottom a white Amell, tho' he is not to work but one ſide; if there was Amell but on one ſide, it might ſwell in the Fire, and make Unevenneſſes, becauſe it always works there, eſpecially in large Pieces: And when it has not been properly apply'd, there will appear on it little Bubbles, which the Artiſts call *Eyes*. But when there's Amell on both ſides, the upper ſide being beſt ſupply'd, keeps its Ground, and the Amell works out equally at Top and Bottom. Thus this firſt *Lay*, which is White, being even and ſmooth, ſerves for a *Ground* to all the *Colours* that are laid on afterwards.

The *White Amell* is Common enough, and what all Goldſmiths make uſe of. When it has been well Ground and purg'd with *Aqua Fortis*, and afterwards well waſh'd with Fair Water, 'tis pounded in a Mortar as much as is neceſſary, to temper it with the Water and put it to the Fire, which is done generally by the Goldſmiths, who prepare the Plates for thoſe that Enamell Gold.

On ſuch a Plate Enamell'd with White, the Artificer chalks out his Deſign, and then he deſigns it over again very neatly with a Red Colour, made of the Lees of *Vitriol* and *Salt-Petre*, that is, the groſſeſt Parts that remain in the Horn after the *Aqua Fortis* is Extracted, or elſe of Iron ruſt, it muſt be well ground on *Flint* or *Agat*, with the beſt ſort of Oil of *Spike*. The Draft being finiſh'd and Correct, the Workman prepares the Picture, by putting it to the Fire, and the Colours are afterwards painted, as will be mention'd hereafter.

The *Black* is made with *Mangeneſs*, which, as well as all the other Colours, muſt be Calcin'd and Ground with Oil of *Spike*; an eqnal Quantity of the Goldſmith's Black Amel muſt be added to it.

The *Yellow* is had alſo at the Gold-ſmiths, and is call'd the thick Yellow.

The *Blue* is made of the Amel of *Azure*, the ſame the Painters uſe. It muſt be Purg'd and Prepar'd by putting it in a Glaſs-Bottle of good Brandy ſtopp'd well and expos'd to the Sun five or ſix Days, and ſtirr'd twice or thrice a Day, becauſe all the Filth of the Amel will ſtick to the bottom, and what ſwims a-top will be very Fine and Even: Painters may uſe it in their Pictures. It muſt afterwards be ground on Flint or *Agat*.

When the Workman wou'd have a very Beautiful *Azure*, he takes *Safre* and Grinds it, then he mixes a third Part *Rocaille*, another very clear *Cryſtal*; which Compoſition he puts between two Crucibles Clay'd well, and when the Clay is dry, puts it into a Glaſs-Houſe Fire, and leaves it there twenty four Hours; then he takes it out, lets it cool, and has a very fine Blue, which he mixes with his other Colours.

The *Red*, very much like *Vermilion*, is made of *Vitriol* Calcin'd between two Clay'd Crucibles: It wants but an Hour's moderate Fire. Then 'tis done with *Aqua Fortis* waſh'd with fair Water, and Ground as the reſt.

The Red, which is like *Lake* the Painters uſe, is made of fine Gold diſſolv'd in *Aqua Fortis* and *Sal Armoniac*, or Common Salt, and dry'd in a Shovel; to a Dram of fine Gold, is put eight Drams of *Aqua Fortis*, &c. in a Viol: When the Metal is diſſolv'd, 'tis all put into a Gourd with a Pint of Spring-Water and about ſix Grains of *Mercury*: This Gourd is left in hot Sand twenty four Hours; after which, the Gold will be found to be in a ſmall Duſt of a Tan Colour, Red at the bottom of the Veſſel: The Water is thrown off carefully, and the Duſt dry'd by a ſlow Heat: And becauſe there will ſtill be ſome *Mercury*, 'tis ſqueez'd through a piece of Linnen, and then the Gold Duſt is ground with twice the Quantity of Powder of Sulphur, which Mixture is put into a Crucible on a gentle Fire, where the Sulphur Exhales, and a Duſt remains a little Redder than the former, which if the Workman pleaſes, he may grind with *Rocaille*, and ſo uſe it.

Here are other ways of Vitrifying, every Artificer has his manner and Secret to himſelf: For the compoſition of theſe ſorts of Colours, *White Coperas* Calcin'd, makes juſt ſuch another Colour as *Umber-Earth*. In thoſe Colours that are not of Amel, if you wou'd Vitrify them, you muſt put *Rocaille*, to ſome more, and leſs to ſome, as the Occaſion requires, which will be known by trying them in the Fire on a little Plate Enamell'd with *White*, which muſt be ready for that purpoſe. By this means all the Colours may be brought to the ſame degree of Hardneſs. The *Rocaille*, of which I have ſpoken, is nothing elſe but the Sands which the *Paterno triers* make: You muſt try the cleareſt and thoſe that have the leaſt Colour. However, good Workmen, inſtead of *Rocaille*, make Meltings themſelves, which are more Clear and more Beautiful, becauſe in the *Rocaille* there's two much Lead, which is not enough Purify'd.

Bead-ſellers.

The *White Ground*, on which they Paint ſerves for the White to all the Colours, for from the beginning to the end of the Work, you muſt ſave Places where the Riſings and Lights ought to be, as is done in *Miniature*. Nevertheleſs, there's a *White* which may be made uſe of to heighten the other Colours; tis compos'd of Calcin'd Tin, which to render it Meltable, is mix'd with *Rocaille*, or white tranſparent Glaſs.

The Colours I have been ſpeaking of, are as it were the Baſis, or rather the Matter, of which all the reſt for Enamelling are Compos'd, the Workman having nothing to do to make divers *Tints*, but to mix them together, as Painters do on their Pallets; Blue and Yellow mixt together make Green; Blue and Red, Violet; and ſo with other Colours.

As the Painters touch their Pictures in Oil over ſeveral times, leaving them to dry, ſo this kind of Painting, or Enamelling, may be touch'd over as often as you pleaſe, putting the Picture each time to the Fire to reverberate, and minding to take it from the Fire as ſoon as you ſee the Amel is ſufficiently Poliſh'd.

The Reverberating is made in a little Oven, with Fire above and all about it, and a void Space in the middle, to place your Work in; or elſe you may uſe a Gold-ſmith's Crucible: Put it into an Earthen Pan and cover it a-top and all round with good lighted Coal; under the Crucible put the Picture on a little Iron Plate.

Becauſe the Artiſts have given over Enamelling on Copper, like thoſe Pieces which in *France* are term'd de *Limoge*. Some imagin the Art is loſt, and that they cannot now paint thoſe Figures on a black Ground, which were done formerly: But this is not true; for 'tis known, that the Black which made the Ground of thoſe Pictures, was nothing but the black Glaſs of which the long Trunks to Shoot in were made; and that the White of the Figures was the ſame which ſerves at this time for the Field of ſuch Things as are Enamell'd in Gold, which the Gold-ſmiths prepare upon Plates, as I have ſaid, but are ſoften'd when they are to be painted upon. *Henry Toutin*, Son of the before-mention'd *Jean Toutin*, after the Death of the laſt King, *Louis* XIII. made a Watch-caſe for the Queen-Regent, of Gold Enamell'd, with White Figures on a Black Ground, much finer than any thing that ever was done on Copper, which can't endure the Fire, as Gold can. The ſame Man, at the ſame time, did abundance of Things in the latter, which are not to be Parallell'd; for on a Gold Plate of ſix Inches long he repreſented, from the fine Picture that's in the King's Cloſet, the Queens of *Perſia* at *Alexander*'s Feet, with all their Trains: And beſides that, he has nicely obſerv'd the Colours, the Airs of the Head, and all the fine Expreſſions in the Original. The Poliſhing is ſo Beautiful, and the Luſtre ſo Bright through all the Work, that 'twill be hard for Enameling ever to arrive at a higher degree of Perfection.

This ſort of Work is done, as I have hinted, with the point of a Pencil, and after the ſame way as *Miniature*, excepting that Oil of *Spike* is us'd inſtead of *Water* and *Gum*.

Of Moſaick PAINTING.

As the Mind of Man is never contented, and has no ſooner diſcern'd one Secret, but it is ſearching after another; ſo as ſoon as the Art of Painting was found out, and Men knew the true way of repreſenting all the Objects of Nature with the Pencil and Colours, they try'd other Means to make their *Paintings* more Solid and Laſting.

Perceiving that the different ſorts of Marble made uſe of in Pavements of Rooms, had a very good Effect when they were diſpos'd of with Diverſity, and form'd a kind of Figure, the Artiſts thought of taking ſome of all Colours, and in little bits, with which they at firſt made *Compartments*, that by their odneſs, and variety, had ſomething in 'em very agreeable, they apply'd theſe little Pieces to a Ground of *Stuck* made of Lime and Marble-duſt, ſo ſtrong and thick as to joyn them well together, inſomuch, that all being dry, they cou'd ſmooth and poliſh it. This made ſo glit'ring a Body, that nothing cou'd be more beautiful, nor even more ſolid; for tho' 'twas continually trod upon and Weter fell upon it, this ſort of Work receiv'd no manner of Damage.

Such a fine Invention put the Painters upon contriving ſomething more conſiderable; and as Arts ſoon come to Perfection after they are once diſcover'd they form'd out of all thoſe ſorts of little Stones, Branches, Leafs, and other odd Figures of various Colours, which they laid on a Ground of white or black Marble. At laſt, ſeeing how Beautiful they look'd on Pavements, and how this Painting bore the Water, they imagin'd if they cou'd repreſent after the ſame manner Objects to be ſeen at a diſtance and full againſt the Spectator, they wou'd look much more Beautiful. They then undertook to adorn Walls with ſuch Pieces; to make ſeveral Figures for the Decoration of Temples and other Edifices. Thus this kind of Work, which at firſt was done only with the Natural Stones, brought the Artificers to Counterfeiting Stones of ſeveral Colours, that they might have more *Tints*, and Imitate *Painting* better. This they did by means of Glaſs and Amels, of which they made an infinite Number of Pieces of all Sizes and Colours, and thoſe Pieces glittering from afar, had the deſir'd Effect, enduring as well as Marble the Water and Weather, in which this ſort of Painting ſurpaſſes all the reſt, for time will waſte the others, whereas it on the contrary Embelliſhes *Moſaick*, which laſts ſo long, that it may be ſaid to have no End.

Beſides the *Antique* Pieces of *Moſaick*, which we meet with in ſeveral parts of *Italy*, as in the Temple of *Bacchus* at *Rome*, now call'd St. *Agnes* Church, at *Piſa*, *Florence*, and many other Cities, there are ſome Modern ones that are very Fine: One of the moſt Conſiderable is that great Picture in St. *Peter*'s Church at *Rome*, which goes by the Name of *La Nave del Giotto*, where our *Saviour* and St. *Peter*, are repreſented upon the Waves: But thoſe that *Joſeph Pin*, and the Chevalier *Lanfrance* did in the ſame Church, are much more Beautiful. There are alſo ſome Pieces in this Kind at *Venice* done after the Deſigns of ſeveral excellent Modern Painters,

In executing Works of this Nature, the Artiſt begins with little pieces of Glaſs, with which he makes as many different Colours as he can. To this End, when the Glaſs-maker's Stoves are prepar'd, and their Pots full of Matter which make the Glaſs, or rather of Glaſs ready made, he puts in each Pot what Colour he would have, beginning always with the Brighteſt, and encreaſing the ſtrength of the *Tints* from Pot to Pot, till he comes to the Browneſt and deepeſt; as when the Painter mingles thin Colours on his Pallet for Painting in Oil. When the Glaſs is ſufficiently melted, and all the Colours are in their Perfection, he takes out the hot Glaſs with Iron Ladles, and puts it on a ſmooth Marble-Stone, and with another ſuch Marble-ſtone he flats and plains the Glaſs, which he afterwards cuts into bits of equal bigneſs, about an Inch and an half; but then he makes others with an Iron Inſtrument call'd *Bocca di Cane*, which is Four-ſquare; and then others of different Figures and leſs Bigneſs, as he has occaſion. Theſe he puts into Boxes plac'd in Order, as when the Artiſt Paints in *Freſco*, he ranges the different *Tints* in Shells or Cups.

If he would put Gold either in the Ground of the Picture, or in the *Drapery*, he takes ſuch bits of Glaſs as I have before mention'd, moiſtens them on one ſide with Gum, and after that, puts on Leaf-Gold; then he places this bit of Glaſs, or ſeveral at a time, on an Iron Shovel, which he puts at the Mouth of the Stove; but firſt covers them with another piece of Glaſs ſhap'd like a Viol, he leaves this Shovel at the Mouth of the Stove, till the Glaſs a-Top turns all Red; after which, he takes it away at once, and finds the Gold ſo well apply'd underneath, that 'twill never come off, let him expoſe it in what Place he will.

To uſe all theſe different Pieces and make a Picture of them, he in the firſt Place forms a *Cartoon* or *Deſign*, which he traces out upon Plaiſter by little and little, and even by Parts, as in *Freſco* Painting. This Plaiſter muſt be laid thick on the Wall, which will keep it freſh a long time; and he may be three or four Days in preparing it, but he ſhould conſider the Seaſon; 'tis made of Lime, and that of a hard Stone, or of Tile-Duſt well ſoften'd, Gum *Dragon* and Whites of Eggs. When 'tis well Prepar'd, and apply'd to the Wall, he wets it with Linnen to make it look freſh; and having by his *Cartoon* Deſign'd what he wou'd repreſent, he takes the bits of Glaſs with little Pincers according as they come in Order to obſerve the Lights, Shades, and different Colours, as they are repreſented in the *Deſign* which he has before him. Thus with Time and Patience he finiſhes his Work, which will appear ſo much the more Beautiful, by how much the pieces of Glaſs are laid on ſmooth and even; ſome of theſe Pieces are ſo well form'd, that they are as ſmooth as a Marble Table, and as perfect as *Freſco*, Painting having this Advantage of it, that they are the more Shining and Laſting.

How to Inlay STONES.

Beſides this way of making *Moſaick* Work with little Pieces of Stone, Glaſs, or Amel, which the Ancients made uſe of, the Modern Artificers have another way, and repreſent Amels, Fruits, Flowers, and all ſorts of Figures in general, as if they had been Painted. There are Pieces of this Kind of all Sizes, in which Painters have repreſented even Entire Hiſtories, that the Beauty and Excellence of their Work might be preſerv'd by the durableneſs of the Matter. One of the moſt conſiderable and greateſt Pieces is in the fine Pavement of the Cathedral Church of *Sienna*, wherein *Abraham's Sacrifice* is Painted. 'Twas begun by a Painter Nam'd *Duccio*, and Finiſh'd afterwards by *Dominico Becafumi*: 'Tis compos'd of three ſeveral ſorts of Marble, one very White, another Gray with a darkiſh Caſt, and the third Black. Theſe three ſorts are ſo well cut and joyn'd together, that they look like a Picture painted Black and white: The White Marble ſerves for the Riſings, and the ſtrong Lights; the Second for the *Demy Teints*; and the Third for the Shades, There are Strokes and Openings fill'd with Black Marble, or *Maſtick*, which joyn the Shadows with the *Demy Teints*, for in theſe ſorts of Works the Painter ſets the different Kinds of Marble near one another, according to what Deſign he is executing, When they are joyn'd and well Cemented, the ſame Painter, after he has diſpos'd his Subject, takes ſome blacking, and with his Pencil traces the Out-Lines of the Figures, and by *Strokes* and *Openings*, obſerves the Lights and Shadows after the ſame manner as if he was Deſigning upon Paper or Card. Then the Sculptor cuts with a Chizel all the Lines the Painter has trac'd; after which, all that the Chizel has cut is fill'd up with other Marble, or a Maſtick made of black Pitch, or other Pitch, boyl'd up with Black-Earth. When this Maſtick is Cold, and has acquir'd a Body, the Workman goes over it with a piece of Grez or Brick, and rubbing it with Grez and Water, takes off the Superfluities and ſmooths the Marble. Thus are ſeveral Floors in *Italy* Pav'd; and with two or three ſorts of Marble, the Painters have found out the Art to Embelliſh thoſe Works with different Figures.

But they have done more than all this, for Duke *Coſmo de Medicis* having Diſcover'd about the Year 1563, a Place in the Mountains *Pietra Sancta*, the top of which was white Marble, proper for Statues, another Marble was found underneath of a mixt Colour, Red and Yellow; and as they dug deeper into the Quarry, the Workmen found a variety of Marble of all ſorts of Colours, which were ſo much the more hard and Beautiful, by how much the more deep they lay hid in the Mountain. 'Tis with this Marble the Dukes of *Florence* have ſince that Enrich'd their Chappels, and afterwards the Artificers made Tables and Cabinets of Inlaid Work, in which were repreſented Flowers, Fruits, Birds, and a Thouſand other Things: Nay, they have made ſome Pieces that look like Painting itſelf; and to encreaſe the Beauty and Worth of them, have us'd *Agats* and the moſt Precious Stones. Some Pieces of this ſort are in the *French* King's Apartments, and New ones are daily made.

The Ancients alſo work'd after the ſame manner, for as *Vaſart* tells us, there was formerly in St. *Peter*'s *Portico* a very Antique Table of *Porphiry*, in which were fixt other Stones that repreſented a Cage; and *Pliny* ſpeaks of a Bird made of different Marble, and ſo well done in the Place he deſcribes, that the Bird ſeem'd to drink out of a Baſon that was near it.

The manner of doing this Work is thus: The Workman ſaws a piece of *Agat* or other Precious Stone he wou'd make uſe of into Leafs; 'tis fix'd ſtrongly to a Stand, and with an Iron Saw without Teeth, the Stone is cut, by pouring on it *Emeril* temper'd with Water, according as the Work goes on. There are two Iron Pegs on the ſides of the Stone, againſt which the Saw reſts, and which guides it in its ſawing. When theſe Leafs are cut off, If the Workman wou'd give them any Figure to make uſe of them in any Work, he faſtens them in a wooden *Eſtal*, and with a little Saw made only of Wyre, he cuts them by little and little, according to the Out-lines of the *Deſign* he wou'd form with them, wetting 'em with Water and *Emeril*.

The Tools he makes uſe of beſides, are *Wheels* and *Drills*, Tin *Platines*, and others us'd by the Lapidaries, or Gravers in Stone, as well to make Figures, as to Pierce and Poliſh them. He takes his Meaſure with a Compaſs, thins the Edges of the Stone with Pincers, and has Braſs Hand-Files without Teeth, and other Files of all ſorts, neceſſary for his Work.

Of Rocaille *Pieces.*

Moſaick Work brought in the uſe of *Rocaille* and Shells for *Grottoes*, which are embelliſh'd with different Figures: 'Tis a Modern Invention, and it muſt be own'd there is nothing in this Kind Finer, either for the Beauty, the diſpoſition of the Place, and Ornaments, or the choice of every part of the Compoſition, than the *Grotto* at *Verſailles*.

The Artificer makes uſe of Graiſſeries and Mill-Stones for the inſide of *Grottoes*; their Unevenneſs makes them more proper for this uſe than any other Stone, and they may be made of different Colours, either by burning them in the Fire, which turns 'em Red, or turning 'em Green with *Verdigreaſe*, *Aqua Fortis*, or very ſtrong Vinegar.

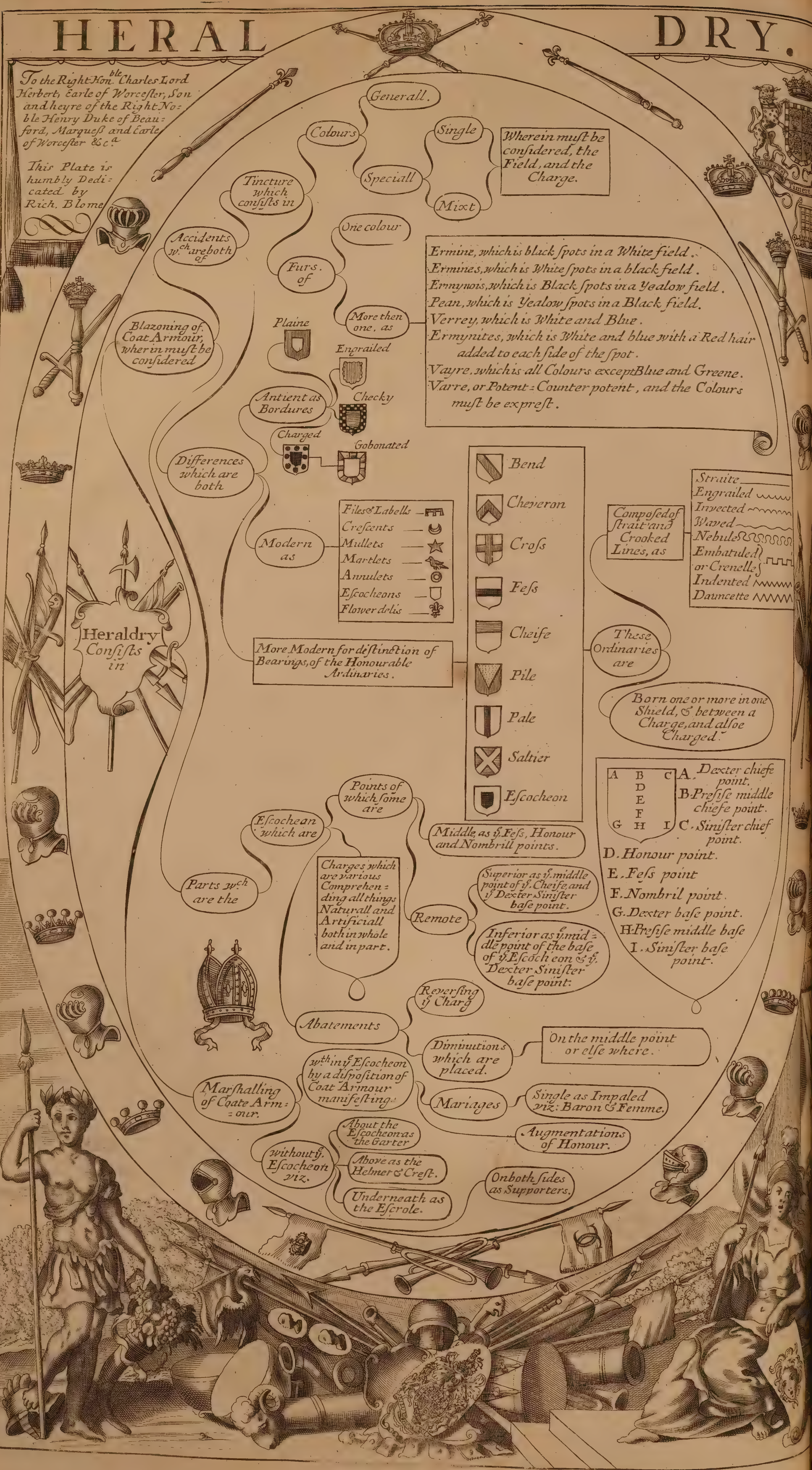
They alſo uſe Congelations, Marcaſſites, Cryſtal, Amethiſts, Petrifications, Red, White, and Black Coral, *Indian* Croiſſanſes, of which, ſome ſhap'd like a Cock's Comb, have a very good Effect. They alſo make uſe of Droſs of Iron, Amells, that come out of Glaſs-works and Forges, call'd *Forge-Blew*, but eſpecially *Naker*, and all Sea and River Shells of different Names; ſome are in *France* call'd St. *Michel-Shells*, others St. *James*'s, large and flat: Thoſe that are ſpeckel'd like a Tyger's Skin are term'd *Purcilains*. There are little ones call'd *Black-Peaſe*, becauſe they are no bigger than Peaſe, and when open'd like *Naker*, and look like Pearl. There are Yellow ones of the ſame Nature, tem'd *Yellow Peaſe*. Beſides theſe, there are Sea and River *Moulds*, little white *Moulds*, admirable for *Relievo*'s. The *Vignols* glitter like *Naker*. The *Bretons* are white uneven Shells. *Golfriches* glitter alſo like *Naker*. when they are quite Open. *Petoneles* are little greeniſh flat Cockles. There are alſo great Naker Shells of *Indian* Pearl, which go by ſeveral Names, and are us'd in this ſort of Work, as may be ſeen in *Thetis*'s Grotto.

Of INLAYING.

There's another ſort of *Moſaick* Work, which conſiſts of ſeveral Pieces of Wood; this is call'd Inlaying, The *Italians* call it *Tauſia* and *Tarſia*. The Ancients had various ways of doing it, and with it Beautify'd their Tables, their Beds, and other Moveables, making uſe of *Ivory* and the ſcarceſt Wood.

Plin. lib. 16. *c.* 43.

When the *Romans* began to Enrich themſelves with the Spoils of their Conqueſts in *Aſia*. They brought from thence the fineſt Movables they cou'd find, and learn'd of thoſe *Eaſtern* People the way of making theſe ſorts of Work. However, 'tis to be doubted, whether they arriv'd at ſuch Perfection in this Art as has appear'd ſince *Raphael*'s Time, and as is at preſent practis'd. *Philippo Bruneleſco* and *Benedetto de Maia*, began to ſhew ſomething admirable in it; yet their Works were only in *White* and *Black*. Friar *John* of *Verona*, who work'd in the *Vatican* contemporary with *Raphael*, render'd this Art much more Perfect, for he found out the Secret of making the Wood of all ſorts of Colours, by boyling Tints, and Oil which Penetrated it. Thus he got Wood of different Colours to imitate Painting, and began to repreſent Buildings and Perſpectives. Thoſe who came after him, us'd the ſame Means, and ſought after others to ſurpaſs him. Some to get a blackiſh Colour proper to imitate Shadows, found out the way of burning Wood, without waſting it, either by putting in hot Sand ſet over the Fire, or with Lime-Water ſublimated. Others made uſe of Oil of *Sulphur*. The moſt Curious collected all ſorts of Natural Wood, of which they found ſeveral of different Colors, and very lively and beautiful ones; not only ſome brought from the *Indies*, but alſo growing in *Europe*, whoſe Roots are very uſeful in this Art, which requires Artificers rather Patient than Learned, becauſe it takes up a great deal of Time, and they work after other Mens *Deſigns*. Thoſe however who underſtand



HERALDRY.

To the Right Hon.ble Charles Lord Herbert, Earle of Worceſter, Son and heyre of the Right Noble Henry Duke of Beauford, Marqueſs and Earle of Worceſter &c.a

This Plate is humbly Dedicated by Rich. Blome

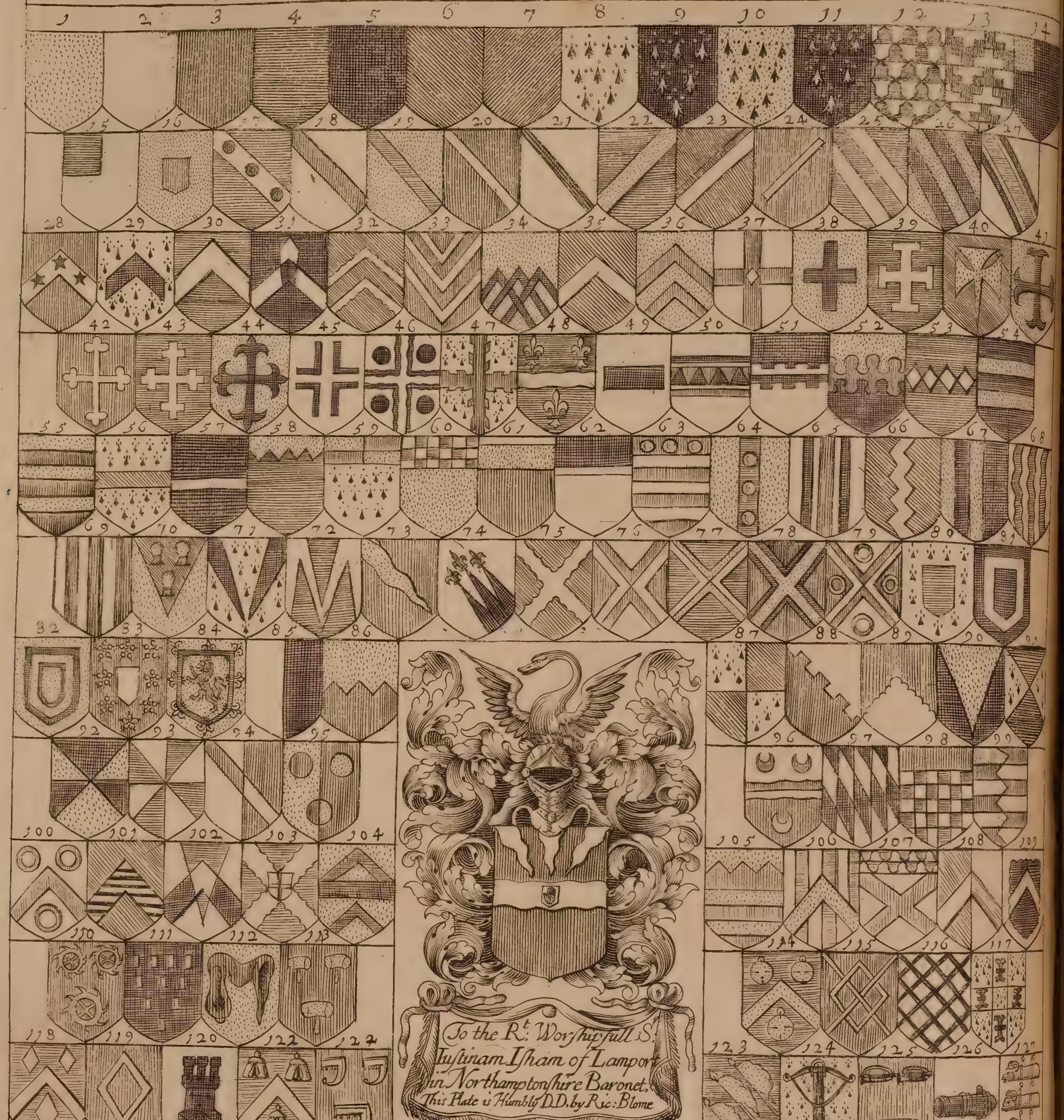
Heraldry Conſiſts in

- Blazoning of Coat Armour, wher in muſt be conſidered
  - Accidents wch are both of
    - Tincture which conſiſts in
      - Colours
        - Generall.
        - Speciall
          - Single
          - Mixt
          - Wherein muſt be conſidered, the Field, and the Charge.
    - Furs. of
      - One colour
      - More then one, as
        - Ermine, which is black ſpots in a White field.
        - Ermines, which is White ſpots in a black field.
        - Ermynois, which is Black ſpots in a Yealow field.
        - Pean, which is Yealow ſpots in a Black field.
        - Verrey, which is White and Blue.
        - Ermynites, which is White and blue with a Red hair added to each ſide of the ſpot.
        - Vayre, which is all Colours except Blue and Greene.
        - Varre, or Potent = Counter potent, and the Colours muſt be expreſt.
  - Differences which are both
    - Antient as Bordures
      - Plaine
      - Engrailed
      - Checky
      - Charged
      - Gobonated
    - Modern as
      - Files & Labells
      - Creſcents
      - Mullets
      - Martlets
      - Annulets
      - Eſcocheons
      - Flower de lis
    - More Modern for deſtinction of Bearings, of the Honourable Ardinaries.
      - Bend
      - Cheveron
      - Croſs
      - Feſs
      - Cheife
      - Pile
      - Pale
      - Saltier
      - Eſcocheon
      - These Ordinaries are
        - Compoſed of ſtrait and Crooked Lines, as
          - Straite
          - Engrailed
          - Invected
          - Waved
          - Nebule
          - Embatuled or Crenelle
          - Indented
          - Dauncette
        - Born one or more in one Shield, & between a Charge, and alſoe Charged.
- Parts wch are the
  - Eſcochean which are
    - Points of which ſome are
      - Middle, as ye Feſs, Honour and Nombrill points.
      - Remote
        - Superior as ye middle point of ye Cheiſe, and ye Dexter Siniſter baſe point.
        - Inferior as ye middle point of the baſe of ye Eſcocheon & ye Dexter Siniſter baſe point.
    - Charges which are various Comprehending all things Naturall and Artificiall both in whole and in part.
  - Abatements
    - Reverſing ye Charg
    - Diminutions which are placed.
      - On the middle point or elſe where.
- Marſhalling of Coate Armour.
  - wth in ye Eſcocheon by a diſpoſition of Coat Armour manifeſting
    - Mariages
      - Single as Impaled viz: Baron & Femme.
    - Augmentations of Honour.
  - without ye Eſcocheon viz.
    - About the Eſcocheon as the Garter
    - Above as the Helmet & Creſt.
    - Underneath as the Eſcrole.
    - On both ſides as Supporters.

A B C D E F G H I

A. Dexter chiefe point.
B. Preſiſe middle chiefe point.
C. Siniſter chief point.
D. Honour point.
E. Feſs point
F. Nombril point.
G. Dexter baſe point.
H. Preſiſe middle baſe
I. Siniſter baſe point.

The Body of Heraldry.


1 2 3 4 5 6 7 8 9 10 11 12 13 14
15 16 17 18 19 20 21 22 23 24 25 26 27
28 29 30 31 32 33 34 35 36 37 38 39 40 41
42 43 44 45 46 47 48 49 50 51 52 53 54
55 56 57 58 59 60 61 62 63 64 65 66 67 68
69 70 71 72 73 74 75 76 77 78 79 80 81
82 83 84 85 86 87 88 89 90 91
92 93 94 95 96 97 98 99
100 101 102 103 104 105 106 107 108 109
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155 156 157 158 159 160 161 162 163 164 165 166 167
168 169 170 171 172 173 174 175 176 177 178 179 180 181
182 183 184 185 186 187 188 189 190 191 192 193 194
195 196 197 198 199 200 201 202 203 204 205 206 207 208

To the R^t: Worſhipfull S^r:
Iuſtinam Iſham of Lamport
in Northamptonſhire Baronet.
This Plate is Humbly D.D. by Ric: Blome

Deſign beſt, and have a little Skill in Painting, will ſucceed beſt in it. The firſt thing to be done, is to cleave and ſaw the Wood into Leaves about the ſixth part of an Inch thick; then the *Deſigns* are paſted upon thoſe Leaves, and with a little Iron or Steel Saw made very ſtrait, thin, and to turn eaſily as the Workman wou'd have it, he cuts the Wood according to the *Profils* of his *Deſigns.* He ſaws only three or four of thoſe Leaves at a time, and to forward his Work, joyns them together: Sometimes he makes uſe of but two at once, becauſe in ſome Pieces, the empty Spaces of one of thoſe Leaves, are fill'd only with Pieces of the other; as when he is to make *Mareſques* of two ſorts of Wood.

When all theſe Pieces are ſaw'd off, he Shadows them, by putting 'em into hot Sand, or otherwiſe, uſing his Diſcretion in Shadowing them more or leſs, as is neceſſary. After this, he puts 'em each in his Place on a Ground of other Wood, and Glews 'em together with good ſtrong *Engliſh* Glew. The Grounds are generally of very dry Fir or Oak, that they may not Warp: He alſo takes care that his Pieces be not too Long. Good Workmen make their Ground of ſeveral Pieces, being leſs apt to Jet out than when 'tis of one long Piece: But Heads, and the like Wood, not apt to Warp, are beſt for this purpoſe, when they repreſent any Natural Figures, either Humane or Animal, Flowers, Prints, or any thing elſe, by Inlaying of ſeveral Pieces of Wood of different Colours. They call it *Painting in Wood*; and thoſe that do it, pretend their Pieces are ſo many Pictures, ſetting themſelves up for *Painters* and *Sculptors* in *Moſaick*, with this difference, that they call ſuch as perform only in *Black* and *White*, Eboniſts and Inlayers.

Theſe *Moſaick Painters* draw the Deſign of their Picture on Paper, and ſometimes waſh and Colour it. On this *Deſign* they place the greateſt pieces of Wood, with which they form the principal Parts o their Figures. As to little Ornamental Parts, or others more fine and delicate, they Deſign them on the greater Pieces, by taking off the Wood, and filling up the void Space with whatever they would have there. This Work requires a Patient Workman, and one who is acquainted with *Deſign* and *Colouring*. *John Mace* of *Blois* in *France*, who was employ'd by the King, did the beſt in this Way of any of his Country-Men or Contemporaries.

Beſides the common Tools us'd by Joyners, the *Inlayers* have ſome particular to themſelves, as a *Preſs* to ſaw their Wood into Leaves, as when the Pieces are very long; there's a *Hole* in the Board to put them in and lift them up, according as they are ſaw'd off. The Artificers have all ſorts of Saws fit for their purpoſe. When they are ſaw'd off of the thickneſs before mention'd, they are Plain'd, that they may take the Colour better.

Thus we have given the Reader in our Tongue, what Monſieur *Felibien* has written on *Architecture*, *Sculpture*, *Painting*, &c. in which we have been often forc'd to make uſe of *French* Terms, there being in many Caſes, none that anſwer directly to 'em in *Engliſh*: And not pretending to be our ſelves Maſters of theſe *Sciences*, we cou'd not ſupply 'em with others, at leaſt not without many Words or Explanations. There's no Author who has ſo good a Character for underſtanding the *Arts* we have juſt mention'd, at leaſt who has written better on them. Gentlemen will be Pleas'd to find an Idea of Things ſo Artificial, compriz'd in ſo little Room; and 'tis hop'd they will make us ſome Atonement for the Difficulties of ſo General an Undertaking, eſpecially ſince we have taken all poſſible care not to ſtand in need of it often.

HERALDRY.

ARMS, according to their Original uſe, are Tokens, or Reſemblances ſignifying ſome Act or Quality of the *Bearer*, either Military or Civil, and of ſundry Forms of Bearing, for the adorning their *Shields*, *Banners*, *Coaches*, *Houſes* and the like. And there is (as it were) a kind of *Sympathy* between the *Arms* and their *Bearers*, inſomuch that he that Diſhonourably uſeth the *Arms* of any Man, ſeemeth to offer an Affront to the Perſon of the *Bearer*.

The Skill of *Armory* conſiſts in *Blazoning* and *Marſhalling*. By *Marſhalling* is underſtood the joyning of divers *Arms* in one *Shield*: By *Blazoning* is meant the *Diſplaying*; or expreſſing a *Coat* of *Arms* in its proper *Colours* and *Metals*; for to lay *Colour* upon *Colour*, and *Metal* upon *Metal*, is a great fault, and a different Form of *Blazon* makes the *Arms* not the ſame; And you muſt avoid Repetition of Words, a Conciſe way being the beſt.

In *Blazoning*, firſt begin with the *Field*, and then proceed to the *Charge*; and if there be ſundry things charged in the *Field*, whether of one, or of divers kinds, you muſt name that firſt which is moſt Predominate.

The *Blazon* of *Arms* conſiſts in their *Accidents* and *Parts*, and ſuch Accidents are *Tincture* and *Differences*.

Tincture (as *Guillim* noteth) is a variable Hew of *Arms*, and is as well common to Differences of *Arms*, as to *Arms* themſelves, and the ſame is Diſtributed into *Colours* and *Furs*.

Colour is an External Dye, wherewith any thing is Coloured, or Stained; or elſe is the Gloſs of any Body beautified with Light; and *Colour* here mentioned, is both General and Special; by General, is underſtood the Proper and Natural *Colour* of each particular Thing, whether Natural or Artificial, of what kind ſoever they are, Illuſtrated in their External and proper Beauty.

Things Born in their Natural *Colours*, are to be *Blazoned* proper, and not to mention the *Colour*.

Other things there are in *Armory*, that have only Name attributed to them, and no *Colour* Specified in the *Blazon* thereof, the Name being ſufficient to expreſs the ſame, although the Form is all one and the ſame; and that is, the Reſemblance of a *Ball* or *Bullet*, the Names of which, as alſo the *Colours* appropriated unto them, are as followeth. 1. *Beſants* whoſe *Co-*

lour is *Or*. 2. *Plates* are Argent. 3. *Harts* are Azure. 4. *Pellets* or *Ogreſſes* are Sable. 5. *Torteauxes* are Gules. 6. *Pomeis* are Vert. 7. *Goſpes* are Purpure. 8. *Orenges* are Tenne, and 9 *Guzes* are Sanguine; and in theſe 9 are all the *Colours* uſually made uſe of in *Blazonry*.

Arms are *Blazoned* by *Metals* and *Colour*, by *Precious Stones*, and by *Planets*. By *Metals* and *Colours* when belonging to *Gentlemen*, under the Degree of *Nobiles Minores*, as *Baronets*, *Knights*, *Eſquires*, and *Gentlemen*; By *Precious Stones*, when to thoſe of *Nobiles Majores*, as *Dukes*, *Marqueſſes*, *Earls*, *Viſcounts* and *Barons*; and by *Planets* when to *Emperors*, *Kings*, and *Soveraign Princes*.

Metals and Colours.	Precious Stones.	Planets.
Or.	*Topaz.*	*Sol.*
Argent.	*Pearl.*	*Luna.*
Gules.	*Ruby.*	*Mars.*
Azure.	*Saphir.*	*Jupiter.*
Sable.	*Diamond.*	*Saturn.*
Vert.	*Emerald.*	*Venus.*
Purpure.	*Amethiſt.*	*Mercury.*
Tenne.	*Jacynthe.*	*Dragons Head.*
Sanguin.	*Sardonix.*	*Dragons Tail.*

Theſe *Colours* are diſtinguiſhed from each other, by ſeveral *Hatches* or *Marks* in Graving, as are Repreſented in the Plate of *Arms*, for Examples of *Bearings* Number 1 ſignifying *Or*, Number 2 *Argent*, 3 *Gules*, 4 *Azure*, 5 *Sable*, 6 *Vert*, and for the three laſt *Purpure*, *Tenne*, and *Sanguin* being ſeldom uſed, are expreſt by Stroaks overthwart the *Shield*, as in Number 7.

From *Metals* and *Colours*, I ſhall proceed to *Furs*, uſed as well in *Doublings* of the *Mantles* appertaining to *Coat-Armour*, as in the *Coat-Armour* themſelves.

Furs conſiſt of one *Colour* alone, or of more than one.

- *Furs* that are Compounded of two *Colours* only, are ſorted either
  - with *Black*, and are either
    - *Black* mixt with *White*, as *Ermine.* and *Ermines.*
    - Or
    - *Black* mixt with *Yellow*, as *Ermeneis.* and *Pean.*
  - Or
  - without *Black*, ſuch are according to *Leigh*
    - *Vairy*, *Argent* and *Azare*, and *Verry*, *Or* and *Gules*, or the like *Colour.*

For your better Explanation, *Ermine* is when the *Field* is *Argent*, and the *Powdring* is *Sable*, as Number 8. *Ermines*, when the *Field* is *Sable* and the *Powdring* is *Argent*, as Number 9. *Ermenois* when the *Field* is *Or*, and the *Powdring Sable*, as Number 10, and *Pean* is wheu the *Field* is *Sable*, and the *Powdring Or*, as Number 11. *Vaire* is repreſented by Numb. 12; and for *Vairy Copy*, or *Potent-Counter-Potent*, which is another ſort of *Fur*, where the *Colours* muſt be expreſt in the *Blazoning*, as in Number 13.

BORDURS.

Bordurs were firſt deviſed for diſtinction of *Coat-Armour* of particular Perſons of one and the ſame Family each from other amongſt themſelves; and of theſe there are ſeveral ſorts, as born *Plain*, *Engrailed*, *Invected*, *Indented*, *Checky*, *Gobonated*, *Vaire*, *Counter-Compony*, and alſo *Charged*; Examples of ſome of which are taken notice of in the *Table*, which may ſerve as Examples for any other.

More *Modern Differences*, and now uſed in *Coat-Armour*, are *Labels*, *Creſcents*, *Mullets*, *Martlets*, *Annulets*, and *Flower-de-Lis*. Examples of which are ſet down in the *Table*, under the Head of *Modern Differences*, by which every Houſe ought to be diſtinguiſhed from the Elder; the ſecond Brother, or Houſe, bearing the *Creſcent*, the third the *Mullet*, the fourth the *Martlet*, the fifth the *Annulet*, and the ſixth the *Flower-de-Lis*. The *Label* being the diſtinction of the Elder Brother, during the Life of his Father. But as to *Daughters*, they bear their *Fathers Coat Armour* without any diſtinction.

Parts of Arms.

The *Parts* of *Arms* are the *Eſcocheon*, and the *Ornaments* without it.

The *Accidents* in the *Eſcocheon* are *Points* and *Abatements*. *Points* are certain Places in the *Eſcocheon* diverſly named, according to their ſeveral Poſition, whereof ſome are in the *Middle*, and ſome *Remote*; thoſe in the *Middle*, are in, or near the *Center* of the *Eſcocheon*, and ſuch are the *Honour*, the *Feſs*, and the *Nombril Points*.

The *Feſs Point* is in the exact *Center* of the *Eſcocheon*; the *Honour Point* is next above the ſame in a direct *Line*; and the *Nombril Point* is next underneath the *Feſs Point*.

Remote Points are thoſe placed at a further diſtance from the *Center* of the *Eſcocheon*; and of theſe ſome are *Superiour*, and ſome *Inferiour*. The *Superiour* are thoſe that have their being in the Upper part of the *Eſcocheon*, and of theſe there are *Middle*, and *Extreams*; the *Middle* is the preciſe *Middle* of the *Chief* between the two *Extreams*: The two *Superiour Extream Points* do poſſeſs the *Corners* of the chief part of the *Eſcocheon*, and are called *Dexter*, and *Siniſter*.

The *Inferiour Points* do poſſeſs the *Baſe* of the *Eſcocheon*; and of theſe there are alſo both *Middle*, and *Remote*. For the Explanation of all which there is an *Eſcocheon* in the *Table* with *Letters* ſhewing the ſame. And the knowledge of theſe *Points* are of great uſe and concernment, and ought to be well obſerved.

ABATEMENTS.

An *ABATEMENT* is an Accidental Mark annexed to *Coat-Armour*, ſhewing ſome diſhonourable Quality in the *Bearer*, whereby the Dignity of the *Coat* is abated.

They conſiſt of *Diminution*, and *Reverſing*.

Diminution is the blemiſhing of ſome particular Point of the *Eſcocheon* by ſome *Staynard Colour*, as *Tenne*, *Sanguine*, or *Purpure*; or by reverſing the *Charge* in the *Coat*. But not knowing any that bear any *Abatements* in their *Arms*, it will be to little purpoſe to tell what they are.

REWARDS of HONOUR.

There are ſeveral Forms of *Charges*, on which *Rewards* and *Additions* of *Honour* are oft-times placed in *Coats*, as *Cantons*, *Quarters*, *Eſcocheons*, *Girons*, *Flaſques*, and *Voiders*; but thoſe in moſt uſe are the three firſt, according to Num. 14, 15, 16, as *Sable* a *Canton Or*; *Argent*, a *Quarter Azure*; and *Or*, an *Eſcocheon Gules*.

Eſcocheons, and the Honourable Ordinaries.

Eſcocheons are either of one *Tincture*, or more than one: Thoſe of more than one, ſome are more predominate, and that is ſaid to predominate, when ſome one *Metal*, *Colour*, or *Fur*, is ſpread, or underſtood to be ſpread all over the Surface of the *Eſcocheon*, which is termed the *Field* or *Shield*. And in ſuch *Eſcocheons* as have in them more *Tinctures* than one (as moſt have) the *Field* and *Charge* muſt be obſerv'd: And in your *Blazoning* firſt name the *Field*, and then proceed to the *Charge* thereon; and if there be ſeveral *Charges*, then name that firſt which is moſt predominate and neareſt the *Field*.

The *Charge* is that which poſſeſſeth the *Field*, whether it be *Senſitive*, or *Vegetable*; *Natural*, or *Artificial*; and is plac'd either throughout all the *Superfices* of the *Eſcocheon*, or elſe in ſome ſpecial part of the ſame.

The common *Accidents* of *Charges*, are *Adumbration*, or *Tranſparency*, or they are *Tranſmutation*, or *Counter-changing*.

All *Charges* of *Arms*, are either Proper, or Common; and in theſe the making and manner of *Bearing* muſt be conſider'd.

The making of the *Ordinaries* conſiſts of *Lines* diverſly compos'd, which is the Matter whereof they are form'd; and according to the divers tracts and forms of *Lines*, they receive their Shape and variation of Names; and the property of theſe *Lines* are their *Rightneſs*, or *Crookedneſs*, which are ſet down in the *Table*, being *Strait*, *Engrail'd*, *Invected*, *Waved*, *Nebule*, *Embatuled*, or *Crenelle*, *Indented*, and *Dauncette*.

The *Honourable Ordinaries*, are the *Bend*, *Cheveron*, *Croſs*, *Feſs*, *Chief*, *Pale*, *Pike*, *Saltier*, and *Eſcocheon*; and were Modernly invented for the Diſtinction of *Coat-Armour*: You will find their Forms or Shapes, ſet down in the *Plate* of *Arms*.

Theſe *Ordinaries* are born ſometimes of themſelves in plain *Fields*; ſometimes between a *Charge*; ſometimes *Charged*; ſometimes two or more of them joyn'd together in one *Shield* with a *Charge*, and ſometimes *Counter-changed*: Examples of all which are at large ſet down in a Volume of *Heraldry* Publiſhed by me.

The *BEND* doth contain the Fifth part of the *Field* in breadth, if Uncharg'd, but if Charg'd, then the third. It is ſaid to repreſent a *Ladder* ſet ſlope, to ſcale the Walls of a City. This *Ordinary* is divided into a *Bendlet*, which is limited to the Sixth part of the *Shield*, into a *Garter*, which is the *Moity* of a *Bend*, into a *Coſt*, which is the fourth part of a *Bend*; and into a *Ribbon*, which is the *Moity* of a *Coſt*. In the *Plate* of *Arms*, number 17, repreſents a *Bend*, which is Charged with *Pellets*. Number 18 a *Bendlet*. Number 19, a *Garter*. Number 20, a *Coſt*. And Number 21, a *Ribbon*.

There is alſo a *Bend Siniſter*, which goeth thwart the *Eſcocheon* from the *Siniſter Chief*, to the *Dexter Baſe*, which is quite contrary to the other *Bend*: And this *Bend* is ſubdivided into a *Scrape*, which is the *Moity* of the *Bend*, and into a *Batune*, which is the Fourth Part of the *Bend*; and this is the uſual Badge of Illegitimacy. The *Eſcocheon*, Number 22, ſheweth the *Bend Siniſter*. Number 23, the *Scrape*. And Number 24, the *Batune*. Which muſt not extend to the extreme Points of the *Eſcocheon*, but only to be as a *Bar* over the *Charge*.

Two *Bends* are alſo Born; alſo *Bendy* of 6 or 8, and a *Bend* between two *Cottizes*, according to the Examples, Number 25, 26, and 27.

The *CHEVERON* Repreſents the *Rafters* of a Houſe, and was anciently the Head-Attire of *Women-Prieſts*. It takes up the Fifth part of a *Shield*, and is ſub-divided into the *Cheveronel*, which is half the *Cheveron*; and into a *Couple-cloſe*, which is the Moity of the *Cheveronel*; and this is not Born, but by Pairs, except there be a *Cheveron* between them.

The *Cheveron* is ſundry ways uſed in *Bearings*, as well as the *Bend*, and other of the *Honourable Ordinaries*; Examples of which are in the *Table* of *Arms*, which are thus *Blazoned*; Number 28, *Gules* on a *Cheveron Argent*, three *Mullets Sable*. 29. *Ermin*, a *Cheveron Couped Sable*. 30. *Azure*, a *Cheveron* in *Chief Argent*. 31. *Sable*, a *Cheveron Rompe Argent*. 32. *Vert*, a *Cheveron Engrailed* voided *Argent*. 33. *Gules*, three *Cheveronels*, reverſed *Argent*. 34. *Or*, three *Cheveronels* braced in the Baſe of the *Eſcocheon Sable*. 35. *Vert*, a *Cheveronel Argent*. 36. *Or*, two *Cheverons Gules*, and commonly 3 *Cheverons*, are born in one Shield, and compoſed of ſtrait, or crooked *Lines*.

The *CROSS* taketh up the 5th Part of the *Eſcocheon*, but if charged, then the third: There are divers ſorts of *Croſſes*, but thoſe moſt uſually Born among us, are ſet down in the *Plate* of *Arms*, and are thus Blazoned, Number 37 *Argent*, a *Croſs Pierced Gules*. 38. *Or*, a *Croſs Couped Sable*. 39. *Azure*, a *Croſs Potence Argent*. 40. *Vert*, a *Croſs Pattee Fitchee Or*. 41. *Or*, a *Croſs Molin Sable*. 42. *Gules*, a *Croſs Betony Argent*. 43. *Axure*, a *Croſs Croſlet Argent*. *Croſs Croſlets* are Born more than one in a *Shield*, and likewiſe as well on, as between any of the *Ordinaries*. 44. *Or*, a *Croſs Flory Sable*. 45. *Argent*, a *Croſs Voyded Sable*. 46. *Argent*, *Croſs Wavey Voyded Sable* between 4 *Torteauxes*. 47. *Ermin*, a *Croſs Ragule Gules*.

Note, that any of the *Croſſes* may be Born *Fitchee*, as alſo *Pierced*, or *Quarter Pierced*; alſo between or upon any of the *Ordinaries*.

The *FESS* containeth the Third part of the *Eſcocheon* in breadth, and doth Occupy the *Center* of the *Shield*. This hath formerly been taken for the *Belt*, or *Girdle* of Honour, as dividing the *Shield* into two equal Parts.

The *BAR* differeth not from the *Feſs*, but only that it contains the Fifth part of the *Shield*, whereas the *Feſs* doth poſſeſs but the Third. It is divided into the *Cloſet*, which contains the *Moity* of the *Bar*, and into the *Barulet*, which is half the *Cloſet*. The *Bar* is generally Born two in one *Shield*.

The Examples of the *Feſs* and *Bar* in the *Plate* of *Arms*, are Number 48 *Azure*, a *Feſs Wavey* between 3 *Flower-de-Lis Argent*. 49. *Argent* a *Feſs Humid Sable*. 50. *Argent*, a *Feſs per Feſs*, indented *Gules* and *Sable*, between two *Cottizes Counterchanged*. 51. *Per Feſs Sable*, and *Argent* a *Feſs Batile*, *Counter-Batled*, *Counter-changed*. 52. *Per Feſs Or*, and *Sable*, a *Feſs Nebule Gules*. 53. *Azure* 4 *Fuſils* in *Feſs Argent*. 54. *Gules*, two *Bars Or*. 55. *Barry* of ſix *Or* and *Gules*. 56. *Ermin* a *Cloſet Vert*. 57. *Sable*, a *Barulet Argent*.

The *CHIEF* doth contain the Third part of the *Eſcocheon* in depth. It is divided into the *Fillet*, which contains the Fourth part of the *Chief*, and ſtandeth in the *Chief Point*. This *Ordinary* is alſo ſubject to a *Charge*, and is Born with ſtrait and crooked *Lines*: The Examples of which are Number 58 *Azure*, a *Chief Indented Or*. 59. *Ermine*, a *Chief* quarterly, *Or*, and *Gules*. 60. *Or*, a *Chief Checky Argent*, and *Azure*. 61. *Gules*, a *Chief Argent* ſurmounted by another, *Or*. 62. *Argent*, a *Chief Sable*, in the neather part a *Fillet Argent*. 63. *Azure* three *Bars Argent*, in *Chief* as many *Bezants*.

The *PALE* contains the third part of the *Field*; It is ſub-divided into the *Pallet*, which is the *Moity* of the *Pale*, and is never to be charged with any thing, neither muſt it be parted; and into an *Endorſe*, which is the Fourth part of the *Pale*, and is not uſed but when the *Pale* is between two of them.

If the *Pale* be upon any *Beaſt*, that is the *Beaſt* as it were behind it, then the Term of *Blazoning* it is, he is *Debruſed* with the *Pale*; but if the *Beaſt* be on the *Pale*, then he is ſupported by the *Pale*. The Examples for *Pales* in the *Plate* of *Arms*, are Number 64 *Or*, on a *Pale Azure* 3 *Bezants*. 65. *Argent*, a *Pale Gules*, between two *Endorſes Sable*. 66. *Vert*, a *Pallet Argent*. 67. *Party Per Pale Argent* and *Sable*, a *Pale Counter-changed*. 68. *Argent*, 3 *Pallets Wavy Azure* 69. *Paly* of ſix *Argent* and *Gules*.

The PILE, conſiſts of twofold *Lines*, formed like a *Wedge*, and was a *War-like Weapon*, uſed among the *Romans*. It is by ſome not allowed to be one of the *Ordinaries*. It is Born ſeveral ways, and more than one in a *Shield*, according to the Examples, Number 70 *Or*, on a *Pile Vert*, 3 *Garbs*, or *Wheat-Sheaves* of the *Field*. 71. *Ermin*, two *Piles Sable*. 72. *Argent*, 3 *Piles*, one iſſuing out of the *Chief*, between two others reverſed *Azure*. 73. *Gules*, a *Pile waved* iſſuing out of the *Dexter Corner Bendways Or*. 74. *Argent*, a *Triple Pile-flory* on the *Tops*, iſſuing out of the *Siniſter Baſe* in a *Bend Sable*.

The SALTIER, contains the fifth Part of the *Shield*; but if charged, then the third. This is ſaid to be about the height of a *Man*, and was uſed to Scale the Walls of a Town, being driven full of *Pins*, which ſerv'd for Steps.

It is born with ſtrait or crooked *Lines*, with a *Charge*, or *Charged*, *Counter-changed*, one *Saltier* ſurmounted by another; parted *per Saltier*, a *Saltier Counter-changed*, and *Quarterly quartered*, &c. according to the Examples in the Plate of *Arms*, Number 75, *Vert*, a *Saltier Engrailed Argent*. 76, parted *per Saltier Argent* and *Gules*, a *Saltier Counter-changed*. 77. *Azure* a *Saltier Quarterly quartered*, *Or* and *Argent*. 78. *Gules*, on a *Saltier Or*, another *Sable*. 79. *Gyrony* of four *Argent* and *Gules*, a *Saltier* between four *Mullets Counter-changed*.

An ESCOCHEON contains the fifth part of the *Shield*, and muſt be placed in the *Feſs Point*. This is alſo termed an *Eſcocheon* of *Pretence*, and is ſo Born by thoſe that Match with an *Heireſs*, giving therein her *Coat* of *Arms*.

About an *Eſcocheon* is uſually an *Orle* of ſomething, as *Martlets*, *Cinquefoils*, or the like, as in the Example 83. Sometimes it is born as an *Orle* itſelf, as Example 81. Sometimes an *Orle* of two pieces, that is, one within another, as Example 82. Sometimes three plain *Eſcocheons* without any *Charge* in them. Sometimes double, or ſingle *Treaſures* (a *Charge* much us'd in *Scotch Coats*) as Example 84.

PARTITIONS.

Partitions are ſuch in which there is no *Tincture*, that is, *Metal*, *Colour* or *Fur* predominating in them, and are formed of ſundry ſorts of Lines of Partition, occaſioning oft times *Counter-changing* and *Tranſmutation*; and theſe kind of *Bearings* are ſometimes born *Engrailed*, *Indented*, *Wavey*, *Invected*, *Embattuled*, *Nebule*, or the like; *Examples* of which are in the Plate of *Arms*, viz. 85 *per Pale Argent* and *Sable*. 86, *per Feſs Indented Or* and *Gules*. 87. *Quarterly Ermine* and *Vert*. 88. *per Bend Embattuled Argent* and *Gules*. 89. *per Cheveron Engroiled Gules* and *Argent*. 90. *per Pile*, *Or* and *Sable*. 91. *per Saltier*, *Gules* and *Ermine*. If the *Field* is divided into 6, 8, or more *Pieces*, then it is *Blazoned Gyrony* of 6, 8, or more *Pieces*, and name the *Colours*, as *Example* 92, *Gyrony* of 6 *Pieces*, *Or* and *Azure*. 93. *Gyrony* of 8 *Pieces Azure* and *Argent*.

COUNTER-CHANGES.

Counter-changes are commonly Born where the Field hath a *Charge*, which is always *Counter-changed* according to the *Examples*. 94. *per Pale*, *Argent* and *Gules*, a *Bend Counter-changed*. 95. *per pale*, *Or* and *Gules*, 3 *Rundles* Counter-changed. 96. *per Feſs Argent* and *Gules*, a *Bar* between 3 *Creſcents Counter-changed*. 97. *Paly Bendy Argent* and *Sable*. 98. *Checky*, *Argent* and *Azure*, a *Chief Gules*. 99. *Barry* of 6 parted *per Pale Indented Argent* and *Gules Counter-changed*.

There are ſundry Bearings of 2 or 3 *Ordinaries* in one *Shield*, as on a *Cheveron* 3 *Bars Gemele*. A *Pile* Surmounted on a *Cheveron* on a *Saltier Engrailed* an *Eſcocheon* charged with a *Croſs*. A *Feſs* between 2 *Cheverons*. Two *Bars* and a *Chief* indented. *Pale* of 6, a *Cheveron*, a *Saltier*, and *Chief* vary, *per Pale* a *Cheveron Counter-charged*. A *Cheveron* within a *Border Engrailed*. A *Croſs* and *Chief*, &c. *Examples* of which are in the *Plate* of *Arms*, from Number 100, to 109.

For the better Methodizing a Body of *Heraldry*, all ſort of Bearings may be comprehended under theſe Heads, viz. *Civil Artificial Things*, *Military Things*, *Celeſtials*, *Vegetables*, the *Parts* of *Man's Body*; *Animals*, as *Beaſts* and *Inſects*, *Fowl* and *Fiſh*.

CIVIL ARTIFICIAL THINGS are ſuch that are made by *Man*, and for his uſe; which may be reduc'd under ſeveral Heads, as they relate to the uſe of Civil Life, as the *Enſigns* of Dignity, both *Temporal* and *Eccleſiaſtical*; or of *Profeſſions* both *Liberal*, *Mathematical*, and *Mechanical*, as they relate to *Military Actions*, as well for *Land* as *Sea*: and ſuch are *Scepters*, *Crowns*, *Mounds*, *Caps* of *Maintenances*, *Mantles* of *Eſtate*, *Maces*, *Garters*, *Taſſels*, *Swords of Eſtate*, *Croſiers*, *Annulets*, *Billets*, *Wheels*, *Maunches*, *Purſes*, *Rural Inſtruments*, *as Plows*, *Harrows*, *Scythes*, &c. *Barrels* or *Tuns*, *Carpenters Tools*, as *Squares*, *Mallets*, &c. *Bells*, *Horns*, *Fiſh*, *Wheels*, and *Nets*, *Cards*, *Dice*, *Tables*, *Cups*, *Lozenges*, *Fuſils Maſcles*, and *Torteauxes*, with divers other *Artificial Things* uſed in *Armory*, too tedious to Name.

MILITARY THINGS, are ſuch, that are as well for Offence as Defence, as *Halberts*, *Spears*, *Swords*, *Daggers*, *Croſs-Bows*, *Launces*, *Bows*, *Arrows*, *Darts*, *Pheons*, *Clarions*, *Battering-Rams*, *Shackbolts*, *Scaling-Ladders*, *Beacons*, *Murthering Chain-Shot*, *Trumpets*, *Drums*, *Tents*, *Caſtles*, *Towers*, *Arches*, *Helmets*, *Morions*, *Saddles*, *Horſhoes*, *Gantlets*, *Armour*, *Water-bougets*, *Horſes*, *Chaplets*, *Anchors*, *Sails*, *Maſts*, *Ships*, *Gallies*, *Ruthers*, &c.

CELESTIALS are of ſundry ſorts, ſome are Natural and meerly formal, as *Angels* and *Spirits*, and others, both Formal and Material, as the *Sun*, *Moon* and *Stars*, and alſo ſuch Natures as are *Sublunar*, as all kind of *Minerals*, which have Life after a ſort, as *Angels*, *Cherubs*, the *Sun*, *Moon*, *Stars*, *Blazon-Stars*, *Meteors* and *Comets*, *Flames* of *Fire*, *Creſcents*, *Mullets*, *Clouds* and *Rays* of the *Sun*, *Jupiter's Thunder-bolt*, *Rainbows*, &c.

Note, that *Stars* are born of ſeveral *Rays*, as 6, 8, 14, and the like; alſo the *Sun* is born *Eclipſed*, likewiſe the *Moon Eclipſed* as alſo in her *Increſcent* and *Decreſcent*. *Mullets* are alſo born of 6 or 8 *Points*; bnt generally of 5, and then you need not expreſs the number of *Points*; likewiſe *Mullets* are Born pierced.

VEGETABLES do comprehend *Trees*, *Fruits*, *Flowers*, *Plants* and *Leaves*; as Trees growing with Fruit, *Stems* of *Trees* Radicated, *Limbs* of *Trees Raguled*, *Stocks* or *Stumps* of *Trees*, *Leaves* of ſundry ſorts of *Trees*; and that born diverſly, as *Slipped Pendant*, *Bendways*, *Barways*, *Saltier Wiſe*, &c. *Treefoyls*, *Quaterfoyls*, *Cinquefoyls*, which are alſo ſlipped; *Roſes*, *Flowers-de-Lis*, with other Flowers and Fruits, as *Pears*, *Plums*, *Pumgranets*, *Grapes*, *Sheaves* of *Corn*, *Wheat-Ears* and *Stalks*, &c.

The ſeveral Parts of Man's Body, as *Heads, Couped* and *Erazed* at the *Shoulders*, as well *Sarazens* and *Blackamores*, as others: Alſo *Arms, Legs*, and *Hands, Dexter* and *Siniſter*, both *Couped* and *Erazed*; likewiſe three *Arms* or *Legs* conjoyned and flexed in Triangle in the *Feſs Point*. *Hearts*, which are ſometimes born Wounded and Stuck with *Darts, Deaths-Heads, Shin-Bones*; *Drops*, as *Gutta-de-Sang, Gutte-de-Eau, Gutte-de-Poix, Gutte-de-Carmes*, &c.

ANIMALS are Born both whole, and that in ſeveral Poſtures, as alſo in Parts. Thoſe of Prey, as *Lyons, Tigers, Bears, Wolves*, &c. are in moſt Eſteem, and whole *Animals* more than parts thereof.

All *Quadruped Beaſts* are eſteem'd more worthy of Bearing than *Fowl* or *Fiſh*, in regard they contain in them more worthy and commendable Significations of Nobility, and the *Males* are always eſteemed the more worthy than *Females*; but it is otherwiſe with Fowl of Prey, the *Female Hawks* being the beſt. And all *Savage Beaſts* muſt be Armed

The *Lion* being the nobleſt Beaſt, I ſhall chiefly make uſe of him for expreſſing the *Blazon* of moſt Beaſts, as to the ſeveral Poſtures. They are Born *Rampant, Rampant Guardant, Regardant*, and *Coward*; ſometimes with two *Heads*, and ſometimes with two *Tails*: They are alſo born two together, as *Rampant Combatant*; that is, *Faces* together, and *Rampant Endorſed*, that is, *Back* to *Back*: They are alſo born *Paſſant*, and *Paſſant-Guardant*, and *Regardant*; alſo *Seiant, Couchant*, and *Dormant*. But inſtead of uſing the Term *Rampant*, to a *Buck* or *Unicorn*, ſay *Springing*; and to a *Fox, Saliant*. *Dogs* are generally born *Currant* or *Paſſant*.

As to the parts of *Beaſts*, whether *Lions* or other ſorts, their *Heads* are either *Erazed, Couped*, or *Caboſed*; and ſometimes the Face only of the *Lion* or *Leopard*, is born. The *Attires* or *Horns* of a *Buck* are uſed in Wearings; alſo the *Paws* and *Tails* of *Lions* and *Bears* are uſed both *Erazed* and *Couped*.

There are ſeveral *Monſtrous Animals*, ſuch as are exorbitant from the general courſe of Nature, either for Qualities, or Eſſence, that are Born in *Armory*; and ſuch are *Amphibious Beaſts*, as *Otters* and *Beavers*, that live both on the Land and in the Water. Alſo thoſe of a prodigious Shape, being formed or rather deformed with the confuſed Shapes of Creatures of different Kinds and Qualities; and ſuch are *Bats, Harpres, Wiverns, Cockatrices, Mermaids* and *Dragons*,

There are divers Creeping things that are born in *Coat-Armour*, as *Tortoiſes, Moles, Hedg-Hogs, Snails, Scorpions, Adders, Emmets, Graſs-hoppers, Spiders, Toads*, &c.

AREAL ANIMALS, as *Fowl* and *Birds*, are much uſed in *Heraldry*, which may be conſidered by their *Feet*, which are either whole and webby, as the Palm of a Man's Hand, as the *Swans, Geeſe, Ducks*, &c. or divided, as the *Eagles, Falcons, Ravens, Herns, Peacocks*, and other *Fowls*, and *Birds* of the *Air*.

All *Fowl* and *Birds* of what kind ſoever, muſt be Born in their Natural Actions of Going, Sitting, Standing, or Flying.

Cocerning the *Beaks* or *Bills*, as alſo the *Feet* of *Birds*, all thoſe that are either *Whole-footted*, or have their Feet divided, and yet have no *Tallons*, ſhould be termed *Membred*; but the *Cock*, and all Birds of *Prey* muſt be termed *Armed*. It is generally obſerv'd, that the *Females* of Birds of Prey, are the nobleſt and the moſt hardy; which Nature hath ſo ordered, for that ſhe takes care of her Young.

The Parts and Members of *Fowl* are uſually Born both *Couped* and *Erazed*.

The more fierce the Bird is the better it is eſteem'd in *Heraldry*; ſo that the *Eagle*, which is the Prince of the Air, hath the Preheminence of all others.

Fiſh are not of that Eſteem as *Beaſts* or *Fowl*, yet much us'd; and as Birds have their *Plumes, Wings*, and *Trains*, for cutting their Paſſage through the *Air*; ſo have Fiſh their *Fins*, by which they guide themſelves, cutting the Current of the Streams, their Courſe being directed by their *Tail*, which ſerveth as the Helm or Ruther of a Ship.

Fiſh are Born after a diverſe manner, *viz.* directly *Upright, Imbowed, Extended, Indorſed*, Reſpecting each other, Surmounting one another, *Fretted*, and *Triangled*, &c.

All *Fiſh* that are Born Feeding, muſt be Termed *Devouring*, expreſſing what they Feed upon. All *Fiſh* raiſed directly Upright, that have Fins, muſt be Blazoned *Hauriant*; and all born Tranſvers, muſt be Blazoned *Naiant*, or *Swimming*. *Fiſh* are likewiſe born in Part, as the *Claws* and the *Shells*:

All theſe ſundry ſorts of *Bearings* aforeſaid taken Notice of, are born in the *Fields* ſingle, or more than one: 3 or 6 are the uſual Number. They are alſo born between, and Charged upon the *Honourable Ordinaries*; Examples of all which are given in ſome Volumes of *Heraldry* publiſhed by me, Entituled, *Guillim's Diſplay of Heraldry*, in Folio. An *Eſſay to Heraldry*, in Octavo; and in a *Map of Heraldry*, Entituled *Heraldry Royal*, comprehending the Body of the ſaid Art, Illuſtrated with apt and proper *Figures*.

But I have given ſome Examples thereof in the ſaid Plate of *Arms* here inſerted, beginning at Number 100, which are thus Blazoned; *Gules* 3 *Katherine-Wheels* Or. 111, Sable, 10 *Billets*, 4, 3, 2, and 1, Argent. 112, Or, a *Maunch*, Gules. 113, Gules, 3 *Mallets* Or. 114, Azure, a Cheveron between 3 *Bells*, Or. 115, Gules, a *Fret* Argent. 116, Argent, *Fretty Sable*. 117, *Ermin*, on a Croſs-Quarter pierced Argent 4 *Ferdemolius* Sable. 118, Azure 3 *Lozenges* Argent. 119. Gules, a *Muſcle* Argent; 120, Argent on a Mount Proper, a *Tower triple Towered* Sable. 121, Azure, a *Cheveron* between 3 *Tents* Argent. 122, Gules, 3 *Clarions* Or. 123, Azure, 3 *Banners* diſplay'd in *Bend* Gules. 124, Ermine, a *Croſs-Bow* in pale *Bent* Gules. 125, Gules, 3 *Trumpets* Or. 126. Argent, a *Culverin Diſmounted* in *Feſs* Sable. 127, Argent 3 *Battering Rams* Barways Proper, headed Azure, Armed and Garniſhed Or. 128, Argent, 3 *Scaling-Ladders* in Bend Sable. 129, Ermin, 3 *Long-Bows* in *Pale* bent Gules. 130, Azure, 3 Arrows Argent. 131. Gules, 3 *Pheons* Argent. 132, Azure, 3 *Spears-Heads* Argent. 133, Gules, 3 Anchors Or. 134, Azure, 3 *Helmets* Argent. 135, Azure, 3 Left-handed *Gauntlets* Or. 136, Gules 3 *Water-bougets* Or. 137, Argent, a *Sword* erected in *Pale Sable*. 138, Azure, 3 *Swords* in *Pale*, two with their Points downwards, the middlemoſt upwards, Argent. 139, Gules, 3 *Swords Barways* their Points towards the ſiniſter Point of the *Eſcocheon* Argent, pomeled Or. 140, Azure, a *Sun* in his Glory. 141, Or, a *Sun Eclipſed*. 142, Gules, an *Increſcent* Or. 143, Azure, a *Moon* in her *Complement*, or *Glory*, Argent. 144, Azure, a *Moon Decreſcent* proper. 145, Argent, a *Moon* in her Detriment Proper. 146, Azure, 3 *Creſcents* Argent. 147, Argent, 3 *Stars* of 6 *Rays* Sable. 148, Or, 3 *Mullets pierced* Sable. 149. Argent, 3 *Oaken Leaves pendant* proper. 150, Or, 3 *Laurel Leaves ſlipped* proper. 151, Argent. 3 *Holly-Leaves Bendways* Azure. 152, Or, 3 *Fig-Leaves barways* proper. 153, Argent, 5 *Vine-Leaves* in *Saltier* proper. 154, Gules, a *Limb* of a *Tree Raguled* and *Trunked* in *Bend* Argent. 155, Azure 3 *Cinquefoils* Argent. 156, Gules, a *Garb*, or *Wheat-Sheaf*, Or. 157, Azure, a *Flower-de-Lis* Or. 158, Ermin, 3 *Roſes Gules*, *ſeeded* and *barbed* proper. 159, Argent, a *Man's Leg Erazed* at the *Thigh*, Sable. 160, Gules, 3 *Dexter-Arms conjoyned* at the *Shoulders*, and *flexed* in *Triangle*, Or. 161, Azure, 3 *Siniſter-Hands* couped at the *Wriſts*, Argent. 162, Argent, an *Arm Siniſter* iſſuing out of the *Dexter Point*, and extended toward the *Siniſter Baſe* in form of a *Bend*, Gules. 163, Or, a *Man's Leg* couped at the *Thigh*, Azure. 164, Gules, a *Sarazen's Head erazed* at the *Neck*, Argent, and environed about the *Temples* with a Wreath of the Second, and Sable. 165, Argent, on a *Cheveron* Gules 3 *Deaths Heads* of the Field. 166, Sable, a *Shin-bone* in *Pale*, ſurmounted of another in *Croſs*, Argent, 167, *Gutte*; Theſe *Drops* are of different Natures, according to the *Colour*, for they ſtill retain their Shape. If *Gules*, they are *Gutte de Sang*, that is, *Drops of Blood.* If *Azure*, *Gutte de Larmes*, which are *Tears.* If *Argent*, *Gutte de Eau*, which are *Drops of Water.* If *Sable*, *Gutte de Poix*, which are *Drops of Pitch*: And if *Yellow*, *Gutte d'Or*, or *Drops of Gold.* 168, Or, a *Lion Rampant* Gules Crowned, Argent. 169, Argent, a *Lion Rampant Gardant* Sable. 170, a *Lion Rampant* Regardant, Or. 171, Gules, a *Lion Saliant* Argent. 172, Argent, a *Lion Rampant Coward* purpure. 173, Or, a *Lion Rampant double Teſte*, Azure. 174, Azure, a *Lion Rampant double Queve*, Argent. 175, Or, 2 *Liocels Rampant Combatant*, Sable. 176, Gules, a *Lion Paſſant* Argent. 177, Azure, a *Lion Paſſant Gardant* Or. 178, Vert, a *Lion Seiant* Argent. 179, Or, a *Lion Couchant* Sable. 180, Gules, a *Lion dormant*, Or. 181, Vert, a *Grey-Hound* currant in *Bent*, Argent; *Collered, Gules.* 182, Vert, a *Buck tripping* Or. 183, Argent, a *Lion's Head erazed* Gules. 184, Gules, a *Horſe's-Head Couped* Argent. 185, Azure, a *Buck's-Head Caboſed* Or. 168, Vert, a *Cheveron* between 3 *Leopards Faces* Or. 187, Gules 3 *Lions Paws erazed* Argent. 188, Sable, 3 *Bears Paws couped* and *erect*, Argent. 189, Azure, an *Eagle diſplayed* Argent. 190, Argent, an *Eagle diſplayed* with two *Heads* Sable. 191, Argent, a *Raven* proper. 192, Azure, 3 *Cocks* Argent; *Armed*, *Creſted*, and *Vellopped* Or. 193, Or, 3 *Martlets Sable.* 194, Azure, a *Harpre* Or. 195, Azure, 3 *Burſtarts riſing* Argent. 196, Gules, 3 *Bees volant en Arriere* Argent. 197, Or, 3 *Eagles Heads erazed* Sable. 198, Sable 3 *Eagles Legs erazed a la Quiſe Argent.* 199, Or, 2 *Eagles Legs Barways erazed a la Quiſe* Sable; *Armed Gules.* 200, Vert, a *Tortoiſe paſſant Argent.* 201, Azure, a *Tortoiſe erected* Argent. 202, Sable, 3 *Houſe-Snails* Argent. 203, Azure, 3 *Dolphins Naiant* Argent. 204, Vert, a *Dolphin Naiant Imbowed* Argent. 205, Gules, 3 *Salmons Hauriant* Or. 206, Azure, 2 *Barbels Hauriant Regarding* each other, Argent. 207, Gules, 2 *Pikes Hauriant Endorſed* Or. 208, Sable, 3 *Scallop-Shells* Argent.

Marſhalling and Impailing of Coats in one Shield.

By *Marſhalling* of *Coats*, is to be underſtood, an orderly diſpoſing of ſundry *Coat-Armours* pertaining to diſtinct *Families*, and ſome have their place within the *Eſcocheon*, and ſome without: Of thoſe within, ſome have their Occaſions obſcure, and others manifeſt, as are thoſe whoſe Marſhalling (according to ancient form) do betoken *Marriage*, or ſome Gift of the *Sovereign*: Such as do betoken *Marriage*, repreſents either a Match Single, or Hereditary: By a ſingle Match is meant the *Conjoyning* or *Impaleing* the *Coat-Armour* of the Man with that of the Woman; but if ſhe be an Heireſs, then her *Coat* is to be born in an *Eſcocheon* of *Pretence* in the midſt of his Shield. It is alſo accuſtomary for *Biſhops* to *Impale* on the *Dexter-ſide* of the Shield, the Arms belonging to their Biſhoprick; and if a Man hath had more than one Wife, the way of Bearing them is to *Impale* them betwixt his own Coat, which is to be in the middle part of the Shield.

External Ornaments.

External Ornaments are *Helmets*, *Torces*, *Caps Crowns*, *Creſts*, *Mantlings*, *Eſcroles*, and *Supporters* to *Noble-Men.*

The *Helmet* is placed next above the *Eſcocheon*, or *Shield*, to all under the Degree of a Noble-Man, and to thoſe there is a *Crown* according to the Quality of the Bearer, and the Helmet iſſueth out of the ſaid Crown. The Helmet doth diſtinguiſh the Dignity of the Bearer; for to a Gentleman and Eſquire, the Helmet is placed Side-ways with the Beaver cloſe: To a Knight, or Baronet, (which is all one) the Helmet is placed Fore-right, with the Beaver open. The Full-fac'd, or Fore-right Helmet, doth ſignifie *Direction* and *Command*; the Cloſe, *Attention* and *Obedience.*

The open *Helmet* placed ſideways, with *Bars*, belongs to all the Nobility under the Degree of a King, except *Sovereign Dukes*, or of the *Royal Blood*; and to thoſe the Helmet is placed Fore-right with open Bars; all which doth appear in the Circle of the *Eliptical Table*, as doth ſeveral ſorts of *Crowns* and *Coronets*, born by the Nobility, of which a Word or two.

The *Baron's Coronet* is of ſix *Pearls* of an equal height and diſtance from each other.

The *Viſcount's Coronet* is compos'd only of *Pearls* ſet cloſe together, and of an equal height.

The *Earl's Coronet* is compos'd of *Points* and *Flowers*, and the Points are ſpiry with *Pearls* on the top above the Flowers.

The *Coronet*, or *Crownet* of a Marqueſs, is of *Leaves* and *Points*, with the Leaves or Flowers above the Points.

The *Coronet* of a Duke is only Floral.

The *Coronet*, or *Crownet* of a *Prince* is the ſame with the Crown of a King, only the *Arches*, *Mound*, and *Croſs*, are omitted.

The Crown of a King is as a Duke, but with *Arches*, a *Mound* and a *Croſs*.

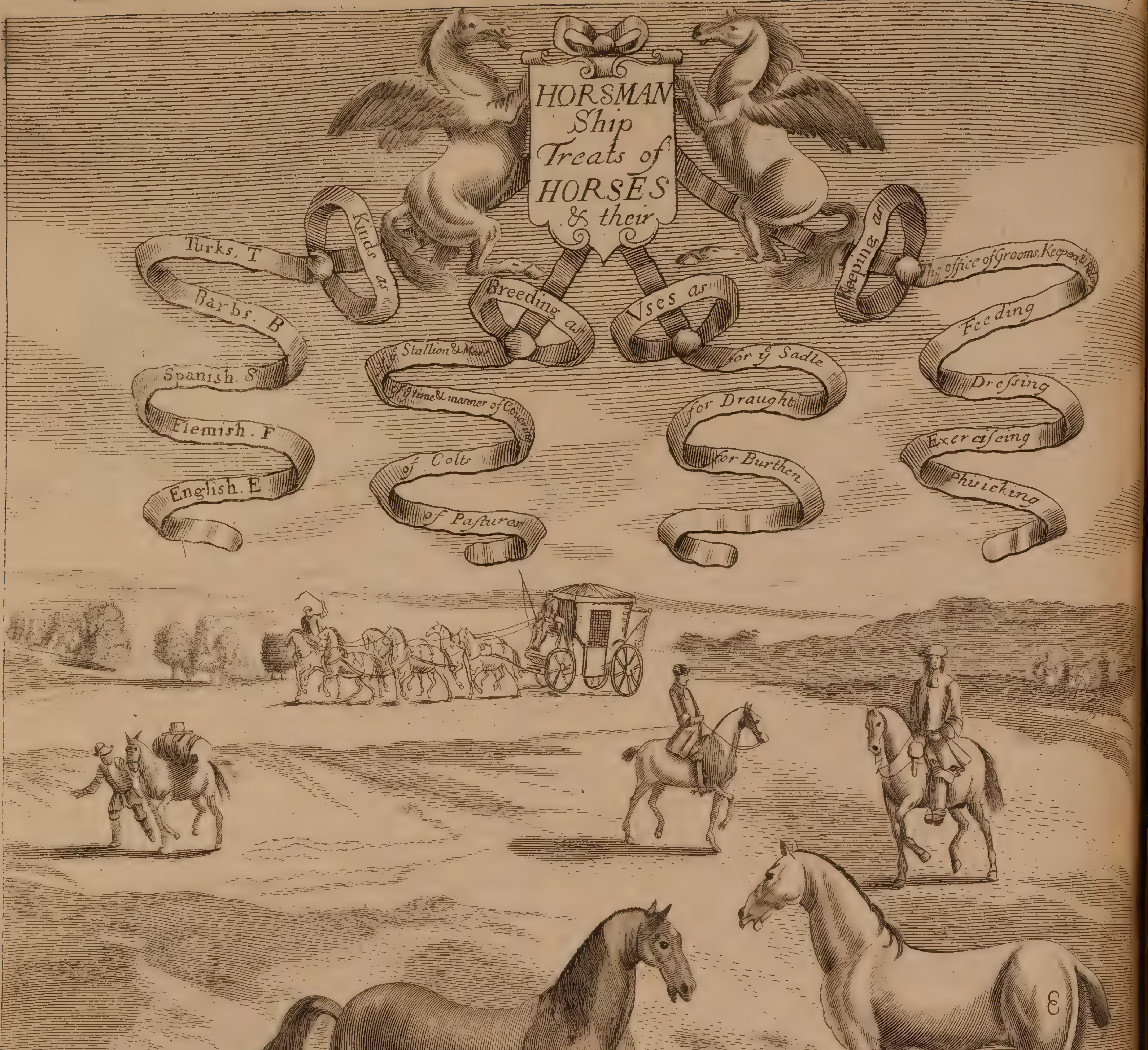
To a Biſhop, inſtead of a *Coronet* belongs a *Mitre.*

Next above the *Helmet*, is the *Wreath* or *Torce*, which is always of the principal *Metal* and *Colour* in the Bearer's *Paternal Coat*; and on this *Torce* the *Creſt* is placed, except to thoſe Coats that have no *Wreath*, and then there is always inſtead thereof a *Mount*, *Hill*, *Cheapeau*, or Coronet, on which the *Breaſt* is placed.

About the *Shield* is the *Mantle*, which doth admit of ſeveral Forms; thoſe moſt uſed are the *Cloak-Mantles* and the *Folding-Mantles*; and the Colours are generally *Gules* and *Argent*; that is, *Mantled Gules*, doubled *Argent*: But to Noble-Men, inſtead of *Argent*, the Doubling is *Ermins.*

On each ſide of the *Shield* of *Noble-Men*, are the *Supporters* which ſtand on an *Eſcrole*, or on a *Hill.* The *Eſcrole* is at the Bottom of the *Shield*, in which is placed the Motto of the Bearer, which is altogether according to the Fancy, and alterable at pleaſure.

The End of the Firſt PART.


HORSMAN Ship Treats of HORSES & their
Kinds as
Turks. T
Barbs. B
Spanish. S
Flemish. F
English. E
Breeding as
of ye Stallion & Mare
of ye time & manner of Covering
of Colts
of Paſture
Vses as
for ye Sadle
for Draught
for Burthen
Keeping as
The office of Grooms, Keepers & Riders
Feeding
Dreſsing
Exercaſeing
Phiſicking
S
E
F
B
T

To the Honourable John Noel of
Luffingham in Rutlandſhire Esqe
third ſon of ye Right Honourable Baptiſt
Noel Viſcount Camden &ca

This plate is humbly Dedicated by Ric: Blome.

THE GENTLEMAN'S RECREATION:

TREATING OF

HORSEMANSHIP, HAWKING, HUNTING, FOWLING, FISHING, and AGRICULTURE.

WHICH

Are Collected from the moſt Authentick AUTHORS, and the many groſs Errors therein corrected; with great Enlargements made by thoſe well-experienced in the reſpective RECREATIONS.

And for the better Explanation thereof, great variety of uſeful SCULPTURES, as NETS, ENGINES, TRAPS, *&c.* are added for the Taking of BEASTS, FOWL, aud FISH; not hitherto publiſhed by any.

The whole illuſtrated with divers Ornamental SCULPTURES, Engraven in Copper, relating to the ſeveral Subjects.

PART II.

The Second Edition, with large Additions and Corrections throughout.

LONDON,

Printed for *R. Bonwick, W. Freeman, Tim. Goodwin, J. Walthoe, M. Wotton,* S. *Manſhip, J. Nicholſon, B. Tooke, R. Parker,* and *R. Smith.* MDCCIX.

HORSEMANSHIP.

PART I.

Wherein is treated of Horſes, *their Kinds, Breeding, Keeping, Uſes, &c.*

CHAP. I.

The INTRODUCTION.

A *Horſe* is a Creature ſo excellent in his nature, and ſo generally uſeful, that all Ranks and Degrees of Men, either for pleaſure or profit, are glad to make uſe of his Service. If you have ſeen a *General* at the head of his *Army*, and taken notice of his *Horſe* under him, I need not tell you what an Air of Majeſty and Greatneſs that Noble Creature has; and if you have been in a *Battle*, to give you an account of his Vigour, Activity, and Courage is as needleſs: But if you are a ſtranger to theſe ſort of things, and ſeek not a *Horſe* for any ſuch Imployment, go to the *Huntſman*, the *Traveller*, and the *Huſbandman*, they will all tell you what pleaſant Companions and neceſſary Servants *Horſes* are. It would be endleſs to give a particular Account of their admirable Nature and great Uſefulneſs; but if you conſider what long Journeys are performed on *Horſback*, and in *Coach*; what heavy Loads and Burthens are drawn and carried from place to place in *City*, *Camp*, and *Country*; what delight and pleaſure is taken in *Hunting*, *Hawking*, *Racing*, &c. to the increaſing of Health and Vigour: In a word, if you conſider that to the moſt glorious *Triumphs* and ſolemn *Pomps*, in buſineſs of all ſorts, and in our pleaſanteſt and moſt Manly Recreations, a *Horſe* is ſome way or other aſſiſting; you cannot but conclude, That of all thoſe Creatures that are made for the Profit and Delight of Mankind, a *Horſe* is the moſt excellent, and conſequently, That *Horſemanſhip* is a very great Accompliſhment in a Perſon of Quality, or Gentleman.

The Deſign therefore of this Diſcourſe is to lay down the Principles of *Horſemanſhip* in a ſhort and clear method; I think it may be called The *Knowledge* of *Horſes*, and the *Art* of *Riding* well. I ſhall ſpeak only of ſuch things as are moſt uſeful and neceſſary to be known by the Gentry; as the ſeveral Parts and Kinds of *Horſes*, the Rules for *Breeding* and *Keeping* them, what uſes ſeveral ſorts of *Horſes* are fitteſt for, and the like; avoiding the impertinent humour of too many *Authors*, who endeavour nothing more than to make a ſhow of their own Knowledge, and nothing leſs than the benefit and advantage of thoſe for whom they write. If I ſhould treat at large, ſome parts of this Diſcourſe would require Volumes; and therefore where I ſpeak in general, and give only the Grounds of things, I hope it will not offend the *Reader*. It may be of uſe to him who is a good Proficient, and not an improper *Grammar* for one that is beginning to learn; and I doubt not of its Approbation by the Judicious and experienced Horſeman.

CHAP. II.

Of the ſeveral Parts of a Horſe, *and how they ſhould be framed.*

TO begin with the Bars, which are the Ridges, or the higheſt parts of that part of the Gum that never bears any Teeth, they are ſituated between the Grinders and the Tuſhes; and the outward ſides of them are always called the Gums. The hollow part betwixt the two Bars, or Nether Jawbones, is called the Channel. The Pallate is the Roof: As for the Teeth, there are five ſorts, *viz.* The Jaw-Teeth or Grinders in Number 24. twelve in the upper, and as many in the lower-Jaw. 2. The Foal Teeth, that come forth when he is about Three Months Old, which he Caſts at about Two Years and an half after. 3. The Tuſhes placed in the Bars betwixt the Fore-teeth and the Grinders: *Mares* have ſeldom any; and when they have, they are ſmall: It's alſo thought an Imperfection in thoſe that have them. 4. The *Gatherers*, growing before in the Place of the *Fore-Teeth*, are Six above, and as many below, being divided into *Nippers*, *Middle-Teeth* or *Separaters*, and the Outward or Corner ones. The *Nippers*, being the Two foremoſt Teeth above and below, are thoſe which a *Horſe* firſt changes: The *Separaters* are the Two next to them, and alſo change next: The *Corner ones* are thoſe by which the Age of a *Horſe* is known, and laſt caſt. A *Horſe* in all hath Forty Teeth, and a *Mare* but Six and Thirty. The *Withers* begin where the *Mane* ended, are join'd to, and end at the Tip of the Shoulder-blades. The *Loins*, or *Fillets*, begin where the Hinder-part of the Saddle reſteth. The *Extremities* of the Belly, where the Ribs are wanting, are called the *Flanks*. The *Flank* is part of the Foreleg, betwixt the Knee and the ſecond Joint, next to the Foot; and the *Paſtern-joint* is next the Foot. That Part round the very Top of the Foot is named the *Coronet*. The *Foot* it ſelf conſiſts of a *Hoof* and *Coffin*; the *Quarters* are the Two Sides of the

Foot; the *Fruſh*, or *Frog*, ariſes in the Middle of the Sole, and at ſome Diſtance from the Toe. It is divided into Two Branches, running towards the Heel like a Fork. As for the *Sole* it ſelf, it is a kind of a Nail or Horn under the Foot, much tenderer than the other Horn that encompaſſes the Foot. The *Coffin-bone* is a kind of a Spongy Bone, encloſed in the midſt of the Hoof, and poſſeſſing the whole Form of the Foot.

In the Hind-legs you have the *Stiffle*, or great *Muſcle*, which advances towards a Horſe's Belly, being a moſt dangerous Part to receive a Blow upon. The *Thigh*, or *Gaskoni*, begins at the Stiffle, and reaches to the Ply, or beginning of the Ham; which *Ham*, or *Hough*, is the Ply or Bending of the Mid-leg, and comprehends alſo the Point behind and oppoſite to the Ply, called the *Hock.* That Part of the Fore-leg which lies between the Knee and the Paſtern-joint or Fetlock, is term'd the *Shank*, but *Inſtep* in the Hind-leg.

As to the Formation of the Parts of a *Horſe*; the *Head* ſhould be ſmall, narrow, lean and dry; the *Ears* little, narrow, ſtrait and hardy, with the whole Subſtance fine and delicate. The *Forehead* ought to be ſomewhat broad; ſome would have it a little rais'd. A *Horſe* ſhould have that which we call a *Feather* in it; being a natural Frizling of the Hair. The *Eye-Pits* muſt not be too much ſunk, if otherwiſe they make the *Horſe* appear old. Thoſe *Eyes* are moſt eſteem'd which are bright, lively, full of Fire, pretty large and full; but neither very big, gogling, nor ſtaring. The *Jaw-bones* are to be narrow and lean, but the Diſtance large and hollow betwixt them and the Throat. The *Muzzle* ſhould be very ſmall, and indeed nothing but Skin and Bone. The *Head* ought not to be long. The *Noſtrils* are to be large and extended, the Wideneſs of which does not a little contribute to eaſie Breathing.

As for the *Mouth*, an indifferently well cloven one is beſt; ſo is a ſmall *Tongue.* The *Bars* are to be ſharp, ridged and lean; for if they be flat, round, and inſenſible, the Bit will not work its Effect. The *Channel* muſt be large enough to contain his Tongue: The *Pallate* lean, not full and high: The *Lips* thin and little: The *Beard* neither flat, nor too high rais'd, and ought to be nothing but Skin and Bone, without any Chops, Hardneſs, or Swelling.

The *Neck* ſhould be lean, well-ſhap'd, riſe with a Sloap upwards from the Withers, but diminiſh gradually towards the Head; and ought to have but little Fleſh upon it, tho' a groſs and fleſhy *Neck* be a good Quality in a *Mare.* A fine, long, thin and frizled *Mane* is beſt.

The *Withers* are to be well raiſed, and pretty long, but lean and not too fleſhy; for then they will be much more ſubject to Gauling. A large and full *Breaſt* and *Counter* is always valued in light or ſmall-ſiz'd *Horſes*; ſo 'tis alſo in *Horſes* for Draught. As for the *Shoulders*, they ought to be ſharp and narrow at the Withers, of a middle Size, flat, and not fleſhy. The *Shoulders* of a well-ſhap'd *Horſe* are compar'd to thoſe of a *Hare*, and the Diſtance between them ſhould be little more than half the Breadth of the Hinder-Quarters. A *Horſe* ſhould have *double Reins*, that is a little more elevate on each Side of the Back-bone, than upon it. The *Back* ought to be ſtrait, not hollow or Saddle-back'd; and the *Ribs* circular and full, taking their Compaſs from the very Back-bone. The *Belly* is to be of an ordinary Bigneſs, but the larger the better in *Coach-Horſes*, provided they be round, and well incloſ'd within the Ribs, and rather extending upon the Sides than downwards.

Let the *Flanks* be full, with a Feather on the Top on each Side near one another: The Diſtance of the *Flank* ſhould be ſhort and well coupled; the *Croup* large and round. It ought to have its Compaſs from the Haunch-bones to the very Onſet of the Tail, and be divided in Two by a Hollow all along to the very Dock. You are to chuſe a firm, ſtrong, and immovable *Tail*, well furniſh'd with Hair. Let the *Dock* be ſtiff, big, and pretty high.

The larger, broader, and more nervous the *Arm*, *Fore-thigh* and *Shanks* are in the Fore-legs, the better; and a flat or large *Knee*, without any Roundneſs or Swelling, is beſt. The *Back-Sinew* in a *Horſe*'s Leg ought to be big; and the greater the Diſtance between it and the Shank-Bone, the better. The *Paſtern*, eſpecially in middle-ſiz'd *Horſes*, ought to be ſhort; the *Coronet* more elevated than the Hoof, and the *Horn* of the *Hoof* of a dark Colour, ſomewhat ſhining, ſmooth and high. In ſhort, to be excellent, it ſhould be of the Colour of a Deer's Foot, and the whole Foot of a round Figure, but a little larger below than above. The *Heel* ought to be high and large; but one Side not higher upon the Paſtern than the other. The *Fruſh*, though little, ſhou'd be well nouriſhed.

The *Soles* are to be thick and ſtrong, and the whole lower Part hollow; the *Thighs* well furniſh'd and fleſhy; the *Hams* large, full, not much bent, dry, diſcharged of Fleſh, nervous and ſupple. The *Inſtep* ſhou'd be big and flat, and in a Perpendicular Line to the Ground. Laſtly, particular heed is to be taken that a *Horſe*'s *Legs* be not too long in Proportion to their Bodies. *Solleyſel. Guillet.*

CHAP. III.

Of the ſeveral Sorts of Horſes *moſt in Uſe.*

Of the Turkiſh Horſe.

THE *Turkiſh Horſe* has a great deal of Beauty and Fire, being extraordinary ſwift. With a good *Mare* he breeds very fine *Colts*, (eſpecially for the *Race*) of which ſome of our *Breeders* have had the Experience: But the *Turks* are ſo unwilling to part with their Breeds, that of thoſe that come into *England* there are but very few (if any) good in their Kind.

Of the Barb, *or* Barbary Horſe.

The *Barb* is very docile and gentle, being of all *Horſes* in the World the eaſieſt to be managed, having naturally a very graceful Action, and a good Diſpoſition: He is of himſelf ſo negligent and lazy in his Walk, that he is apt to ſtumble ſometimes in plain Ground; but when he is wakened, and rode upon his Mettle, no *Horſe* is more nimble, vigorous and adroit, and better for an Action of one or two Hours. He makes a good *Stallion* to breed *Running Horſes* out of, the *Colts* that he gets being generally well winded, fleet and good at Bottom. The Duke of *Newcaſtle* was of opinion, That a *Barb*, tho' a Jade, would get a better *Horſe* for a *Courſe*, than the beſt *Running Horſe* in *England:* And ſo was Sir *John Fenwick* of *Northumberland*, being a Man of great Experience, and eſteem'd to have one of the beſt Breeds of *Horſes* in this Kingdom. The Duke of *Newcaſtle* was likewiſe of opinion, and not without Reaſon, That the choiceſt *Barbs* are not brought over: And his Reaſons are, becauſe they are bought up by Merchants, or ſuch that buy the cheapeſt for Advantage; nor do they know how to chuſe thoſe that are good.

Of the Spaniſh Horſe.

This *Horſe*, if he be well choſen, is of a Noble Kind, his Shape being exact and curious, and not ſo thin and ſlight as the *Barb*, nor ſo groſs as the *Neapolitan*, but between both, being form'd by Nature for Strength, as well as Beauty. He is very docile, hath a great Spirit and Courage; and 'tis creditably reported of their beſt Breeds in *Spain*, that in their Exerciſe of *Riding* at the *Bull*, when a *Horſe* happens to be ſo ſharply wounded, that his Guts hang out, he will yet obey his *Rider*, and continue his Action to the utmoſt of his Strength, tho' at the ſame time he tramples upon his Bowels. He hath the proudeſt Walk and Trot, with the beſt Action in his Trot, the loftieſt Gallop, the ſwifteſt Careers, and yet the gentleſt *Horſe*; and if he be good in his Kind, is very proper for *Generals* and *Great Officers*, none being more graceful in a Day of *Triumph*, or uſeful in a Day of Battle.

Of the Dutch, *or* Flanders.

Where are a Sort of *Dutch*, or *Flanders Horſes* which we make uſe of in *England*, which are the fitteſt in the World for the Coach, eſpecially for the Town for a fine Equipage, where they muſt draw great Weight, and be continually upon the Stones; for they are large and beautiful in their Kind, and having a graceful and lofty Trot, they give a better Air to a Coach than any *Horſes* whatſoever; beſides that, they are ſtronger, and will endure the Pavement better

Of Engliſh Horſes, *&c.*

We have in *England* ſeveral good Breeds: our *Running Horſes*, *Hunters* and *Pads*, and our *Horſes* for all manner of Fatigue, of what Nature ſoever, are not to be match'd in all *Europe*; nor is any *Horſe* better for an *Officer* in the War, than one of thoſe which we call our *Twelve-Stone Horſes*, (ſuch as uſually run for *Plates*) if he be well choſen, and taken in time. He muſt be naturally of a good Diſpoſition (which, for the generality, our *Engliſh Horſes* are not) and one of the ſtrongeſt of that Sort, with good *Reins* and *Limbs*, and a *Head* well ſet on; and he muſt be put to the *Manage* before he is accuſtom'd too much to go upon his *Shoulders*, and to have his Will; for I believe that which ſpoils a great many of our *Engliſh Horſes*, rendring them ſo unfit for the *Great Saddle*, is the *Snaffle-Bridle*; and our particular Method of *Training* and *Galloping*, ſo that when they come to be Seven or Eight Years old, they are grown ſo head-ſtrong, and their Way of going is become ſo cuſtomary, that there is no poſſibility of putting them upon the *Haunch*, or bringing them into any manner of Subjection, either of the Hand or Heel.

There are ſeveral other Kinds of *Horſes*, which I omit, becauſe we meet with them but rarely in *England*, amongſt which may be reckon'd the *Arabian*, a *Horſe* of an excellent Nature, and very beautiful.

CHAP. IV.

Of Stallions.

If you chuſe a *Stallion* aright, you muſt conſider the Uſe you deſign to breed for: For Example; If you would breed for the *Manage*, (I mean the moſt uſeful Part, which is term'd *Manage de Guere*, of which I ſhall ſpeak in its proper Place) let your *Stallion* be a *Turk*, *Barb*, or *Spaniard*, one that is good in his Kind, and naturally of a docile and gentle Temper, though lively, vigorous and bold in Actions. His *Neck* and *Creſt* muſt be ſo turn'd, and his *Head* ſo ſet on, as not to hinder his Reining well; for which you muſt obſerve that his *Neck* be form'd like an Arch, his *Creſt* not too much charged with Fleſh, his *Head*, when he ſtands in his own natural Poſture, falling as it were perpendicularly towards the Ground; and his *Jaw-bones* ſtanding ſo wide, that his *Head* may not want Room to play.

A Modern and very Judicious Author objects againſt the *Spaniſh Horſes*, that they beget Colts of a leſs Size than themſelves; that the *Mares* do not ſo eaſily hold to them as to the *Barbs*; for often *Mares* cover'd with a *Spaniſh Horſe*, one half will not be with Foal; whereas they hold ſooner to the *Barbs*, if the *Stallion* be Six Years old; for being younger they deceive the *Mares*. He does not approve of covering *Mares* in one's Hand, or tied with Ropes, nor regards the Increaſe or Decreaſe of the Moon.

If you would breed for *Hunting*, or the *Race*, make choice of a *Turk* or *Barb*, or a well-bred *Engliſh Horſe*, that has given Proofs of his Goodneſs and Speed.

If you would breed for the *Road*, make choice of a good ſtrong *Hunter*, that has naturally good *Legs* and *Feet*, a ſhort *Back* and good *Quarters*, and let him be one that is not of a ſkittiſh or ſtubborn Temper; or if you are curious, and would have very fine *Padds*, you may take the ſame Meaſures which I told you before for the *Manage*, only geld your *Colts*; and when you break them, if they take it well, teach them to *Amble*.

'Tis needleſs to give Directions for Breeding any other Sorts of *Horſes*; as for the *Coach*, *Waggon*, *Cart*, *Servants*, and all manner of Drudgery, becauſe there is not that Nicety required in their Breed; and from the *Fairs* and *Horſe-Courſers* you may be ſupplied, and ſave that trouble.

When you have made choice of your *Stallion*, feed him at leaſt Three Months before he is to Cover, with good Oats, Peaſe, or Beans, or with coarſe Bread and a little Hay, but a deal of

Wheat-Straw; ſtepping him out twice a Da yto the Water; and after he has drunk, walk him up and down for an Hour; but don't make him ſweat; if otherwiſe he will grow purſie and broken-winded, or run a Riſk of being ſo. As for the Age of the *Stallion*, he ſhould not Cover before he is Six Years old, nor after he is Fifteen, tho' as to the laſt you may regulate your ſelf according to his Strength and Vigour.

CHAP. V.

Of Mares.

Having told you how to chuſe your *Stallions*, it will be neceſſary to give you ſome Directions about the *Mares:* And certainly none in the World are better to Breed on than our *Engliſh*, provided you ſuit them to your particular Deſign. For Inſtance; If you would Breed for the *Manage* or *Pads*, let your *Mares* have fine *Fore-hands*, with their *Heads* well ſet on, but not too long *Necks*; broad *Breaſts*, large and ſparkling *Eyes*, and great *Bodies*, that their *Foals* may have Room enough to lie; with good *Limbs* and *Feet:* Let them be of a gentle and good Diſpoſition, and their Motions naturally nimble and graceful. In a word, remember always, that the more good Qualities your *Mares* have, the better will your *Colts* generally prove.

If you would Breed for the *Race* and *Hunting*, your *Mares* muſt be lighter, with ſhort *Backs* and long *Sides*; their *Legs* muſt be ſomething longer, and their *Breaſts* not ſo broad; and always make choice of ſuch as you are ſure have good Blood in their *Veins*. If you have try'd the *Speed* and *Wind* of any particular *Mare*, and find it good, you may the ſurer expect a good *Colt*, provided ſhe be ſtill in her full Health and Vigour, and not above Seven Years old, or Eight at moſt; for the younger your Breeders are, the better your *Colts* will be.

Neither ought you to begin to Cover your *Mares* before they are Three Years old, though the Goodneſs of the *Mares* and *Foals* they bring forth ought to regulate you as to this Particular.

CHAP. VI.

Of a Soil *to Breed in, and of* Paſtures.

ONE of the firſt Things, (which you ought to conſider) if you deſign to Breed, is the Commodiouſneſs of the Place, and the *Paſtures* where your *Horſes*, *Mares*, or *Colts* are to run. For he that breeds in a Place unfit for it, loſes his Money and Pains, and will never have good *Horſes*.

The *Ground* muſt not be too rank of Graſs, nor too bare, but a firm and ſweet *Soil*, ſituate in a clear and wholſome Air, where there are Hills and running Waters, with Quick-ſets and ſpreading Trees to ſhelter them from the Wind, Rain and Sun. Nor muſt they be continued always in the ſame *Paſtures*, but often remov'd into freſh, obſerving ſtill to put them into the ſhorteſt Feedings in Summer, and the richeſt in Winter, at which time of the Year they muſt have a Hovel, a Hay-Rick, or ſome convenient Place to defend them from the Weather.

CHAP. VII.

Of the Time and Manner of Covering.

YOUR next Care muſt be about the Time and Manner of *Covering*. The beſt Time to have your *Mares* Covered is in *May*; for then your *Colts* will fall the *April* following, at which Time there will be ſweet and freſh Graſs for them; though others are of opinion, that *Mares* ought to be Cover'd in the Beginning of *June*, that ſo they may foal in *May*. *Mares* go with *Foal* Eleven Months, and as many Days as they are Years old. For Example, a *Mare* of Nine Years old will carry her *Foal* Eleven Months and Nine Days; ſo that you may ſo order your *Mares* to be Cover'd, that their *Foals* may be brought forth at ſuch time as there is abundance of Graſs. The manner of Covering is thus: Let your *Stallion*, having been ſo high fed, that he is full of Luſt and Vigour, be brought to the Place where the *Mares* are (his hinder Shoes being taken off;) there let him Cover a *Mare* in Hand twice or thrice to make him ſober, then pull off his Bridle, and turn him looſe to the reſt of the *Mares*, which muſt be in a convenient Cloſe, not without ſtrong Fences and good Food; and thus you muſt leave him till he has Cover'd them all, ſo that they will take *Horſe* no more, by which time his Courage will be pretty well cool'd. More than Ten or Twelve *Mares* is too much for one *Horſe* in the ſame Year. You muſt have ſome little Houſe or Hovel to defend him from the Rain, Sun and Weather, (which are very weakning) and a Manger to feed him in during the Time of Covering; and you would do well to have one to watch him all the while for fear of Danger, and the better to know how oft he Covers each *Mare*. All this being obſerv'd, when you have taken away your *Stallion*, remove your *Mares* into ſome freſh Paſtures.

We muſt not omit here to take notice, that when you Cover your *Mares*, either in Hand or otherwiſe, that the *Stallion* and *Mare* feed alike, *viz.* if the *Stallion* be at Hay and Oats, commonly called *Hard-meat*, the *Mare* ſhould be alſo at Hard-meat, otherwiſe ſhe will not ſo really hold. In like manner, if the *Stallion* be at Graſs, the *Mare* is alſo to be put to it. *Mares* which are very fat hold with great Difficulty, but thoſe which are in a middling Caſe conceive with the greateſt Eaſe: Thoſe that are hot, or in ſeaſon of them, retain a great deal better, the *Horſe* being excited by that Heat; and ſo on his part performs the Action with greater Ardour and Vigour. And when the *Mare* is to be Cover'd in Hand, that ſhe may the more certainly hold, let the *Stallion* and her be ſo placed in the Stable, that they may ſee each other, and ſo let them be kept for ſome time, which will animate them both, and Generation then can hardly fail.

The beſt *Recipe* to bring a *Mare* in Seaſon, and make her to retain, is to give her to eat, for the ſpace of Eight Days, before you bring her to the *Horſe*, about two Quarts of Hempſeed in the Morning, and as much at Night; but if ſhe refuſe to eat it, mix it with a little Bran or Oats, or elſe make her to faſt for a while; and if the *Stallion* eat alſo of it, it will contribute much to Generation. It's a Maxim, that a *Mare* ſhould never be horſed while ſhe is bringing up her *Foal*, becauſe the *Foal* to which ſhe is giving Suck, as well as that in her Belly, will receive Prejudice by it, and the *Mare* herſelf will be alſo ſooner ſpent: But if you will have your *Mare* Cover'd, let it be Seven or Eight Days after ſhe hath foal'd, that ſhe may have time to cleanſe; and if it may be conveniently done, do not give her the *Stallion* till ſhe deſire him, and alſo encreaſe by all means poſſible that Paſſion by ſtrong Feeding, *&c.* For the producing of Males, the *Mare* muſt be brought in Seaſon, and Cover'd very early in the Morning, any time from the Fourth Day of the Moon until it be Full, but never in the Decreaſe; and thus ſhe ſhall not fail to bring forth a Male Colt. *Solleyſell*'s *Compleat Horſeman.*

CHAP. VIII.

Of Colts.

WHEN your *Colts* are fallen, you may let them run with their Dams till about *Michaelmas* (ſooner or later, according as the cold Weather comes in,) then you muſt wean them; though others are for having them weaned about *Martinmas*, or the Middle of *November*, and that Three Days before Full-Moon: But the Author of the *Compleat Horſeman* is of Opinion, that the Reaſon why moſt *Foals* advance ſo ſlowly, and are not capable of Service till they be Six or Seven Years old, is becauſe they have not ſuck'd long enough; whereas if they had ſuck'd the whole Winter over, they would be as good at Four or Five Years old, as they are now at Eight. Let them be kept in a convenient Houſe, with a low Rack and Manger for their Hay and Oats, which muſt be ſweet and good, with a little Wheat-Bran ſometimes mix'd with the Oats, to cauſe them to drink, and keep their Bodies open. But whereas there are ſome who alledge, that Oats make *Foals* become blind, or their Teeth crooked: The ſame Author is of Opinion, that Oats will wear their Teeth, and make them ſooner to change and alſo raze; therefore he judges it the beſt way to break them in a Mill, becauſe that by endeavouring with their Jaws to bruiſe and chaw them, they ſtretch and ſwell their Eye and Nether-Jaw Veins, which ſo attract the Blood and Humours, that they fall down upon the Eyes, and frequently occaſion the Loſs of them: So that it is not the heating Qualities of Oats, but the Difficulty in chawing, that is the cauſe of their Blindneſs. Further, that *Foals* thus fed with Grain do not grow ſo high upon their Legs; but grow broader and better knit, than if they had eaten nothing but Hay and Bran, and will better endure Fatigue. Above all they muſt be kept from Wet and Cold, which are the hurtfulleſt things imaginable to them, nothing being more tender, as the Duke of *Newcaſtle* in his Book proves more at large. For Proof of this, take a *Spaniſh Stallion*, and let him Cover Two *Mares*, which for Age, Beauty and Comlineſs may admit of no Difference betwixt them, and if they be both *Horſe-Colts*, or both *Fillies*, (which is one and the ſame) let one run abroad until it be Three Years and an half old, and let the other be houſed every Winter, kept warm, and orderly tended, as aforeſaid; and that *Colt* that hath been kept abroad ſhall have great fleſhy Shoulders, flabby and gouty Legs, weak Paſterns with ill Hoofs, and ſhall be a dull and heavy Jade in compariſon to the other, which is houſed and orderly kept, as aforeſaid; which will have a fine Fore-hand, be well ſhaped, have good Legs and Hoofs, and be of good Strength and Spirit: By which you may underſtand, that to have the fineſt *Stallion*, and the beautifulleſt *Mare*, is nothing, provided you ſpoil them in [illegible] Breeding.

It is worth obſerving, that ſome *Foals*, under Six Months old, though their Dams yield abundance of Milk, yet decay daily, and have a Cough proceeding from certain Pollicles, or Skins that breed in their Stomachs, which obſtruct their Breathing, and at laſt totally deſtroy them. To remedy which, take the Bag wherein the Animal was foal'd, dry it, and give him as much of it in Milk as you can take up with Three Fingers; but if you cannot get the Bag, dry the Lungs of a young Fox, and uſe it inſtead of the foreſaid Powder.

It is not amiſs to let your *Colts* play an Hour or two in ſome Court-yard, or the like Place, when 'tis fair Weather, provided you put them up again carefully, and ſee that they take no Hurt.

When the Winter is ſpent, let them be turned into ſome dry Ground, where the Graſs is ſhort and ſweet, and where there is good Water, that they may drink at pleaſure; for it is not neceſſary that a *Colt* immediately fill his Belly like a Horſe that labours hard. The next Winter you may take them into the Houſe, and uſe 'em juſt as your other *Horſes*. But let not your *Horſe-Colts* and *Fillies* be kept together after the firſt Year. This Method you may obſerve every Summer and Winter till you break them; which may be done after Three Years old, and will be ſo eaſie a thing, if you obſerve the aforeſaid Method of Houſing them, and ordering them the ſecond Year, as you do other *Horſes*, that they will be ſo tame and gentle, that you need not fear their Plunging, Leaping, Kicking, or the like Coltiſh Tricks, for they will take the Saddle quietly: For all theſe ridiculous Ways of beating and cowing them to tame them, is in effect ſpoiling them, whatever they call it, in plowed Fields, deep Ways, or the like; inſtead of which let their Rider ſtrive to win them by gentle Uſage, never correcting them but when it is neceſſary, and then with Judgment and Moderation.

You need not a Cavezone of Cord, which is a Head-ſtrain, nor a Pad of Straw, but only an ordinary Saddle, and on his Noſe an ordinary Cavezone, as you ride other *Horſes* with; but it muſt be well lined with double Leather, as the reſt are; and if you think fit, you may put in his Mouth a Watering-Bit without Reins, only the Head-ſtall, and this but for a few Days, and then to put ſuch a Bit as he ſhould be always ride with: And be ſure uſe not Spurs for ſome time after Backing.

Obſerve, that Yearlings muſt be kept abroad together; ſo thoſe of Two Years old together; the like for thoſe of Three Yearlings, which Ordering is moſt agreeable to them.

CHAP.

CHAP. IX.

Of the ſeveral Uſes of Horſe to Men of Quality and Gentlemen.

THE ſeveral Uſes of *Horſes* to Men of Quality and Gentlemen, may be reduced to theſe Three Heads, *viz.* For the *Saddle*, *Burthen* and *Draught*. The Uſes of the Saddle are for the War, Hunting, the Race or Pad; of Burthen, for Sumpters, Packs, and ſuch kind of Baggage; and of Draught, for the Coach, Carriages, Waggons, Carts, Plough, and the like.

A Horſeman ſhould conſider theſe things, that every *Horſe* may be put to the Uſe he is fitteſt for, concerning which I refer you to the following Chapters, which treat of Riding the *Great Horſe*, of *Hunting*, of the *Race*, of the *Pad*, of the *Coach*, &c.

CHAP. X.

Of Riding the Great Horſe.

THERE is certainly no Exerciſe more noble and manly than this of the *Manege*; it makes a Man firm and eaſie on Horſeback, and vigorous and adroit in Action; it encreaſeth Health and Strength: for none under the ill Conſequences of a Debauch, be it of Wine or Women, can perform this Exerciſe as he ought, being as unfit for it in ſuch a Caſe, as to go to Bed to a fair Lady. It alſo gives a graceful and martial Air, which one may perceive in ſome fine Horſemen, (even when they are on Foot;) and therefore when the *French* would commend any Perſon that has a good Mien, they ſay, *Il a l'Air fort Cavalier.*

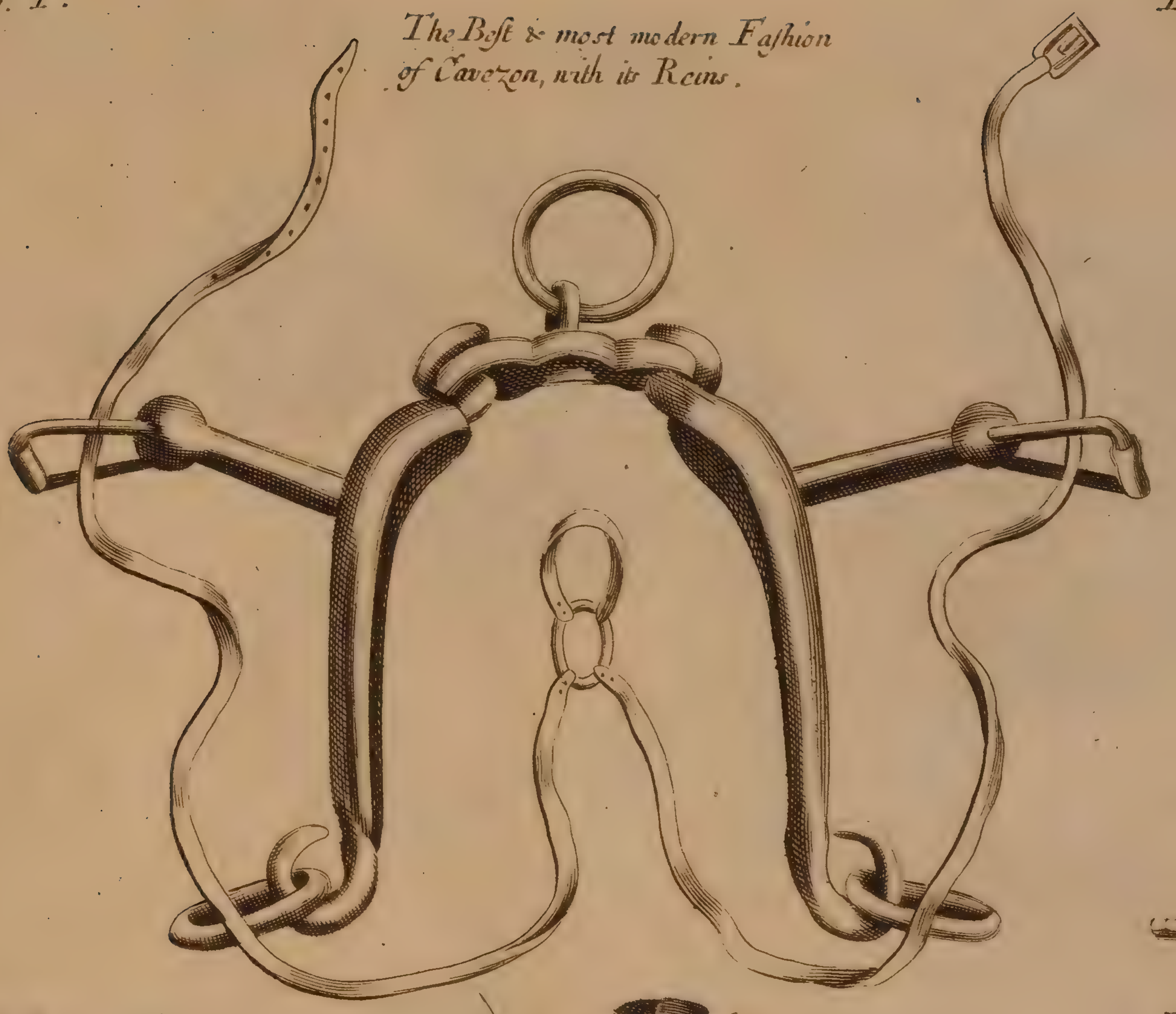
But before we come to the Parts of the *Manege*, we'll, out of *Solleyſell*, inform our curious Reader, what Stature and Age a *Horſe* ſhould be of, that is deſigned for it. The Middle-ſized ones are the beſt, as being commonly the ſtrongeſt, endued with more Spirit and Agility, and not one in a Hundred but proves good; when of large ones ſcarce one in a thouſand. Let him therefore be a ſhort truſſed one, well coupled, with good Feet and Legs, lively, full of Spirit and Action. And though great Maſters ſay, that if his Head is large, Neck thick and Shoulders fleſhy, he will be hard on the Hand: Yet the Duke of *Newcaſtle* had obſerved the contrary, and known more thick Heads, Necks and Shoulders to be lighter on the Hand, than he had known of fine ſhaped and ſlender Fore-hands; and that 'tis neither the one nor the other that cauſes it, but only the Strength of his Chine: And ſuch an one will be light on the Hand, provided there be no Imperfections in his Legs or Feet, eſpecially before; for then he will lean on the Hand, and eaſe the Grief of his Legs, and the Farrier muſt cure him, and not the Horſeman.

Then for the Age of a *Horſe* to be work'd for the *Menage*, you muſt not begin with him too young, not only becauſe, I may ſay, he is not yet ripe in his Underſtanding, but alſo that a *Horſe* of three Years old being but a Griſle, frequently ſtops, and goes back, and will be ſpoil'd by ſtraining his Back, and ſtretching his Ham: Nay, you are not to ride your *Horſe* above once a Day, though he be Six, Seven, or Eight Years old; and if you ride him twice the ſame Day, he will ſcarce recover it in two or three: For if he does oppoſe his Rider, which all *Horſes* do at firſt, he muſt receive ſound Correction, and be rid ſo long till he be brought to ſome meaſure of Compliance and Obedience; and by that time you will have rid him ſo violently, and ſo long, that he will hardly be fit for Riding next Morning, much leſs to be rid any more that Day; neither can you ever give him his Meat, Water, or Reſt in order; for want of which you will make him ſick, and ſubject to divers Diſtempers. On the other hand, in moderate Riding of him, when you find him compliant, then take but a little of him that Morning, that he may be encouraged to do the ſame; and he will then not only be found lively and vigorous, but take Delight in the Menage and his Rider, and learn more in a Month, riding him but once a Day, than he ſhall do in Three, riding him twice.

In like manner it will be expedient, that the Rider ſhould firſt exactly know the natural Paces or Motions of a *Horſe*'s Legs, *viz.* the Walk, Trot and Gallop; to which the Amble, as being natural to ſome *Horſes*, may be added. In the Walk, a *Horſe* lifts Two Legs of a Side one after another, beginning with the Hinder-Leg, as if he leads with the Legs on the Right Side; then the far Hind-foot is the firſt he lifts, and whilſt he is ſetting it down, (which in a Step is always ſhort of the Tread of his Fore-feet upon the ſame Side) he lifts up his far Fore-foot, and ſets it down before his near Fore-foot. Again, juſt as he is ſetting down his far Fore-foot, he lifts his near Hind-foot, and ſets it down again juſt ſhort of his near Fore-foot. When a *Horſe* trots, he has two Legs in the Air, and two upon the Ground at the ſame time, croſs-wiſe; but if your *Horſe* be walking, and you would have him to trot, ſlack your Bridle-hand, and preſſing him on with both your Calves at one and the ſame time, you will force him to advance the Hind-leg of the Side wherewith he did not lead ſooner than otherwiſe he would, and ſo move at the very ſame time with the Fore-leg of that Side wherewith he began to lead; which is the true Action of the Trot, that is, the Hind-leg of one Side and the Fore-leg of the other at one and the ſame time. A *Horſe* may lead with either of his Fore-legs, as he pleaſes, when he gallops ſtrait forwards; though moſt commonly they do with the Right: But, be it one or the other, the Hind-leg of the ſame Side muſt follow, otherwiſe their Legs are ſaid to be diſunited; and in this caſe to bring them to Rights again, you muſt ſtay your *Horſe* a little upon the Hand, and help him with the Spur on the contrary Side to that wherein he is diſunited. More particularly, if you find him to be diſunited on the Right, help him with the Left Spur; and if on the Left, unite him on the Right, by ſtaying him as before, and helping him at the ſame time with the Calves of your Legs. When a *Horſe* gallops in a Circle, he is confined always to lead with his Fore-leg within the Turn, otherwiſe he is ſaid to gallop falſe; but in both Caſes the Hind-leg of the ſame Side muſt always follow. Laſtly, As for the Amble, it differs only from a Walk, in that in the latter the *Horſe* lifts two Legs on a Side one after another, whereas the Ambler raiſes the two Legs of a Side at the very ſame time: For if your *Horſe* be walking, and you

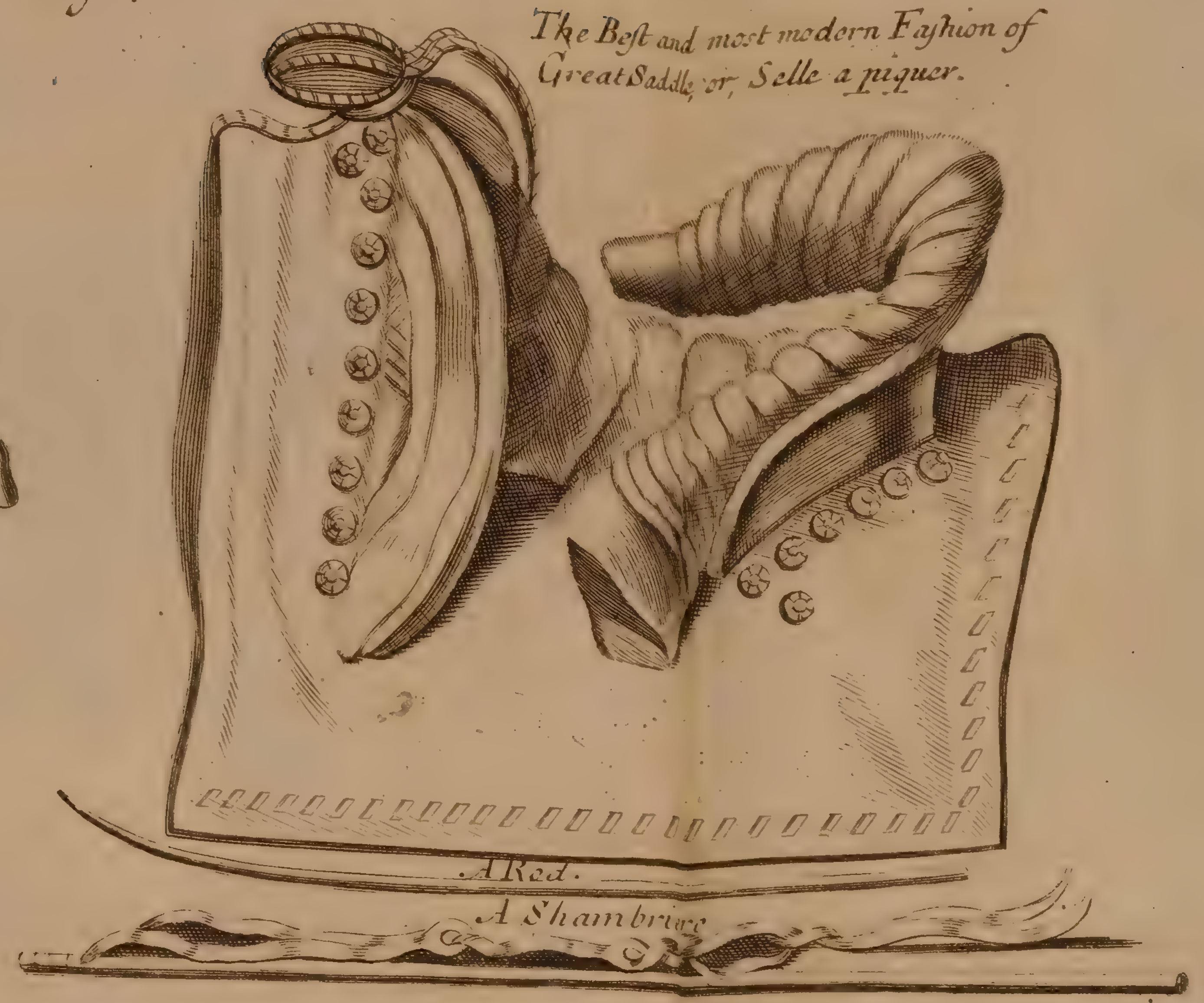
Plate 4 Chap: xi, of Sup:

Fig: 1.



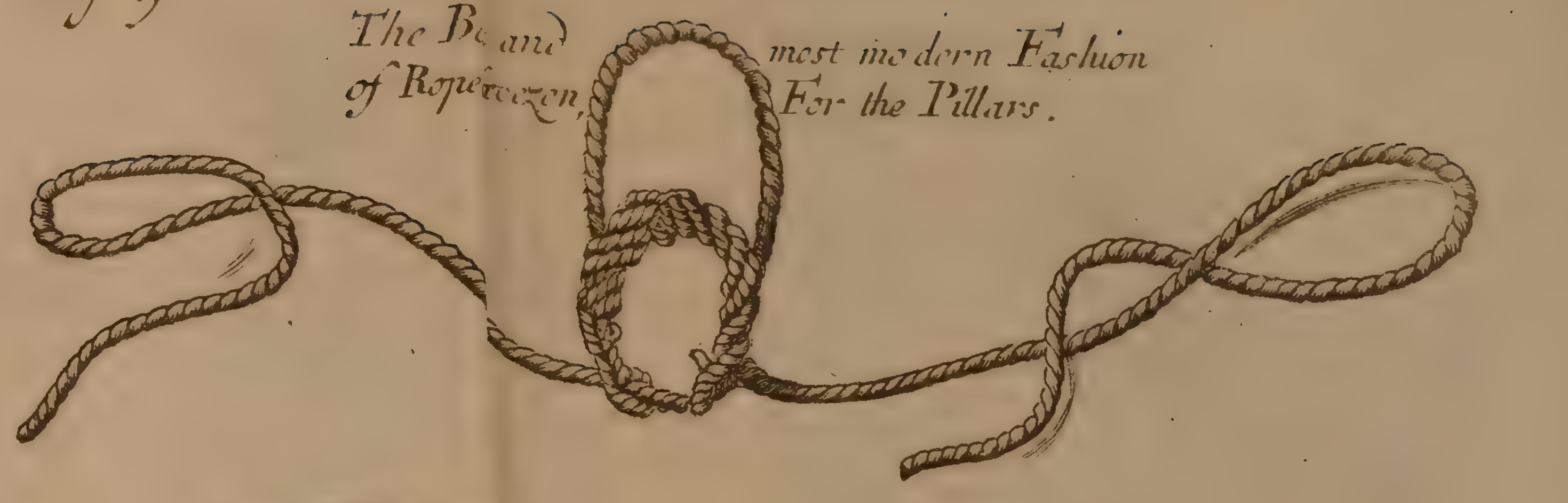
The Beſt & most modern Faſhion of Cavezon, with its Reins.

Fig: 2.

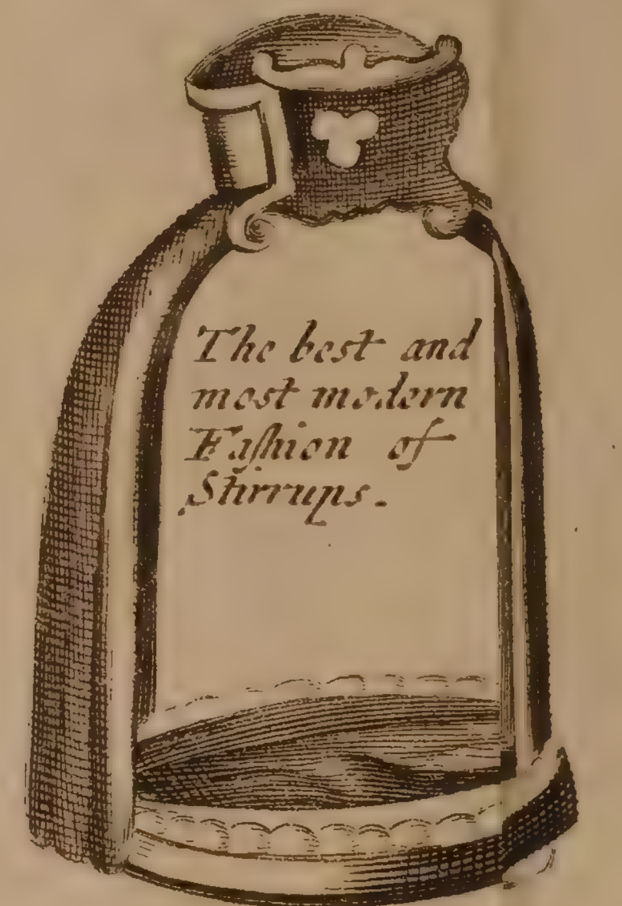


The Beſt and most modern Faſhion of Great Saddle, or, Selle a piquer.

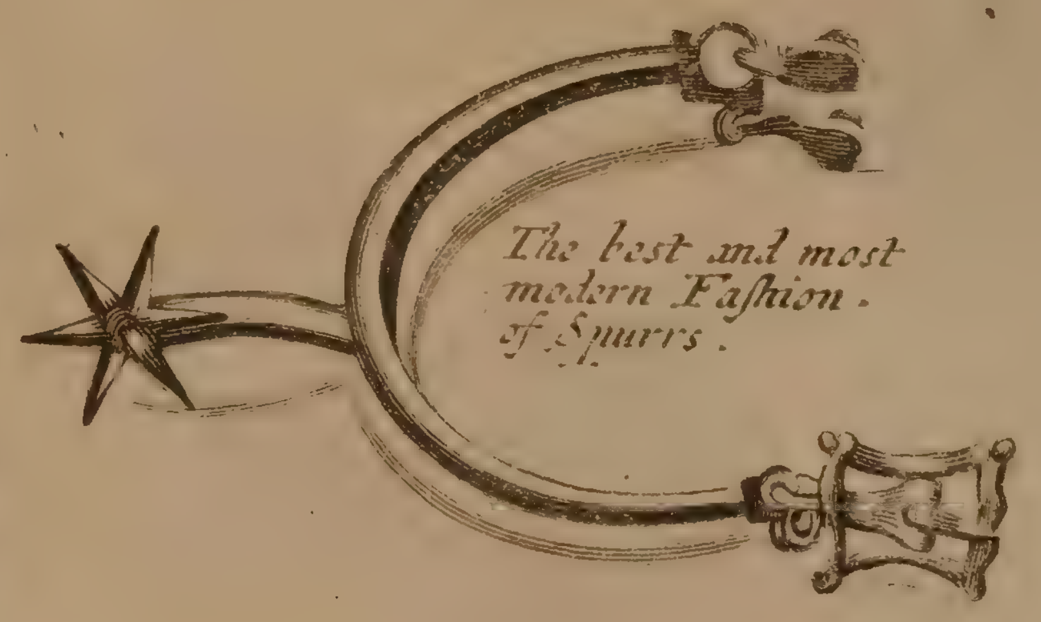
Fig: 3.



The Be and most modern Faſhion of Ropevezon, For the Pillars.

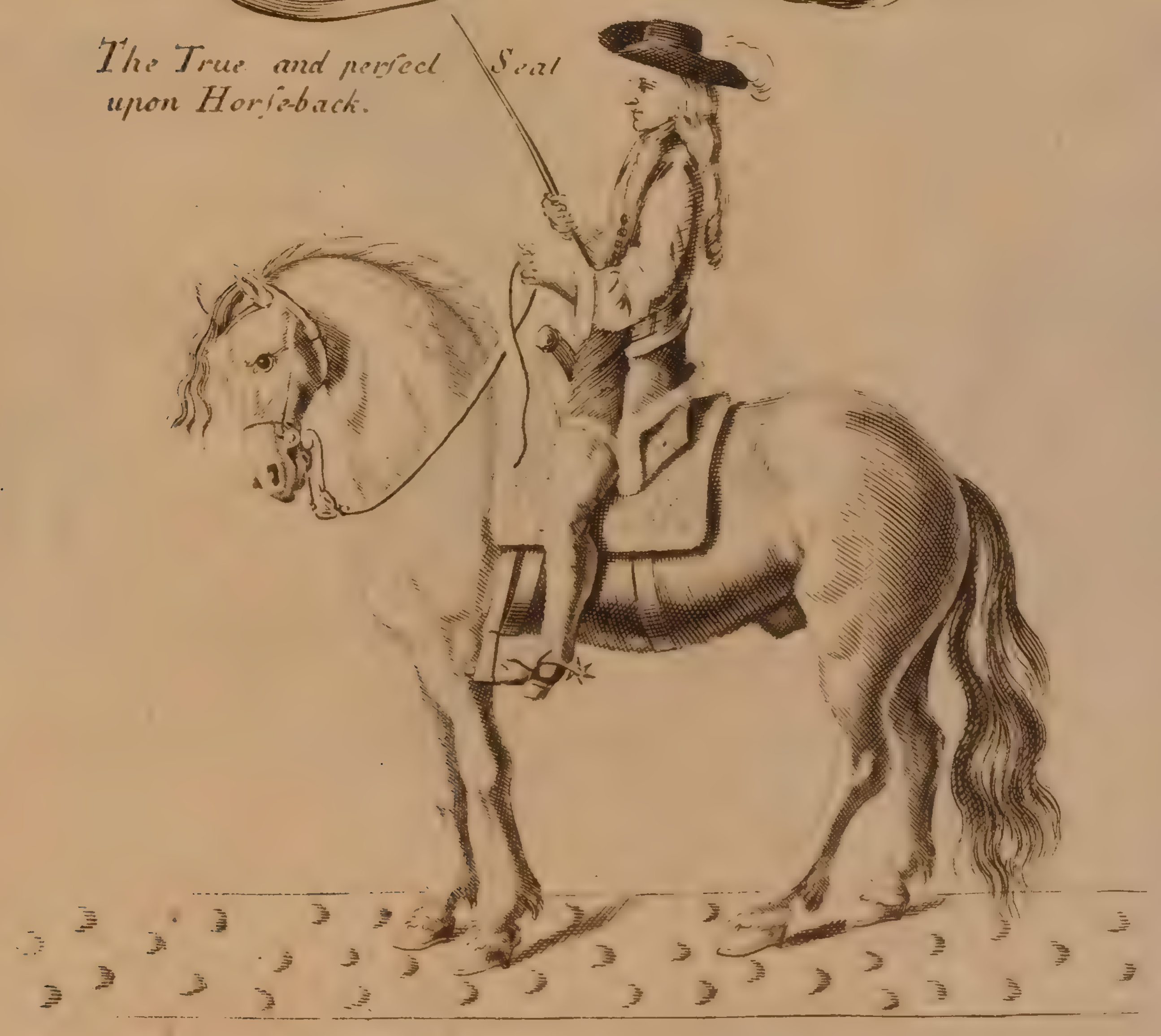


The best and most modern Faſhion of Stirrups.



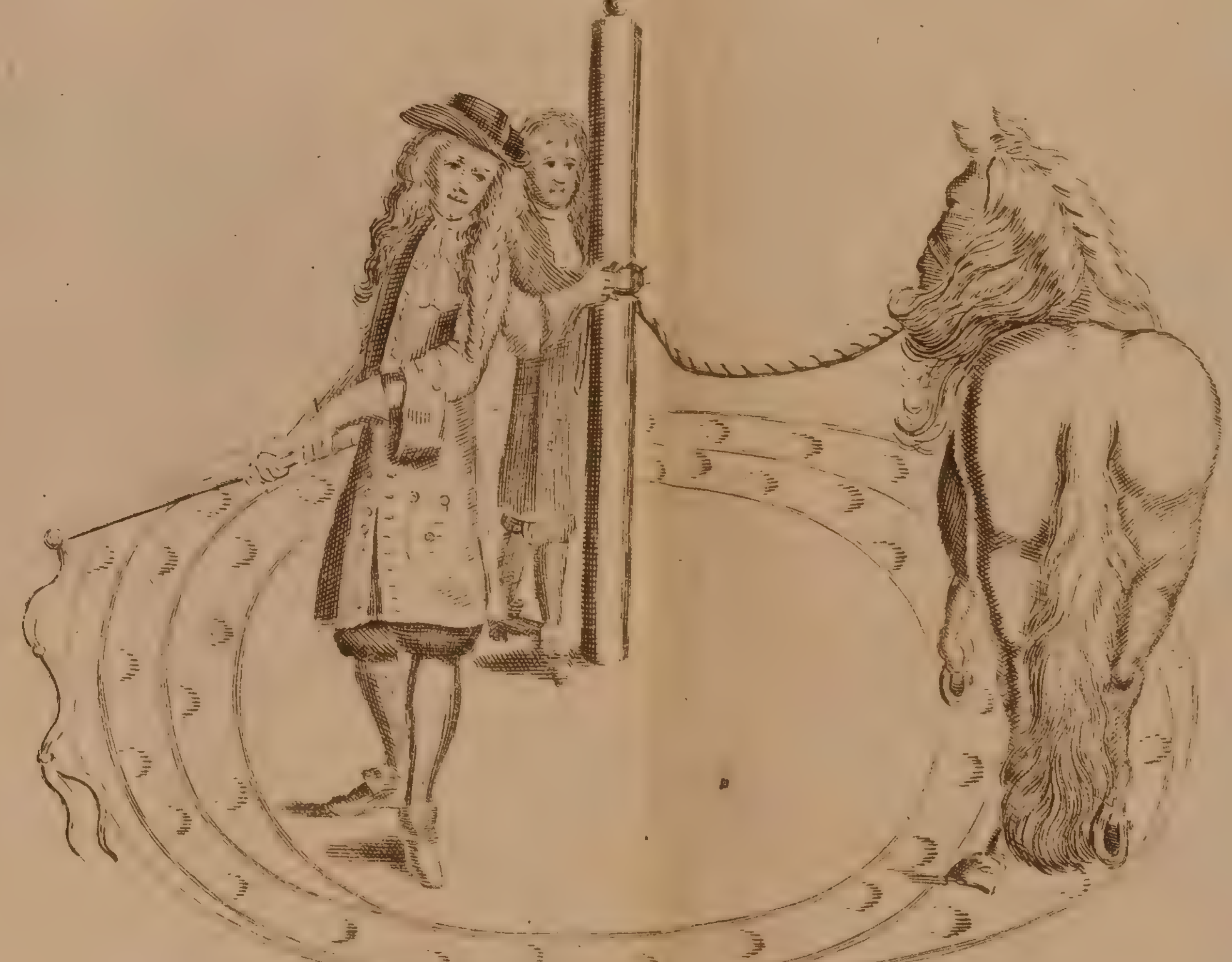
The best and most modern Faſhion. of Spurrs.

Fig: 4.



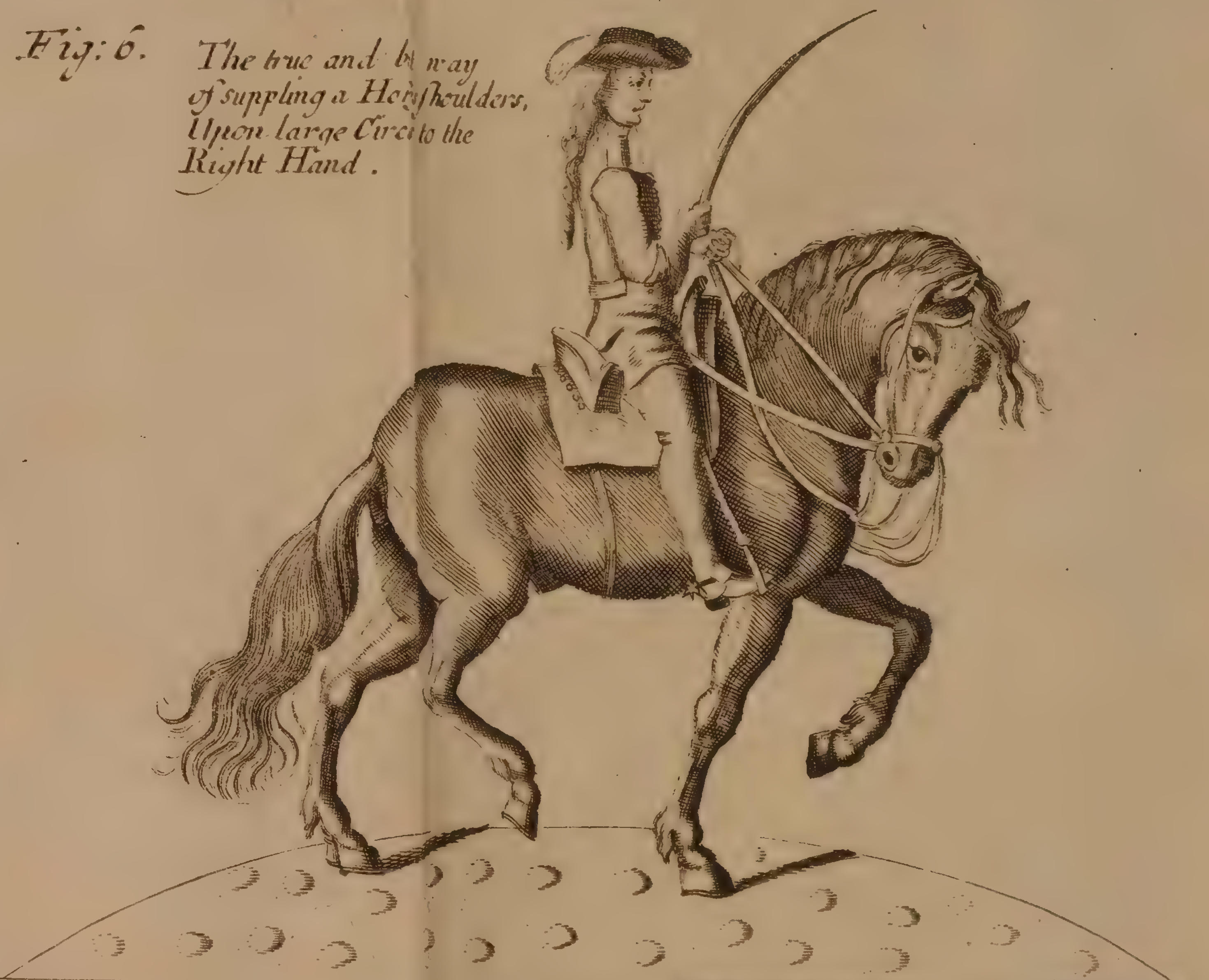
The True and perfect Seat upon Horſe-back.

Fig: 5.



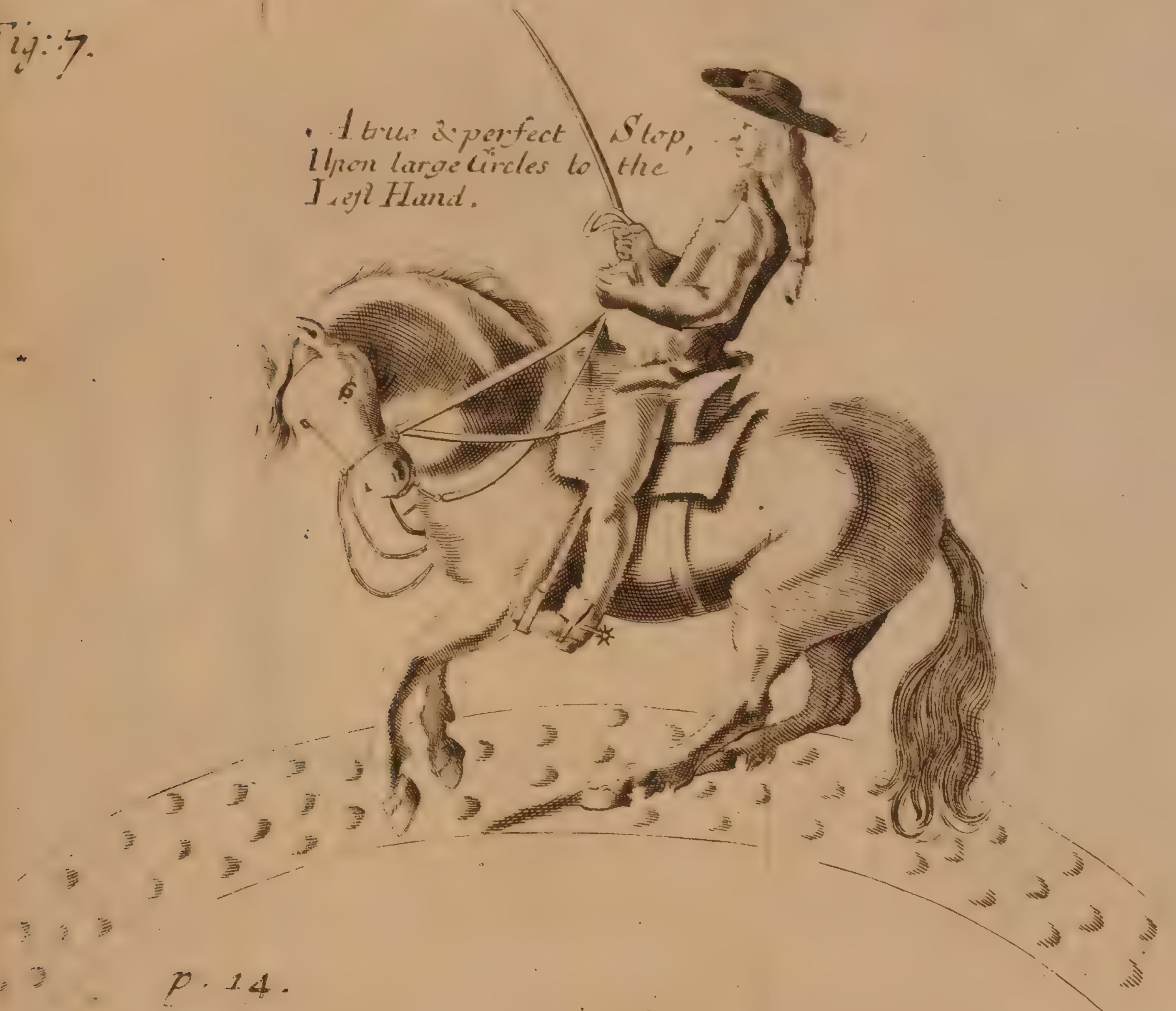
The true and beſt way of Ordering An Unruly Colt, before Backing.

Fig: 6.



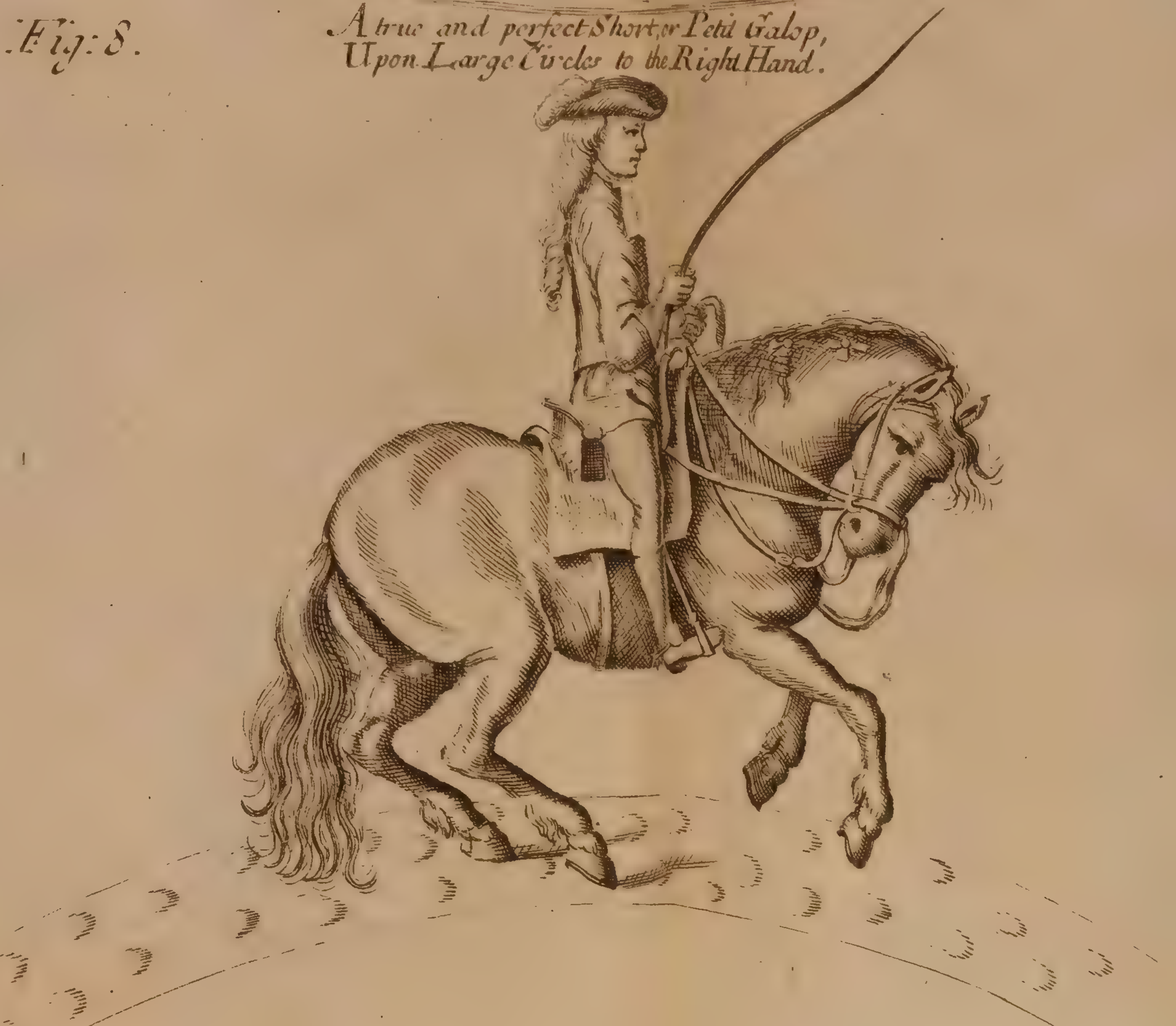
The true and b way of ſuppling a Horſhoulders, Upon large Circl to the Right Hand.

Fig: 7.



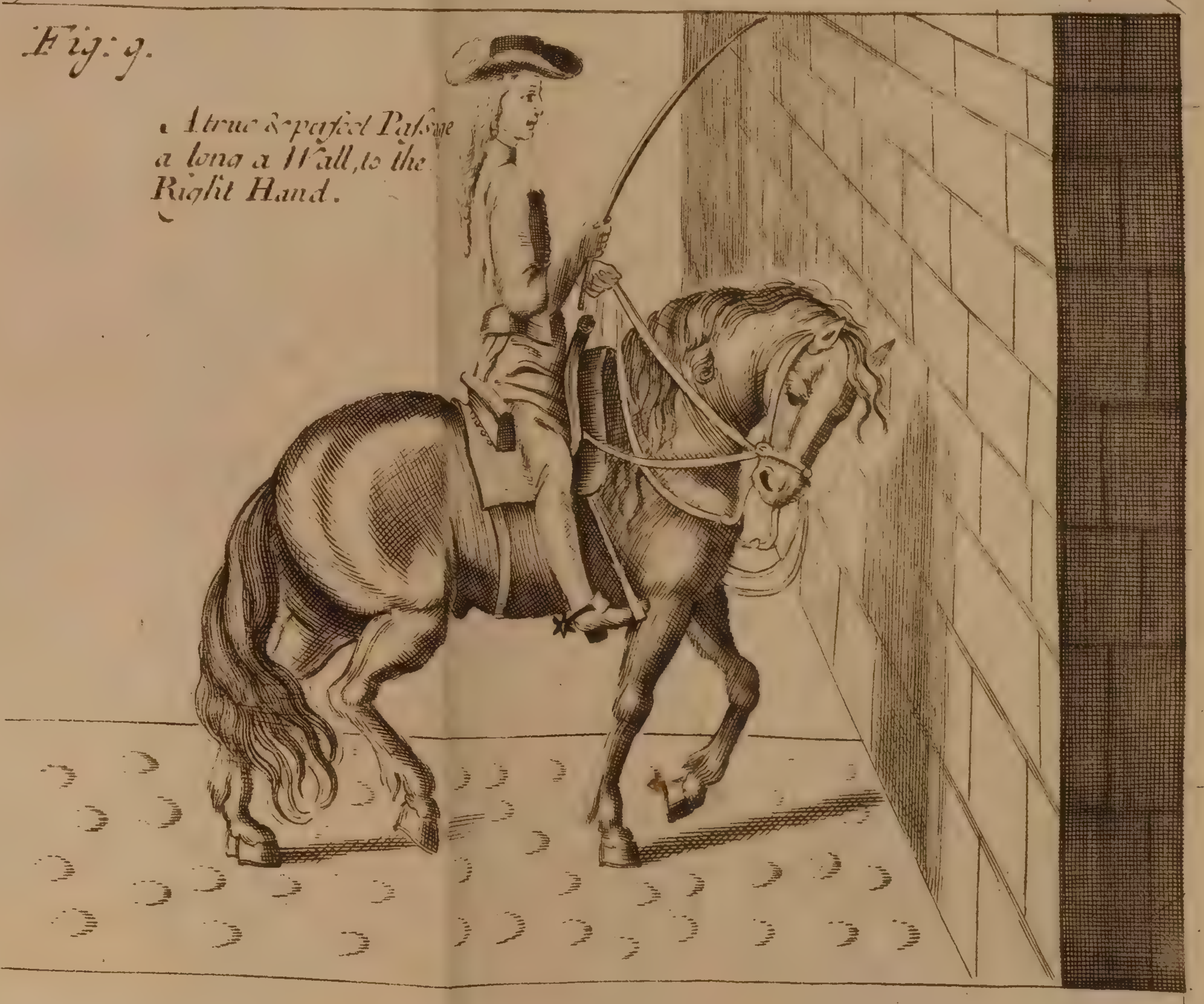
A true & perfect Stop, Upon large Circles to the Left Hand.

Fig: 8.



A true and perfect Short, or Petit Galop, Upon Large Circles to the Right Hand.

Fig: 9.



A true & perfect Paſsage a long a Wall, to the Right Hand.

p. 14.

Plate 5, Chap: xxvi of Sp:

Fig: 1.

A true and perfect Paſsage upon narrow Circles to the Left Hand.

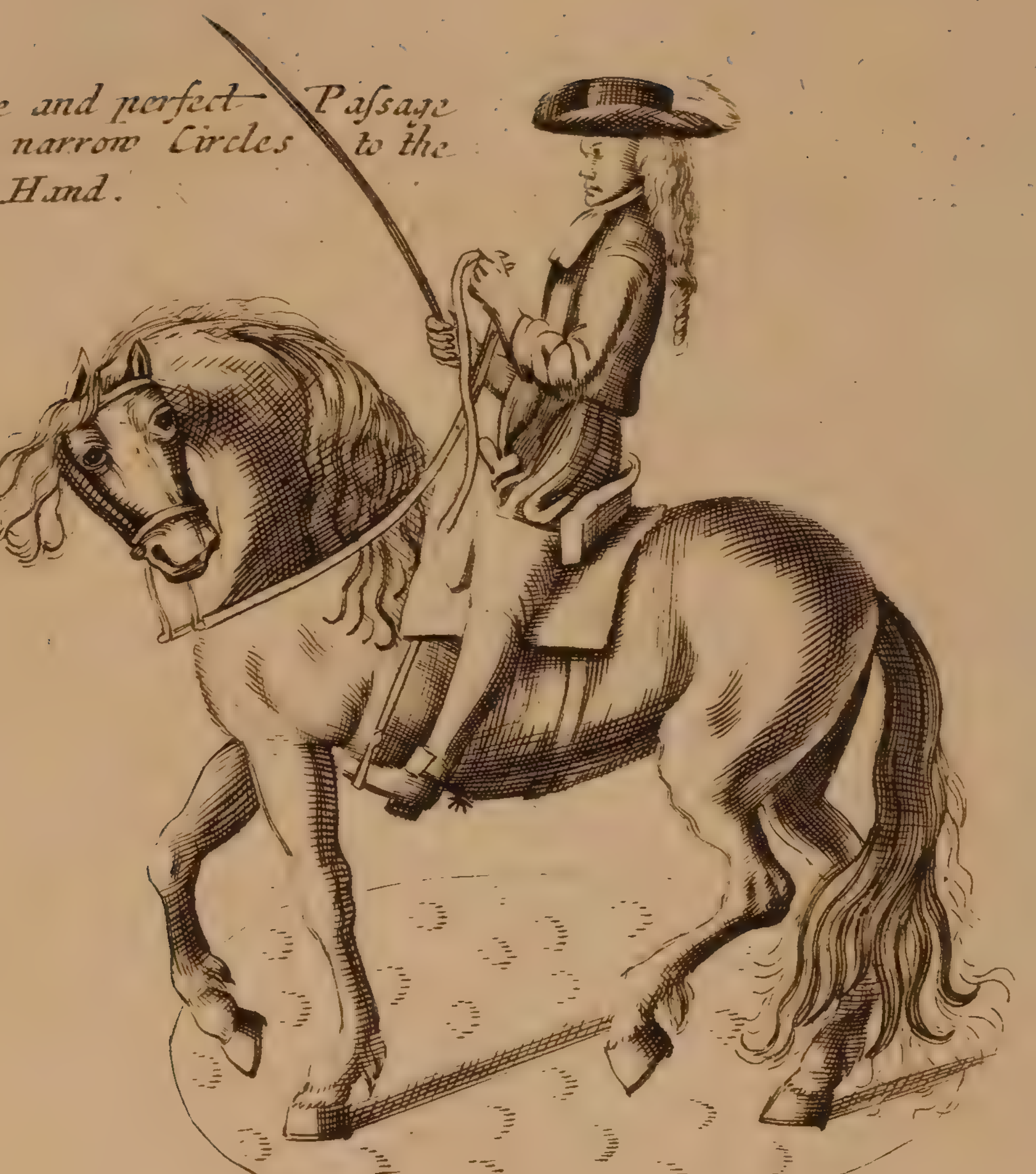


Fig: 2.

A true and perfect Terra a Terra upon large Circles or a Square to the left Hand.

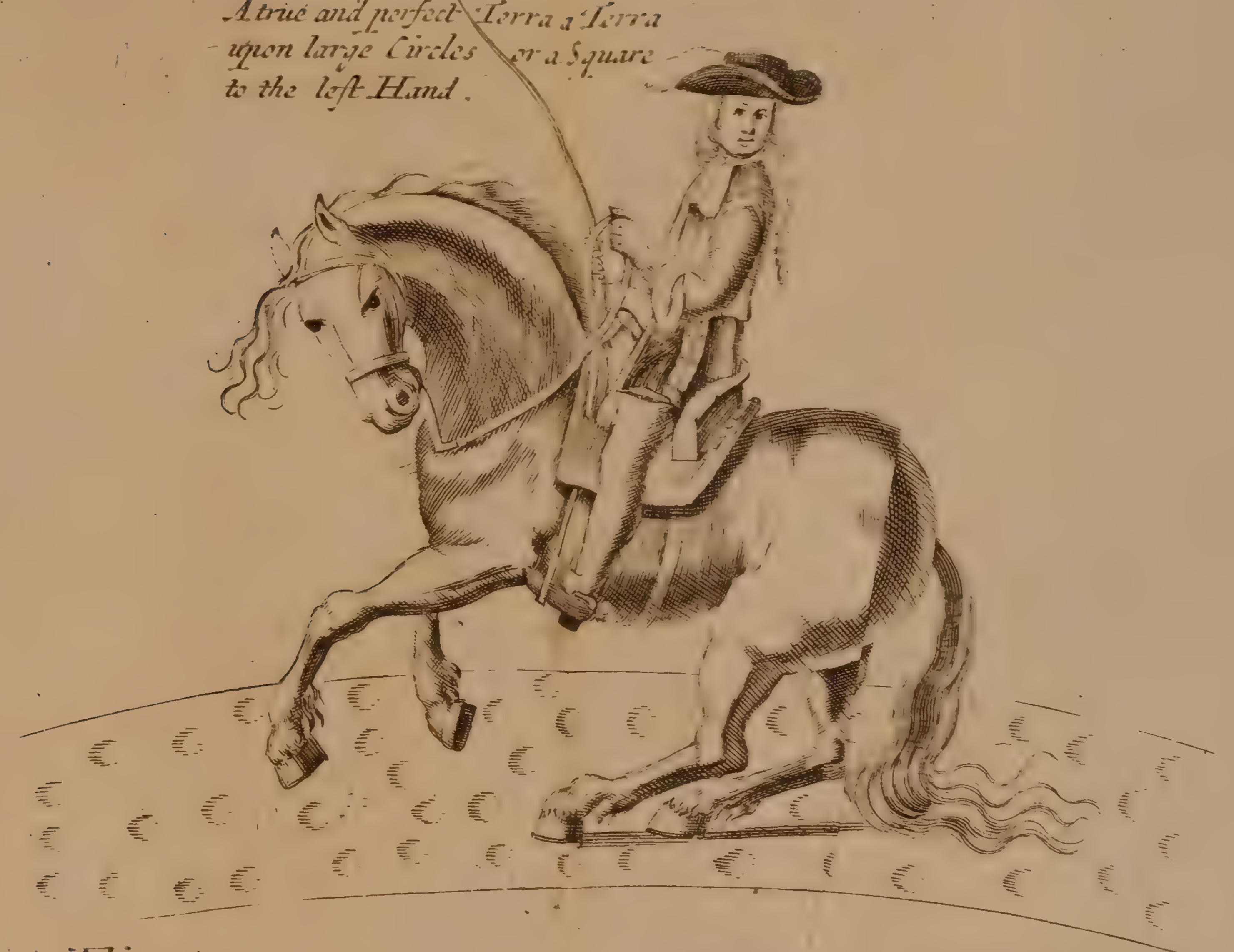


Fig: 3.

A true and perfect Piroete to the right Hand

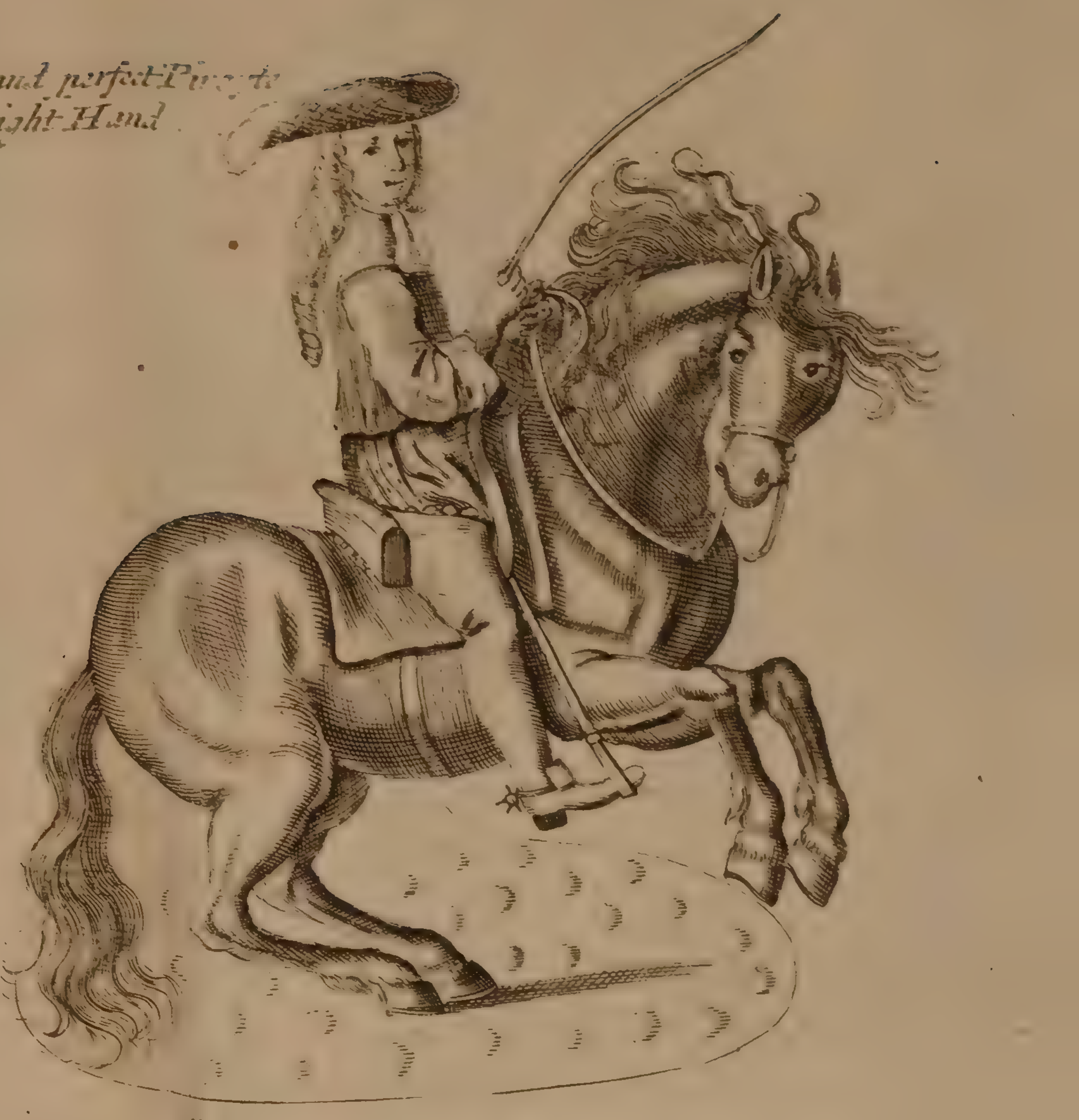


Fig: 4.

The true and exact way of raiſing A Horſe before upon Peſates or Corvets, between the Pillars.

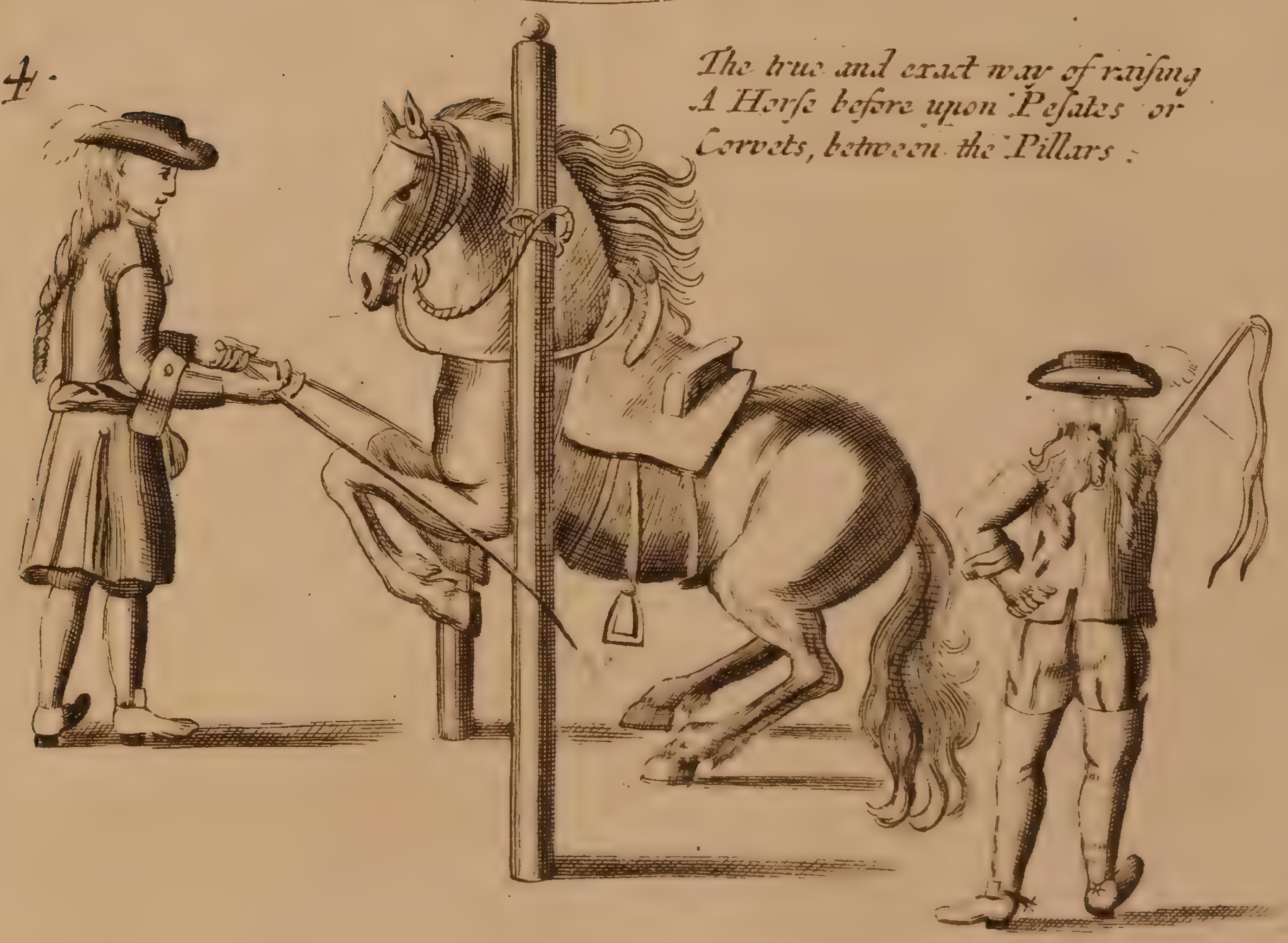


Fig: 5.

The true and exact way, of raiſing a Horſe before upon Peſates or Corvets, without the Help of the Pillars.

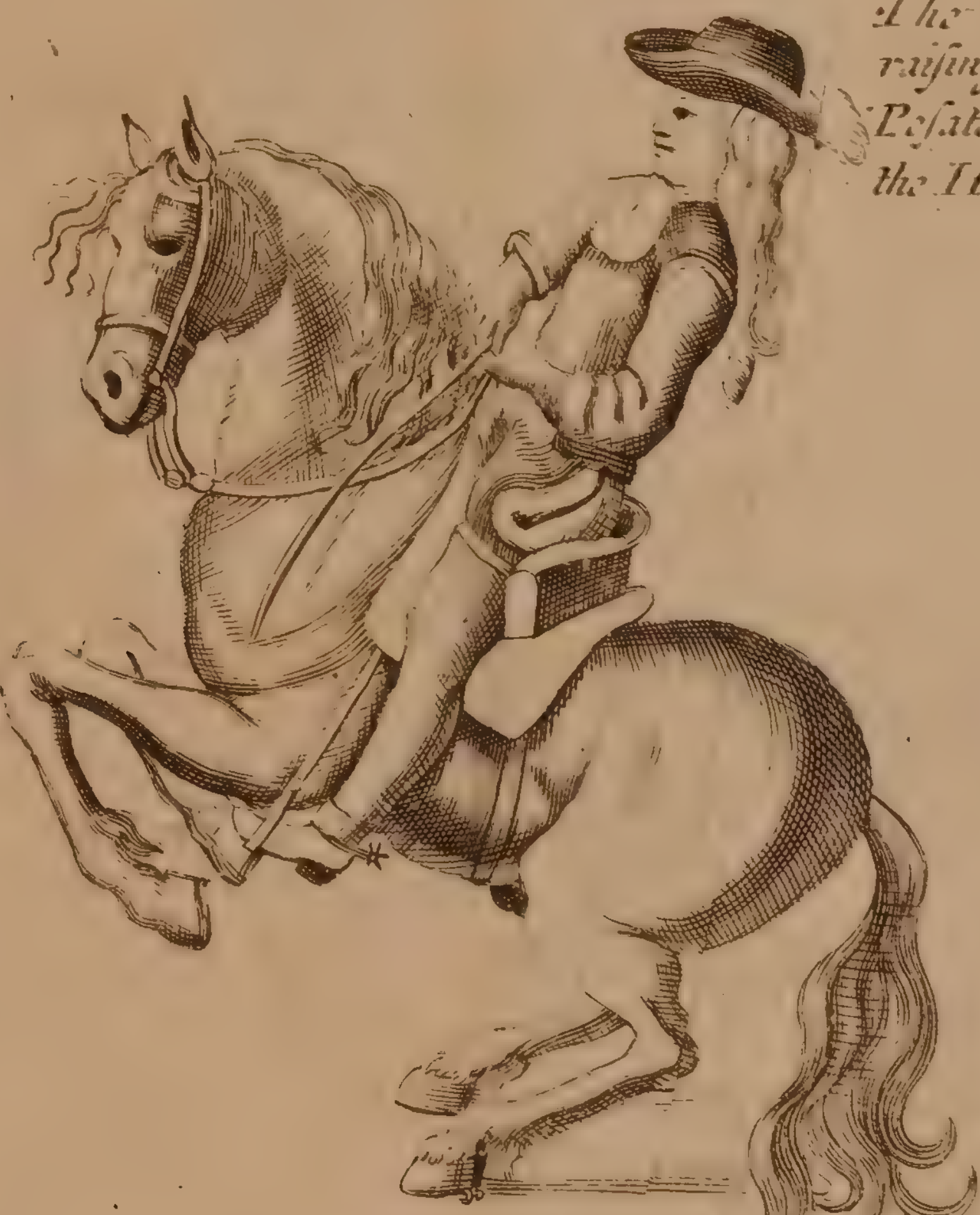


Fig: 6.

The true and exact way, of teaching A Horſe all kind of high Ayres, by the help of one Single pillar only.

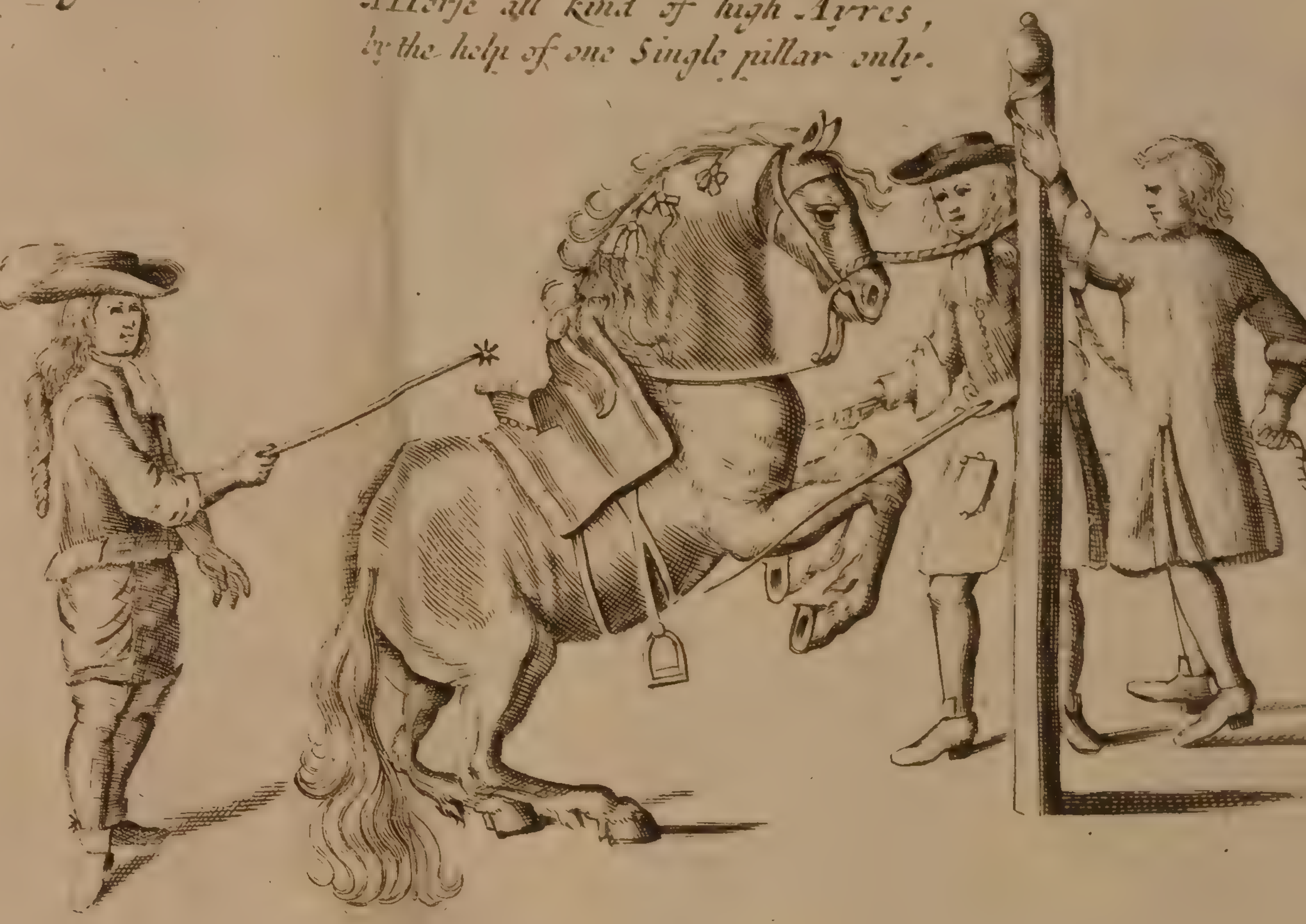


Fig: 7.

The true and exact way, of teaching a Horſe to go in Capriols.

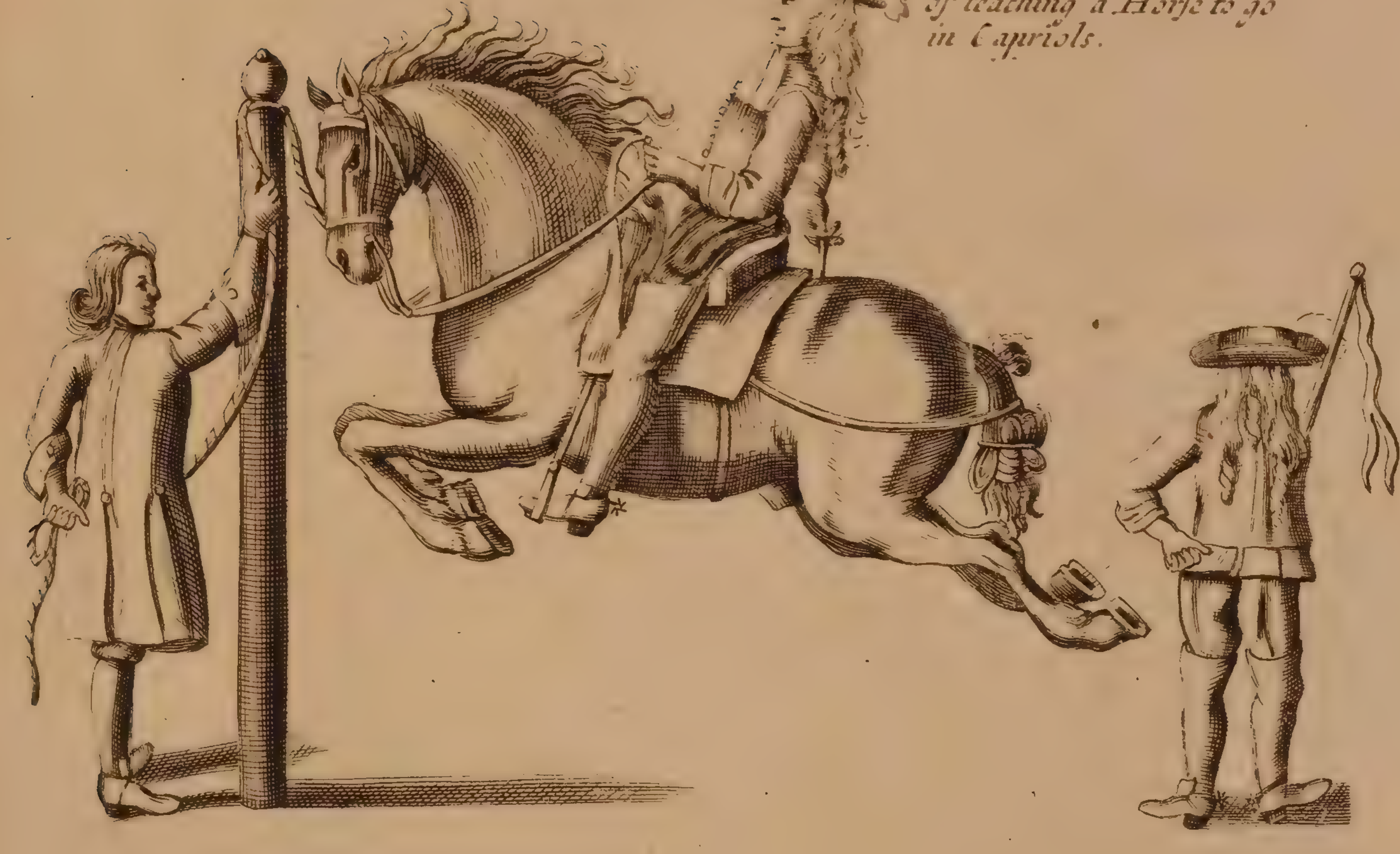


Fig: 8.

The true and exact way, of teaching A Horſe to go in Croupads.

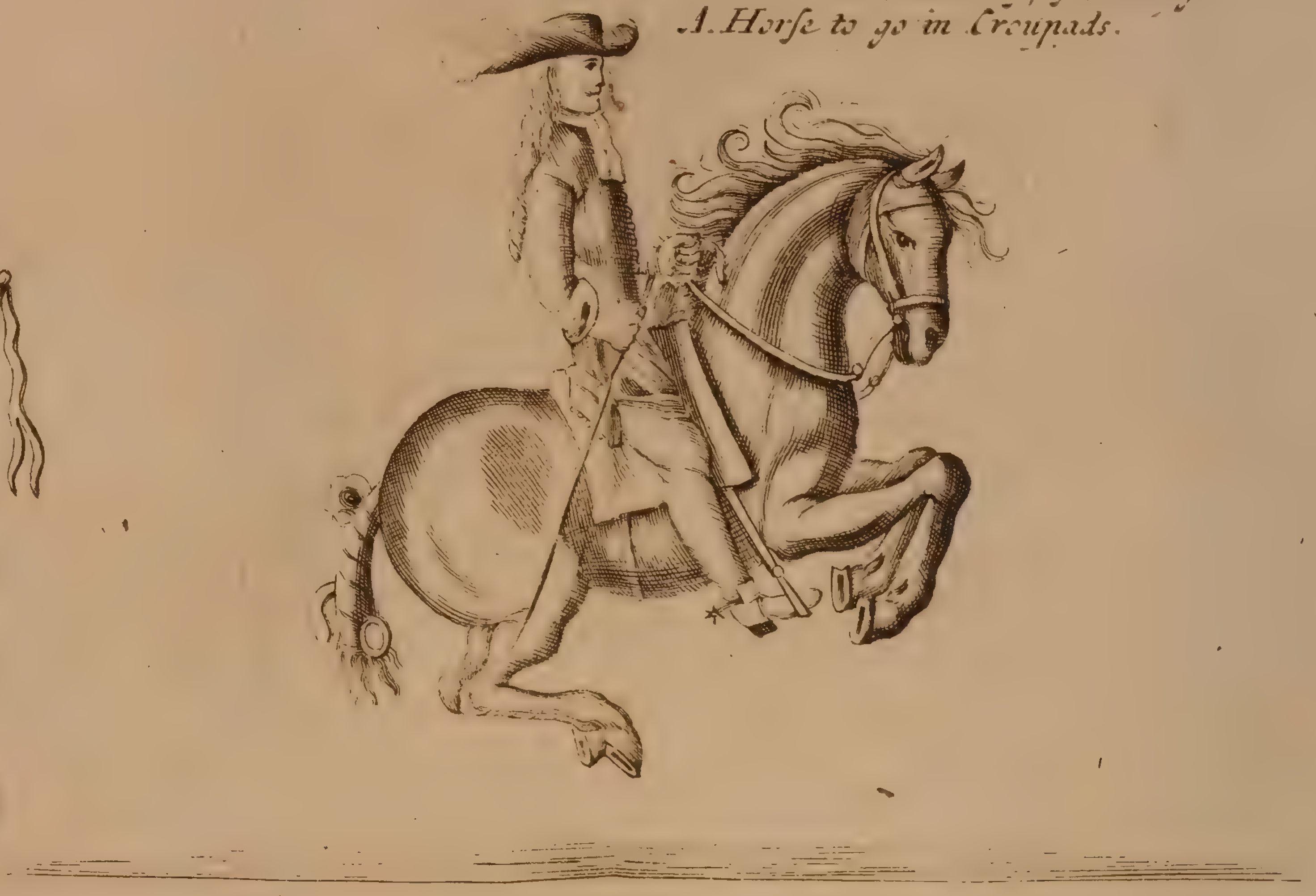
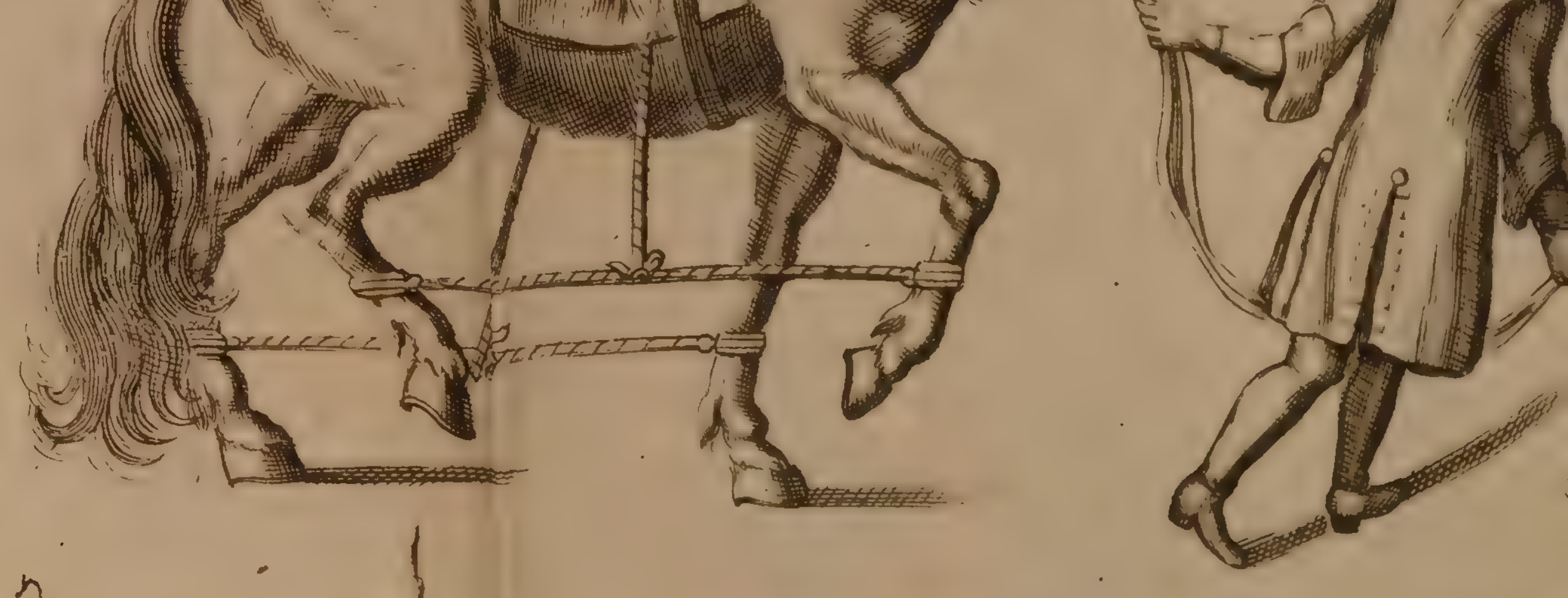
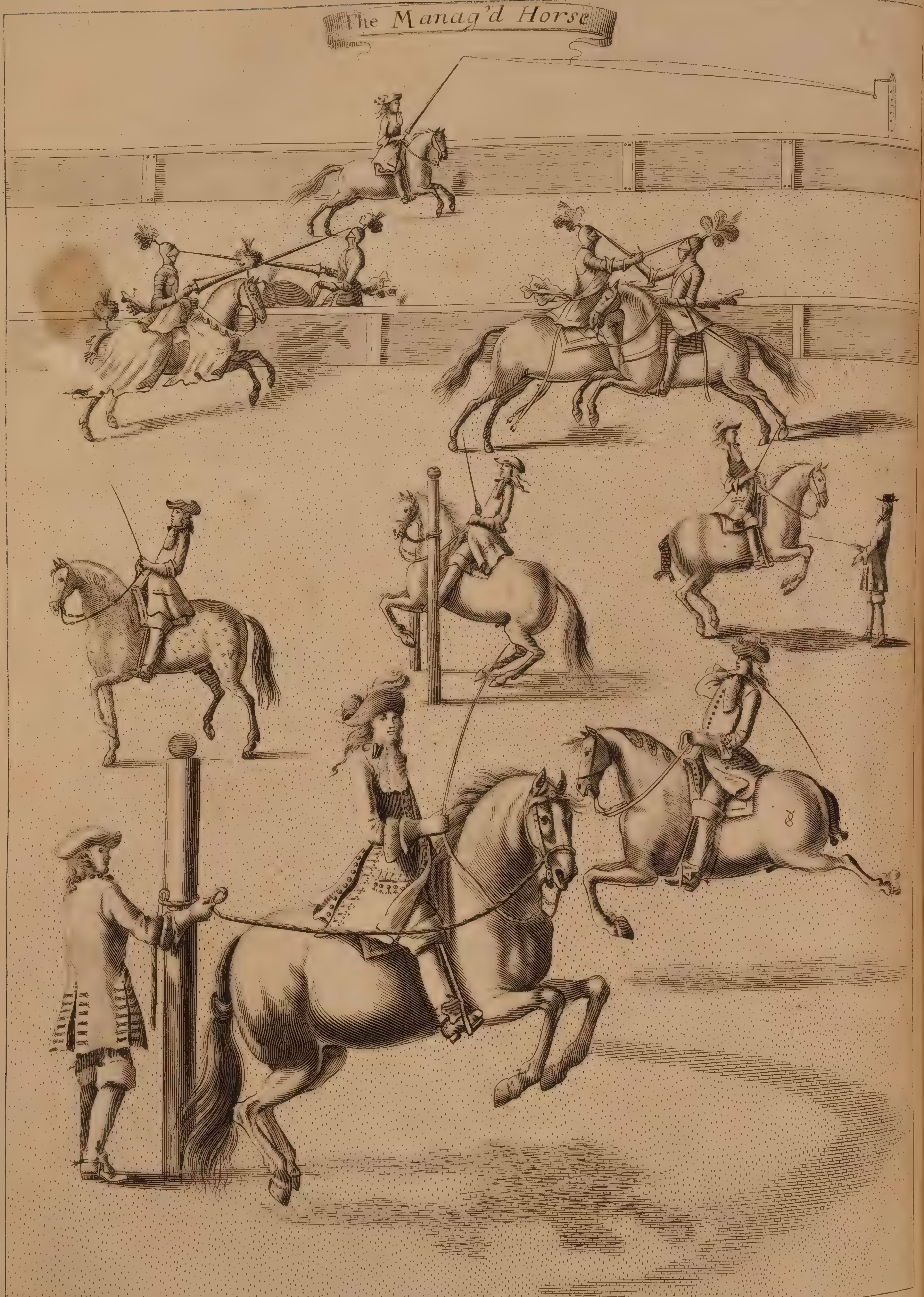


Fig: 9.

The true and exact way, of teaching A Horſe to Amble.


A Back-band.
A Side Rope.
A Hoſe.



The Manag'd Horse

To the Worshipfull John Cutts of Arksdon
in Essex & of Childerly in Cambridgshire Esq.

This Plate is humbly Dedicated by Richard Blome.

Wyke delin: Soly sculp

you would have him amble, let him be ſtay'd well on the Hand, wrought forwards with your Calves one after another, and ſo force him to ſet down the Fore-feet of that Side wherewith he leads, ſooner than otherwiſe he would, which makes it exactly anſwer the Hind-leg's Motion on that Side. In ſhort, if with the far Side the *Horſe* leads, the Hind and Fore-leg on that Side are removed at the ſame time, whilſt the other on the near Side ſtand ſtill; ſo that there are Two of a Side in the Air, and the other at the ſame time on the Ground.

To the Natural we here add the Artificial Motions of a *Horſe*, which are ſeveral: 1. *Terra a Terra*, which is a Series of low Steps, made forwards, bearing ſideways, and working upon two Treads. He lifts both his Fore-legs at once, and when theſe are upon the point of deſcending to the Ground, the Hind-legs accompany them with a ſhort and quick Cadence, always bearing and ſtaying upon his Haunches; ſo that the Motions of the Hind-Quarters are ſhort and quick, and the *Horſe* being always well preſſed and coupled, his Fore-legs he lifts pretty high, but keeps his Hind-legs always low and near the Ground. 2. A *Demi-Air*, or *Demi-Volt*, an Air wherein the Fore-parts of a *Horſe* are raiſed more than in *Terra a Terra*: The Motion alſo of a *Horſe*'s Legs is quicker in *Terra a Terra*, than in the *Demi-Volt*. 3. *Curvets*, which are Leaps of an indifferent Height, made by firſt raiſing his two Fore-legs in the Air, and making the Two Hind-legs follow with an equal Cadence; ſo as the Haunches go down together, after the Fore-feet have touched the Earth, in continual and regular Reprizes. 4. *Caprioles*, otherwiſe call'd Leaps of *Firma a Firma*, are Leaps that a *Horſe* makes in one and the ſame Place, without advancing forwards, and that in ſuch a manner, when he is in the Air, and at the Height of his Leap, he yerks, or ſtrikes out with his Hinder-legs even and near. It's the moſt difficult of all the high Menage, or raiſed Airs. It differs from a *Croupade*, becauſe that in this laſt the *Horſe* does not ſhew his Shoes; and from a *Balotade*, becauſe he does not yerk out. 5. *Croupades* are higher Leaps than thoſe of *Curvets*, keeping the Fore and Hind-Quarters of the *Horſe* in an equal height; ſo that he truſſes his Hind-legs under his Belly, without jerking, or ſhewing his Shoes, as aforeſaid. 6. *Balotades* are Leaps between two Pillars, or on a ſtrait Line, made with Juſtneſs of Time, with the Airs of the Hand and the Calves of the Legs, and that in ſuch a manner, that when his Fore-feet are in the Air, he ſhews nothing but the Shoes of his Hind-feet, without yerking out. 7. *Step and Leap* is the high Menage of a *Horſe*, that between two Leaps, or *Caprioles*, marks a *Curvet*, that upon this Occaſion is called a *Step*, in ſuch a manner, that at every Leap, or *Capriole*, he raiſes his Fore-legs, and his Haunches follow, yerking or ſtriking out his Hind-legs at the End of every Leap. 8. *Peſades*, or *Poſades*, are the Motions of a *Horſe*, that in lifting or raiſing his Fore-Quarters, keeps his Hind-legs on the Ground without ſtirring; ſo that he marks no Time with his Haunches till his Fore-legs reach the Ground. This Motion is the true Means to make him ply and bend his Fore-Thighs, and to hinder him to ſtamp and clatter with his Feet. 9. A *Pyroet* or *Pyroite*; ſome are of one Thread or *Piſt*, ſome of two: Thoſe of one are otherwiſe called *Pyronets de le tete a la l'queue*, being entire and very narrow Turns, made by the *Horſe* upon one Thread, and at moſt in one time, in ſuch a manner, that his Head is placed where his Tail was, without putting out his Haunches. Thoſe of two *Piſts* or Threads, are Turns of two Threads upon a ſmall Compaſs of Ground, almoſt of the Length of the *Horſe*. 10. *Paſſade* is a Tread or Way that a *Horſe* makes oftner than once upon the ſame Extent of Ground, paſſing and repaſſing from one End of its Length to the other; which cannot be done without changing the Hand, or turning and making a *Demi-Tour* at each of the Extremities of the Ground. Hence there are ſeveral Sorts of *Paſſades*, according to the different ways of Turning, in order to part or put on again, and return upon the ſame *Piſt* or Thread, which is called Cloſing the *Paſſade*. A *Paſſade*, or *Demi-volt*, of Five times, is a *Demi-tour* made at the End of the ſtrait Line, one Hip in, in Five times of a Gallop upon Haunches, and at the Fifth ought to have cloſed the *Demi-volt*, and to preſent upon the *Paſſade* Line, ſtrait and ready to return. The *Demi-volts* of Five times or Periods, are the moſt common Airs of changing the Hand or Turning, that are practiſed in the Academies. The *Furious* or *French Paſſades*, are ſuch as are in Duels, wherein the *Horſe* is put ſtrait forwards, and towards the Extremity of the Line you make a Half Stop, keeping the *Horſe* ſtrait without traverſing; then you make the *Demi-volt* at Three times, in ſuch a manner, that the Third time the *Horſe* preſents ſtrait upon the *Paſſade* Line, and ready to ſet out again upon a ſhort Gallop. You continue this ſhort Gallop half the Length of the *Paſſade*; then you put on furiouſly at full ſpeed, and at the End of the *Paſſade* make a Half-ſtop, and then a *Demi-volt* of three times. A *Paſſade* of one time is a *Demi-volt* or Turn made by the *Horſe* in one time of his Shoulders and Haunches, and is the perfecteſt *Paſſade* of them all. Laſtly, The raiſed or high *Paſſades* are thoſe, in which the *Demi-volts* are made in *Corvets*.

Let us now return to our Author, who ſays, that the *Menage* is Twofold, *viz.* that which is proper for the *Cheval d'Eſcole*: Secondly, that which is proper for the *Cheval de Guere*. The *Cheval d'Eſcole* is taught ſeveral Airs and Leſſons, which as they require a great deal of Vigour and Addreſs, (as the *Gallopade-Relevée*, *Caprioles*, *Ballotades*, &c.) ſo they are neceſſary to be learn'd in Academies, to give young Men a firm and eaſie Seat, and a good Hand upon a *Horſe*; making them capable of humouring all manner of *Horſes*, according as it is requiſite; but are not in themſelves abſolutely neceſſary, nor of any Uſe in Action, unleſs in Carouſels, Triumphs, and the like. The *Cheval de Guere* is taught only ſuch Leſſons as are neceſſary in the Field, and without which one cannot attack a good Horſeman, but upon very great Diſadvantages.

The Confounding of theſe Two, and not being able to diſtinguiſh the one from the other, makes a great many talk very ignorantly about *Managed Horſes*, ſome deſpiſing the whole Art of *Riding* the *Great Horſe*, becauſe, for want of Education, they know nothing of it, whilſt others are ſuch formal Academiſts, that they pretend every Leſſon is as neceſſary in Action, as Stopping, Turning, and the like. Both theſe are in the Wrong, the firſt through Ignorance, the latter too often through Affectation; and I believe Miſtakes of this Nature have been partly the cauſe why the *Great Saddle* has been ſo ſlighted and neglected in *England* for ſome Years paſt:

But the late King, who was a Lover of Marſhal Exerciſes, was pleaſed to make choice of Monſ. *de Foubert* (for the Governing of an Academy) one of the beſt Maſters in *Europe*, a well-bred, good-natured and ingenious Perſon, who has a Stable of very fine *Horſes*, and the beſt Maſters for all ſorts of Exerciſes that are neceſſary for the Accompliſhment of a Gentleman. In a word, one that neither wants neceſſary Qualifications, nor ſpares any Pains to teach and improve the Youth committed to his Charge in all Things that are to be learn'd in an Academy.

But (to return to my buſineſs in Hand) the *Manege d' Eſcole*, and the *Manege de Guere* muſt both of them be learnt by every one that deſigns to be a good *Horſman*, though 'tis neceſſary to diſtinguiſh the one from the other, that a Man may know what *Leſſons* are only for the *Academy*, or the like, and what to make uſe of in the *Field*, or againſt an *Enemy*. A good *Maſter* will make you underſtand the Difference; ſo that I need not give you an Account here of any more of thoſe things, which belong to the *Manege d' Eſcole*; and indeed it would take up too much room for this deſign: Therefore when you have been long enough in an *Academy* to be firm, and eaſie, and have a good *Hand* upon a *Horſe*, remember to take notice of this diſtinction, that you may know how to chuſe a *Horſe* for the *Field*, or *Action*, (for amongſt fifty good *Academy-Horſes* 'tis hard to meet with Ten that are good for the *War*) and take in ſhort, the following Account of the *Qualifications* of a good *Horſe* for *Service*.

In the *Manege de Guere* a *Horſe* muſt be taught to Gallop true, and change readily; to go off from the hand like an *Arrow* from a *Bow*, and ſtop or turn at a Point; to obey the *Hand* and *Heel* in advancing or retiring upon a ſtrait *Line*, or otherwiſe; or in going Sideways to the Right or Left; to Riſe before (*a Courbets*) enough to keep him always upon the *Haunch*; to endure Fire, and to Charge up boldly againſt any thing: And all this muſt be done with willingneſs, eaſe, and ſubjection. For 'tis a Maxim in *Horſemanſhip*, That a *Horſe* muſt never do any thing of his own head, but in obedience to his *Rider*, and no more than he requires of him; as alſo, that a *Horſe* can never perform any Action gracefully or well, that he doth with an averſion and uneaſineſs. This is that which is neceſſary for a good *War-Horſe*, and in this the *Rider* muſt be as perfect as the *Horſe*, otherwiſe he will be ſo far from receiving any advantage from his goodneſs and addreſs, that he will not only find himſelf often out of order (by making his *Horſe* do things *mal a propos*,) but in a little time quite ſpoil him, and make him good for nothing.

But I will not undertake in this Diſcourſe to teach you to *Ride*, it being an *Exerciſe*, that as it is the fineſt and moſt uſeful of all (whatever ſome pretend that never could attain unto it) ſo it is the hardeſt to be perfect in, and is never learnt well without a great deal of Induſtry, as well in the *Practick*, as the *Theorick* part, and that under careful and diligent *Maſters*. It is as neceſſary for a Young Man, that deſigns to be a good *Horſeman*, to perform his courſe of Exerciſe in an *Academy*; as for him that would be a great Proficient in Learning, to run through his courſe of *Philoſophy*, *Logick*, &c. in the *Univerſity*. I ſhall therefore undertake only to give ſome general Directions which may be of uſe to ſuch as learn and practiſe this Noble *Exerciſe*. And I cannot imagine how a Young Man of Quality (when by reaſon of his Tender Years he is not ripe enough for Buſineſs and Action) can ſpend his time better, than in learning the Exerciſes of the Body, together with thoſe of the Mind; by which (provided he be under good *Maſters* and *Governours*) he will find ſo great an advantage, that he will not only be fitter to ſerve his *Prince*, when occaſion ſerves, with a vertuous Mind and a ſtrong and active Body; but avoid that lewd Effeminacy and thoſe unmanly Extravagances, which ſo many are ruined by through Eaſe and Idleneſs.

'Tis to be hoped therefore (how negligent ſoever ſome are Educated) that a great many of our Young *Nobility* and *Gentry* will be induced, by their *Parents* Care, or their own Inclinations, to follow the great Example of the *Roman Youth* (who were a glorious Inſtance of the advantage of good Education) and convince the World by their *Actions* and *Behaviour*, that they have ſpent their time as well in the *Academy*, as the others did in their *Campo Martis*.

For the Service of ſuch active and well diſpoſed Youth, I ſhall ſet down theſe following *Rules* and *Directions*; not that a good *Maſter* will omit them, but as they are fundamental Principles of *Horſemanſhip*, 'tis not amiſs to have them in Writing, that by Reading and Conſidering them, they may never fail to have them at command.

The firſt thing to be conſidered by a Young *Horſeman*, is how to Approach and Mount his *Horſe* with ſafety, gracefulneſs, and convenience; which muſt be as follows; If there be but one preſent to aſſiſt him (which may ſometimes happen to Perſons of great Quality in the *War*, or the like) let him place himſelf on the Right-ſide of the *Horſe*, holding his *Head* with one Hand and the *Stirrup* with the other; then let him that is to Mount, walk up to the *Horſe*, not directly before him, leſt if the *Horſe* be fearful of him he put him in diſorder, or if merry and wanton he ſhould ſtrike him with one of his Fore-feet; nor behind him for fear of the ſame Accident from his Hind-feet (for a Miſchance falls out ſometimes in a Minute, that has not hapned before in an Age;) but let him approach him on the Left-ſide over againſt the *Shoulder*, inclining ſomething more to his *Head* than his *Flank*: This done, let him examine if the *Bridle* be well placed in his Mouth, the *Curb* right, his *Girts* faſt, and every thing in good order; and then taking the *Reins* in his Left Hand, and the *Pummel* of the *Saddle* (or a Lock of his *Main*) and laying his Right Hand faſt upon the hinder part of the *Saddle*, let him place himſelf in the *Seat*: And let him endeavour to get a habit of doing this with ſo much eaſe and liberty, that his motion may not ſeem forced or painful, nor the Horſe receive any Inconvenience, or Apprehenſion by his ſwagging him, or falling heavy into the *Saddle*, or bruſhing his *Buttocks* with his right Leg, which are often the faults of unweildy, awkward and heedleſs People.

When he is mounted, having the *Reins* in his Left Hand, with his Thumb upon them, and his little *Finger* between to ſeparate the right from the left *Rein*, let him take the end, (or *Button*) in his right Hand, and lifting up his *Arm* with a looſe and careleſs *Air* adjuſt his *Bridle*, ſo that it be neither too long nor too ſhort, and ſo hold it faſt in its proper place, which muſt be three or four Fingers breadth above the *Pummel* of the *Saddle*, and exactly before him. Let him put himſelf from head to foot in the true poſture of a good and fine *Horſman*. He muſt be placed in the middle of the *Saddle*, (not touching, if poſſible, any other part of it) and reſt upon his *Twiſt*, not his *Buttocks*, keeping himſelf all over ſtraight and eaſie, as if he were on foot, his Shoulders juſt with the right, ſomething forward, his Stomach advanced, holding his Elbows (equally and unaffected) at a little diſtance from his Body; his right Hand at about three or four Fingers diſtance from the left, graſping the handle of his *Switch* or *Sword*, with the Point upwards, a little enclining to the Horſes left *Ear*, his *Legs* a little forward, with his *Toes* preſſing firm upon the *Stirrups* near his *Horſes Shoulders*, his Heels lower than his *Toes*, and turned outwards, his *Knees* faſt as if they were glewed, which with the Counterpoiſe of the Body, by obſerving time is all that makes a Man firm on *Horſeback*: Nothing ſhews a good *Horſman* more than to ſit Free and Airy, and nothing ſhews more ridiculous than to ſee one ſit in a ſtarch'd and formal way like a Statue.

This is the true poſture of the *Great Saddle*, that he muſt keep himſelf in, whatever *Airs* or *Leſſons* the *Horſe* performs, allowing only for different *Aids*, and the various Counterpoiſe of the Body, according as neceſſity requires.

The Counterpoiſe of the Body muſt be in *Galloping* ſomething backwards, both for the Gracefulneſs of the Poſture, and that the *Horſe* may with more eaſe keep himſelf upon his *Haunch*; the ſame is requiſite in a *Trot*, or any other *Pace*, and eſpecially always in ſtopping, for in that caſe it is not only graceful, and eaſie to the *Horſe*, but prevents great diſorder, which arrives ſometimes by a Man's jolting forwards almoſt touching his Horſes Neck. The like is to be obſerved in *Volts*, *Demy-volts*, *&c.* unleſs a Horſe be rough and Leaps; which if he doth, his Rider muſt obſerve to keep time with him, leaning backwards when his *Croup* is in the Air, and forwards when he riſes before, without confuſion, or diſorder.

And the better to know the different *Aids*, let him take notice and remember, that there is in the *Managed Horſe* two Motions, *viz.* that of the *Shoulders*, and that of the *Haunch*; now that of Shoulder is governed by the *Hand*, and that of the Haunch by the *Heel*.

The motion of the *Hand* is thus, if he turns to the right, he muſt turn his *Bridle-hand*, ſo that his Nails come upwards, removing it little or nothing out of the place: if to the left, he muſt keep it in its own natural poſture without turning, only moving it a little to the left. In both theſe motions he muſt feel his *Horſe's Mouth*, and work it inſenſibly as occaſion requires. When a *Horſe* carries his Head in the right place, and ſteady, his Neck pliant, and obeys theſe *Aids* readily, we ſay he is well in the *Hand*.

The motion of the *Heel* is as follows; when he is *Galloping* upon the *Volt*, *Demi-volt* or the like, and would have his *Horſe* keep his *Croup* inwards (which is neceſſary) he muſt ſtretch out his *Leg* on that ſide to which he turns, and move the other nearer to the *Horſes Belly*, ſo that he may feel the motion. If he would make his *Horſe* go ſide-ways upon a right line, he muſt firſt put his Shoulders in motion, and then give the ſame *Aids* with his *Legs* as before, and when ever his *Horſe* (of himſelf, as by any accident) throws his *Croup* this way or that way, by moving one of his *Legs* to him, and ſtretching out the other, he will rectifie him. A *Horſe* that is well *Managed* will obey theſe *Aids*, if rightly given, and then we ſay he is well in the *Heel*.

In theſe *Aids* of the *Hand*, and the *Heel*, lies the Art of making a *Managed Horſe* perform all his *Leſſons* with exactneſs, which is not ſo eaſie a thing as ſome imagine, who think if a *Horſe* be perfect, the *Rider* has nothing to do but ſit ſtill upon his Back; becauſe if he doth but ſit faſt, and keep in Action, they look after no more, not heeding whether he guides the *Horſe*, or the *Horſe* him. But let an ill Horſeman be upon never ſo good a *Horſe* and never ſo well managed, if he Rides before a good *Judge*, or Fights with a good *Horſeman*, his weakneſs will certainly appear. Let him therefore that begins to learn, make it his firſt buſineſs to get a good Seat, a true and exact poſture, without ſtifneſs, or affectation; to gain which, let him add his own obſervation to his Maſters directions, and making choice of ſome well ſhaped Perſon (who is known to be a fine *Horſeman*) let him obſerve his *poſture* and *motions*, endeavouring to imitate them, for we are apt to learn faſter from Examples before our Eyes, than from the beſt directions that can be given.

In the next place let him endeavour to get a juſt hand upon a *Horſe*, and to give his *Aids* true, and *a propos*, which muſt be done by a conſtant Application, and a good Memory; and by working with his *Head*, as well as his *Body*. And laſtly, I would adviſe him to ſtick to it till he is ſo far Maſter of a Horſe, that he is not only able to Ride one that is managed to his hand, but to teach a young *Horſe* himſelf. For though the teaching a young Horſe be too great a drudgery for a Perſon of Quality, ſo that it is not fit he ſhould practiſe it, yet unleſs he knows what belongs to it, he will not be capable of judging when his *Riders* commit Errors, and whether his *Horſes* be well managed or no. And when he leaves the *Academy*, let him be ſure to be eaſie, and unaffected on Horſeback, with a looſe and Manly Gaiety, free from ſcrued *Grimaces*, and ſtiff Poſtures. For ſome young Sparks upon their firſt leaving an *Academy*, have their Heads ſo turned with it, that they are for managing all Fleſh alive, even to the *Poſt-Horſe*, and are in the ſame Poſtures a *Hunting*, *Hawking*, and the like, that they ought to be in at the head of a *Squadron*: whereas a compleat *Horſeman* diſtinguiſhes always what *Horſe* he is upon, and what he is doing; If he is upon a *War-horſe* going to Charge, he puts himſelf in a firm poſture, and conſiders how he ſhall Attack, or Defend; If a *Hunting*, his *Stirrups* are ſhortned for the eaſe of his *Horſe*, and his Poſture is more negligent and looſe: If for *Riding* a *Courſe*, or *Heats*, his Feet are home in the *Stirrups*, his *Elbows* cloſe to his Body, lying ſnug upon his *Horſe*, that he may have the advantage of the Counterpoiſe, which doth not hinder the Running ſo much before: In a word, a good Horſeman knows how to make uſe of all Horſes for all uſes, and in all places.

CHAP. XI.

Of Terra a Terra, Demivolts, Corvets, Caprioles, Croupade, Peſade, &c.

OUR Author having omitted divers Leſſons that are uſeful for managing Horſes, we'll ſupply them here out of *Solleyſell*, and others; and ſhall begin with the Square, for a *Terra Terra*, which is to be preferr'd before a Circle; and therefore it ſhould be 24 or 30 Foot Diameter for you to work your Horſe in; ſit ſtrait on the Saddle, poiſe a little more upon the outward Stirrup, but do not lean too much, the outward Leg to be a little longer than the other; and the inward very little before it: Reſt upon the Twiſt and Stirrups, ſit near the Pommel, the Knee of the outward Leg cloſe to the Horſe, and turn'd inwards, be alſo ſtiff in the Ham: If you are going to the Right Hand, let the Bridle-Hand be put on the out-ſide of his Neck, turning up your little Finger to make it reſpect the Left Shoulder, which will pull the inward Rein that lieth above the little Finger, your Arm being a little oblique from your Body, and your Left Shoulder turn'd a little in, which will make your Body reſpect a little your Right-ſide: Your Horſe by this means will neceſſarily go a little couch'd upon his out-ſide; and the beſt means to keep your Hand ſteady, is to turn your Head aloof upon the in-ſide of the Turn, to the in-ſide of the Horſes Head: Note, that the Bridle-hand, in rounding the Corners, or Angles of the Square, muſt be carried circularly with the Horſe, and ſteadily, but yet only ſo as to feel him. The Poſture of your Body having thus brought the Horſe to Couch on his out-ſide; if you will pull the inward Rein of his Bridle, it enlarges him before, by pulling, as it were, his inward Fore-leg from his outward, and bringing his inward Hind Leg near to his outward, which narrows him behind; making him to bow in the Gambrels, eſpecially in his outward Hind-Leg, on which he reſts moſt, and thruſts his inward Hind-leg under his Belly, and ſo makes him go very much upon his Haunches: For the Horſe muſt neceſſarily, when preſs'd in this manner on the out-ſide, look within the Square or Turn, and his enlarged fore-part will make him the better embrace the corners of the Square he is to round: his Hind-legs alſo being within the lines of his Fore-legs, he muſt needs be upon the Haunches, and his inward Fore-leg, with which he leads, being pulled, in a manner, from his outward, it will look longer than the other, and ſo make the firſt and largeſt Circle, or Square, which is right; and ſo his outward Fore-leg the ſecond, his inward Hind-leg the third, and the outward the fourth and leaſt Square.

You muſt not keep your Bridle-hand too high, and the pulling the inward Rein of the Bridle, preſſes the Horſe on the out-ſide, weighs him up, and puts him upon the Haunches, eſpecially upon his outward Hind-leg, ſo that all his Body leaneth on the out-ſide, and he cannot bring in his inward Shoulder to give his Fore-leg, within the Turn, liberty to lead: The ſame Directions ought to be obſerved for the Left-hand as for the Right, only altering the Bridle-hand, Body and Legs: As for the Bridle-hand, when you go on the Left-hand, you muſt put your Hand on the contrary ſide of his Neck, which lies without, your Arm cloſe to your Body, and the Knuckles of the Bridle-hand turn'd towards his Neck, which will pull the inward Rein for the Left-hand, becauſe it lies under your little Finger, which will make both your and the Horſes Body oblique, and make every thing elſe anſwer.

Whenever you have a mind upon a *Terra a Terra*, to change Hands; your Body being in the ſame Poſture as before, let his Shoulders, to which Hand ſoever you go, come in a little before you change him, and then help him with that Leg that was inward, before you changed, and ſo put him forwards, holding him up with the Bridle-hand upon the out-ſide of his Neck: 'Tis to fix his Croup, that it may not go out, that his Shoulders ſhould come in a little before you change him: Be ever ſtiff in the Hams, and let your Heels be kept down.

In changing upon *Demivolts*, your ſitting muſt be oblique, the Hand on the out-ſide, the outward Leg cloſe to the Horſe, the Knuckles of the Bridle-hand towards his Neck, and let him go a little more than half a Turn, in making his *Demivolts*, to fix his Croup: After this be aſſiſtant to him firſt with the inward Leg, hold him up with your Hand, and a little on the out-ſide of his Neck: By a Wall it can be but juſt a half Turn, or *Demivolt*, which may be helped with the inward or outward Rein at pleaſure, ſo as he keeps his Line by your keeping his Croup to the Wall: the outward Rein ſhould always be made uſe of, when you would bring in his inward Shoulder.

As for the *Corvets*, there are ſeveral ſorts of them; the Seat muſt be the ſame as in *Terra a Terra*, tho' not quite ſo ſtiff and oblique, the Bridle-hand even with the Neck, Knuckles towards it, go on which Hand you will, but the Hand ſtill over the Neck, two or three Fingers above the Pommel, a little forwards, without any other help, but to ſtay him a little upon the Hand: the Horſe ſhould be quick from the Ground, and ſtay'd in the Air upon the Hand, the Body always going to that end of the Horſe that comes to you, that is, bending a little to him as he riſes: Sit forward to the Pommel, your Body being ſtrait, Thighs and Knees cloſe, Toes a little out and down, not helping him with your Legs at all, without he puts in his Croup too much: To make him *Corvet* ſtrait forwards, or along a Wall, the *Cavezons* Rein, which is from the Wall, ſhould be tied to keep that Hind-leg near to the other, which is next the Wall: Begin with two or three Peſades, then walk him forwards and *Corvet* him, and if he preſſes too much forwards, let him make his *Corvets* in one place, and then put him on again. To explain the thing more fully, you muſt tie the left Rein of the *Cavezon* to the Pommel, when the right Shoulder is next the Wall, and ſo *vice verſa*; and for the Bridle-hand in forward *Corvets*, you are always to help with the Rein next the Wall, to enlarge him before and narrow him behind: If he beats upon the Hand, you muſt raiſe him high upon the *Peſade*, hold him there, this will put him upon the Curb and make him endure it: But if this fails, gallop him upon a ſtrait Line by a Wall, or otherways, and from his Gallop ſtay him upon the Hand, and ſo let him go in *Corvets*, or let him gallop a ſhort Gallop forward: Then ſtop and raiſe him three very high *Peſades*, and when he is up hold him on the Hand;

but if this does not cure him, trot and ſtop him with good hard ſtops, and ſometimes pull him back : Your Stirrups muſt be an equal length, rather a hole too ſhort than too long.

In the ſide-way *Corvets*, you are to help with the Bridle only, and putting his Head to the Wall, help with the outward Rein, if you go to the right Hand, let him go ſide-ways and make three or four *Corvets* ſo ; then walk and *Corvet* him ſide-ways again ; diminiſh his Walks by degrees, and augment his *Corvets* : The like helps are to be uſed for the left as the right. Then for the backward *Corvets*, pull him back, let him make three or four *Corvets* in one place, thus by pulling him back, and augmenting the *Corvets*, he will at laſt perfectly perform the backward *Corvets* : And help him always with the Bridle Rein next the Wall, to narrow him before, and enlarge him behind, that his hind Parts may be more at liberty : Help not with your Legs at all, but with your Bridle-hand, pull him back every time he falls to the Ground, which will bring him to perform exactly well.

The *Cavezon*'s inward Rein in *Corvets* upon the *Volt*, muſt at firſt be tied to the Pommel, and his Croup not too much in : At firſt Teaching he ſhould rather go in Circles of one Thread, for to keep out the inward Hind-leg is the main Buſineſs : let him therefore be helped a little with the outward Rein by the Bridle, and be raiſed three or four *Corvets*, then walked upon the Circle and *Corveted* again, and ſo the Walk diminiſhed and the *Corvet* augmented, till he makes the whole Turn, or *Volt* upon *Corvets*. Being perfect in Circles of one *Piſt*, *Corvet* him with his Croup a very little upon the *Volts*, which is the perfection of this Exerciſe. Now to change upon *Corvets*, if your Horſe goes to the Right Hand, and you have a mind to change him, the inward, or Right-leg ſhould be gently put to him, let him be held up a little with the Bridle-hand, on the in-ſide of the Neck ; and as ſoon as he has changed, the Right-leg is to be taken from him. Help no more with your Legs, only the Poiſe of the Body upon changing, is to be a little on the out-ſide.

Laſtly, for the Croſs and Saraban upon *Corvets*, help with the outward Rein, that ſhould be pull'd firſt on the one ſide, then the other ; after every *Corvet* from ſide to ſide, helping with the Bridle-hand only, and the outward Shoulder always following, without the help of Legs. Dull or fiery Horſes are not at all proper for *Corvets*.

We come next to the *Caprioles*, wherein you muſt ſit ſtrait, your Thighs and Knees, as cloſe as if glued to the Saddle, Stirrups a little ſhorter than ordinary, your Toes a little down, and when you raiſe your Horſe, preſently put your Breaſt out, which will make your Shoulders go a little back : Walk him forward, let him make one Leap, then raiſe him high upon a *Peſade* or two, ſtaying him on the Hand ; then increaſing your Leaps, and diminiſhing your *Peſades*, he'll come by degrees to leap perfectly. When he is perfect upon a ſtrait Line forwards, he may be put upon Volts or Circles, and the ſame Method continued : When you raiſe him to leap, help him with the point of your Rod, and always cauſe him to make a *Peſade* or two, when you have done Leaping : you ſhould always work the outward Rein with your Bridle-hand, to narrow him before, and enlarge him behind, and to have the more freedom, eſpecially with his Croup, which if bound up, hinders him to leap ; therefore the outward Rein upon all Leaps whatever is to be uſed either ſtrait forwards, or upon Circles.

As for the *Croupade*, the only difference between it and the *Capriole*, conſiſts in the way of helping with the Rod, which muſt be by ſtriking him a little above the *Gambrels*, whereas in the other, you help him with the point of it on the ſetting on of his Dock, or by giving one or more ſtrokes with the great end of it juſt behind the Saddle. And in the *Balotade* it varies only, that you muſt ſtrike him with the Rod juſt upon the middle of his Croup. A *Step* and *Leap* is an Air wherein Horſes commonly go, when they have not a good *Apuy* : All Leaps are made upon the Hand, and therefore the Horſe ought to be well ſettled on the Hand before you try if he will leap, becauſe nothing diſorders a Horſes Mouth more than Leaping : Your Legs are not helpful here, only hold him up well with the Bridle-hand when he riſes before, that ſo he may riſe the higher behind ; and when he begins behind, put your Bridle-hand a little forward, to keep him up before, and ſtay him there on the Hand, as if he hung in the Air, and ſo time the Motion of your Bridle-hand, to take him, as if he were a Ball upon the Bound, which is the greateſt Secret of all in leaping a *Horſe* right.

The *Peſade* has been deſcribed, and ſo often mention'd before, that a farther Account of it ſhould not be omitted here, for the better underſtanding of other Matters. The *Cavezon*'s inward Rein being in your Hand, or tied to the Pommel, help your *Horſe* with the outward Rein, and raiſe him as high as you can in Paſſaging, holding him gently there, without giving him occaſion to fret : This done, walking him a little, raiſe him again, and that round the Volt you are working him upon. A *Peſade* ſhould never be taught a *Horſe* at firſt Riding, before he is pretty well advanced in the *Manege*, and pliant to the Hand and Heels. If the *Horſe* will not riſe eaſily before upon *Peſades*, then you are to put him between Pillars, helping him with two Rods upon the Outſide of his Fore-thighs, and he will ſoon come to do it. But as ſoon as you find him riſe eaſily, never make uſe of them any more ; for they ſubject his Croup too much, and make him go by rote ; and, in a word, never force or preſs your *Horſe* too much to any thing.

In the *Pyroite*, having your Hand upon the Outſide of the *Horſe*'s Neck, to make him look into the Turn, you muſt, before you begin it, in an inſtant work violently with the outward Rein of the Bridle, to ſtreighten his Fore, and give his Hind-parts more Liberty. In his going to the Right Hand he lifts his Hind-legs without the Turn, at the ſame time that he lifts his two Fore-legs, ſo that he has three Legs up together, his inward Hind-leg being then the only Support of his Body. When the other three come to the Ground, the outward Shoulder comes in ſo quickly, that it brings the inward Hind-leg to move at the ſame time almoſt in one Place, to ſupply the Place of a Center, and make an exact Turn : But when the *Horſe* is ſo giddy, that he can go no longer for fear of falling, he thruſts his inward Hind-leg forward beneath his Belly to ſtop himſelf. Note, That in this Exerciſe, as the *Horſe* is turning, you muſt take care to turn your Body well to the Turn, and alſo look on the Inſide of his Neck.

Having in like manner deſcribed the ſeveral ſorts of *Paſſades* before, in this Exerciſe you are to walk your

your *Horſe* ſtrait forwards, either by a Wall or Paliſade, at the end whereof ſtop and raiſe him two or three *Peſades*, turning him gently with the help of the outward Rein and Leg; but ſee he falſifies not his *Demi-volt* either with his Shoulders or Haunches in Paſſaging: Do as much on the other hand, then begin to trot him upon the ſame ſtrait Line, ſtopping, raiſing him before, and turning him as you did upon the Walk. Being perfect in his Trot, put him on a ſhort Gallop upon the ſtrait Line, ſtopping and advancing as you did before. After this put him to his *Demi-tour* or *Volt*; not by Paſſaging, but upon his Air; and when perfect herein, then let him make a Paſſade upon a ſhort Gallop, without either ſtopping, or raiſing before, but only turning when at the End of the ſtrait Line. His Head in Galloping muſt be always kept a little from the Wall; likewiſe you may, before he turns, let him make two or three *Falcades*, to firm his Haunches the better, and to turn with the better Grace. Whenever you intend to run your *Horſe* at his full Carrier, his Head ſhould be kept a little from the Wall, the Bridle-hand ſlacken'd; and at the End of the Paſſade let him be preſt with your Thighs, and ſtay'd a little upon the Hand, that he may make two or three Falcades before he is turned. The next thing, as in the *Pyroite*, is to cloſe him with the outward Rein, paſſading him from one Hand to the other, making commonly a ſtrait Line, when you do it at full ſpeed about five or ſix times, the *Horſes*'s length only; and ſo he will go perfectly upon Paſſades, which is the Touch-ſtone of a ready *Horſe*, and abſolutely one of the moſt uſeful things in the *Manege* for a ſingle Combat. You are to aſſiſt your *Horſe* always in Paſſades according to the Air with which he cloſes the End of it: For if with a *Terra a Terra*, then with the inward Rein and outward Leg; but if with the Half *Pyroite*, then with the outward Rein and Leg, and help always with the Rod upon the contrary Side to which he is going.

CHAP. XII.

Of a new Invention to dreſs Horſes *upon all Airs, by the Help of a ſingle Pillar: As alſo, the ſeveral Helps and Corrections of the* Spurs.

Though the Directions already given are, in the Opinion of moſt Men, eſteem'd to be the beſt; yet this that follows, being curious, extraordinary, and very good in its Kind, you are inſtructed firſt to bring your *Horſe* ſaddled and bridled to the Pillar, where put him under the Button of the Bridle-Reins, which is to draw down that little Leather Button, that moves up and down upon them, and ſo near to the *Horſe*'s Mane, that it may ſtay and fix the Branches of the Bridle at ſuch a degree of Straitneſs, that the *Horſe* at firſt may have but a very gentle feeling of the Bit, either upon his Bars, or the Place of the Curb. Now if you have a mind he ſhould go to the Right Hand, let the Groom put the inward Rein of the Cavezon about the ſingle Pillar, a little higher than the *Horſe*'s Head, keeping it very ſhort there, and let the long Rein of the Cavezon be held by another Perſon in one Hand upon the Outſide of the Turn, and a Stick and a Bodkin at the End of it in the other, to prick him in caſe he ſhould put out his Croup too much: To keep him from going backwards, let another Perſon ſtand behind him with a Rod in his Hand; and then, you being on foot, raiſe him in one Place, being content with very little from him at once. Having uſed him thus a little, help him with three Rods, your ſelf with two before, *viz.* one on each Fore-thigh, and let the third be uſed by another under his Belly; which will bring him very much upon the Haunches. When he can perform his Leſſon exactly in one Place, keep the inward Rein ſhort, as before; make him go upon Volts, with the help of the three Rods; but be you then on the Outſide of his Shoulders, to give him the more Liberty to turn; and ſo he will be quickly brought to go Corvets perfectly well upon the Volts forwards. Do the ſame thing, only go before and face him, and this will make him go Corvets backwards upon his Volts; and continuing the ſame Rein, you will bring him to Corvets ſideways.

Having brought him to Perfection for the Right Hand, then tye the Left Rein of the *Cavezon* ſhort about the Pillar, doing every thing as before; and when he goes perfectly, mount him, the ſame Rein of the *Cavezon* being ſtill very ſhort about the Pillar.

Having done with the Uſe of the Pillar, to dreſs a *Horſe* upon Airs, afford us room for a few Words concerning, *The Helps of the Spurs*; as, firſt, when a *Horſe* goes *Terra a Terra*, and your outward Leg cloſe to him, if he ſlacks, you are to turn your Heel to him, and pinch with the Spur, ſo as to draw Blood from him; and if while you ſtay on the Hand, he ſuffers and obeys this, you may juſtly allow him to be an excellent *Horſe*. Another and more gentle help of the Spur is, that when a *Horſe* gallops his Croup in, or *Terra a Terra*, if he does not enough obey your outward Leg, being cloſe to, or very near his Side, then make a Motion with your Leg, as if you intended to ſpur him; but let it be as gently as you can, juſt feeling it, and no more. So much as Spurs are Helps, now let us ſee how they ſerve for Corrections: And in the firſt place, if your *Horſe* rebels againſt what you would have him do, ceaſe not to ſpur till you find him begin to comply; and when he does that in the leaſt, alight and ſend him to the Stable. Try him again next Morning, and if he obeys, cheriſh him. The particular Caſes wherein, generally ſpeaking, you are to uſe your Spurs are theſe: Firſt, When he puts his Croup too much in or out, or if he refuſes to turn to that Hand you would have him, you are then to correct him with the oppoſite Spur: But when you find him reſty, and will not go forward, or be apprehenſive or ſkittiſh, or make an Offer of Biting or Striking, he muſt then receive the Correction of both Spurs. You have been already told on another Occaſion, that when your *Horſe* riſes too high before, or bolts upright, you are to give him both Spurs as he is falling down; but do not make uſe of them juſt as he is riſing, leſt they make him come over upon you. Again, if he will not advance, or riſe before, a good Stroke with both Spurs will make him do it, provided he be at the ſame time kept firm, and ſtay'd upon the Hand, and as it were ſupport him a little with the Bit. In like manner, if he be a dull Jade, or lazy and ſlack in his *Manege*, then ſpur to quicken him: But 'tis to be obſerved, that though the Spurs diſcreetly uſed, are ſo very uſeful, yet nothing makes *Horſes* more vicious and reſty, than when uſed unſeaſonably; and there are more *Horſes* become vicious by ill Riders and Bunglers, than are naturally ſo. The more unruly therefore the *Horſe* is, the more Judgment and Calmneſs is required in the Rider; and, in a word, it's more difficult to bring a *Horſe* that has been ſpoil'd by ill Riding, either correcting him out of time, or letting him have his Will at firſt too much, to obey, than the worſt-natured Jade in the World.

CHAP. XIII.

To correct and prevent Vices in Horſes.

YOU are to obſerve, in caſe a *Horſe* carries his Head and Neck awry, to which Side he inclines it, and ſtrike him twice or thrice with the contrary Spur; but if you find him very ſtiff-neck'd on the Right ſide, and plying or bending on the Left, then you muſt hold the Right Rein ſhorter than the other; and when you find him incline that way, give him ſudden Checks, having a ſharp Wire faſten'd in the Rein, that ſtriking in his Neck, he may be obliged to hold it ſtrait, obſerving to check him upwards, leſt he get a Habit of ducking down his Head. When a *Horſe* ducks his Head, check him ſuddenly with the Bridle, and put your Spurs into him, that he may be ſenſible of his Fault. If he be ſtanding, make him bring his Head into its right Place as he ſtands; if going, let it be whilſt he is moving; and being ſure to cheriſh him when he obeys, he will ſoon underſtand your Meaning.

A *Horſe* that is ſubject, upon every trifling Occaſion, to ſhake his Head and Ears, or move the latter when he intends to kick, or bite, or throw you, ſtrike him on the Head with your Wand, and at the ſame time give him a Check with your Bridle, and a Stroke with your contrary Spur, putting him ſuddenly out of his Pace, and then make him ſtop, that he may have leiſure to underſtand your Meaning. When he ſtarts or winches, a Sign of his intending to bite or kick, you are to do the like. When you find him reſty, that is malicious and unruly, ſhrugging himſelf ſhort, and will not go forwards, pull him backwards, and that ſeldom fails to put him on; if otherwiſe make uſe of your Spurs to the purpoſe, and let another on foot whip him forwards: And though he reſiſt for a time, the Whip and Spur, if ſharply and timouſly uſed, will at laſt bring him to it; and when once you begin, they muſt be continued till he yields, provided this Reſtineſs proceeds from Stubbornneſs.

A *Horſe* that rears an End, and riſes ſo high before, as to endanger his falling back upon his Rider, muſt have the Bridle given him, and leaning forward with your whole Weight, give him both Spurs as he falls down, but not as he riſes. When a *Horſe* is apt to fall down upon the Ground, or in the Water, a Pair of good Spurs applied as ſoon as you perceive him going about it, will divert him from thinking more of it: If he deſiſts, then correct him no more at that time; for bad Horſemen are the cauſe of moſt of theſe Vices, by giving unſeaſonable Correction, by which they are ſo far from making a *Horſe* ſenſible of his Fault, that they fright and put him into Confuſion, and make him at laſt reſty.

When a *Horſe* is apt to run away, uſe a gentle Bit, with a ſlack Curb, and keeping an eaſie Bridle-hand, walk him without ſtopping, only ſtay him upon the Hand by little and little; then trot him a while, reduce him from a Trot to a Walk, ſtaying him by degrees, and be ſure to cheriſh him always when he obeys. When he is become thus far tractable, bring him from his Trot to a gentle Gallop, and from that to a Trot; then to a Walk, ſtaying him with a gentle Hand by degrees: And if, with Judgment and Patience, this Method be uſed for a while, you may probably prevent his running away. But ſuppoſe after all he does run away, and that you cannot ſtop him; in that caſe, if you have Field-room enough, whenever you find him begin, let him go by ſlackning the Bridle, and ſo ſpur him continually and ſharply, till he begins to ſlack of his own Accord: And this has been ever found the beſt Remedy for a Run-away *Horſe*.

As to ſkittiſh and ſtarting *Horſes*, which puts a Man always in danger of being thrown off his Back, if the Defect proceeds from the Weakneſs of the Sight, by repreſenting things otherwiſe to him than they are, give him time to view them well, and then ride him up gently to them: But if your *Horſe* be naturally fearful, and apt to ſtart at the hearing of any ſtrange Sounds, uſe him to the Noiſe of Guns, Drums and Trumpets, in which he will take Delight in time.

CHAP. XIV.

Of the Saddle, *and its Appurtenances, Bits, Branches,* &c.

THE *Saddle* ſhould be made commodious for the Horſeman, as well as adjuſted to the *Horſe*, and that it may not gall him, it ſhould reſt ſo, as that no Part of it preſs his Back more than another; neither ſhould it any ways reſt upon his Withers, Reins, or Back-bone, which is term'd *Upon the Length of it*: For if the Toes, or Points of the Saddle's Fore-bow preſs too much the *Horſe*'s Sides, then the upper part of it will be void and hollow, and not cloſe enough to the *Horſe*'s Back, by which Inconveniency the *Horſe* may come to halt; but if the Points of the Saddle's Fore-bow be too wide and open, they will preſs him near to the upper part of the Saddle, and a little below the Withers, and ſo either hurt and pinch his Soulders, or occaſion Sitfaſts, that are difficult to cure. The Saddle will in like manner be faulty, if the Hind-bow do not exactly accompany the Shape and Circumference of the Body where it reſts, and will quickly ſpoil the *Horſe* where it preſſeth moſt.

The next thing to be conſider'd is the Stuffings of the *Pannels*, which ſhould not be above the Thickneſs of two Fingers, and ſhould be either of Deer's Hair, or the long Hair of *Horſes* Manes and Tails, or even that of Oxens Tails, which does not harden near ſo much with the Sweat, as the ordinary Hair of Oxen and Cows. Some ſtuff their

Saddle-Pannels with well dried Moſs, and ſay 'tis very proper for this Uſe.

The Saddle ſhould be placed exactly on the middle of the Back, the Fore-bow juſt at the Want of the Shoulders. If the Saddle is placed too forwards, the Skin and Fleſh of the Shoulders will be forced as it were forwards, and appear raiſed high at the Points of the Fore-bow. The ſame will happen if the Pannels are too much ſtuffed before, or that the Toes of the Fore-bow be too narrow and ſtrait.

That a Saddle may be commodious for the Rider, it ſhould be low, and not too much elevated above the *Horſe*'s Back; the Fore-bow of it ſhould not be made with a kind of raiſed Neck, but the Saddle-Withers ſhould be low, and but two or three Fingers Breadth above the Withers. The Fore-part of the Saddle ſhould alſo be but a very little elevated above the Hind. If you deſign a Saddle ſhould be low upon a *Horſe*, order the Saddler, when he is to fix the Bows upon the Bands, whether they be of Iron or Wood, to place the Bands near to each other, eſpecially upon the upper part of the Inſide of the Fore-bow, pretty near to the Withers of it. The *Engliſh* Saddlers are eſteemed even by *Solleyſel*, and other Foreigners, the beſt Artiſts in the World.

Having got your Saddle made very convenient for your *Horſe*, ſee in the next place that the Crupper be neither too ſtrait drawn, nor too ſlack and looſe: If with a ſingle Buckle, ſee that it do not reſt upon the *Horſe*'s Reins, which will dangerouſly gall him; and if you perceive it ruffle, adjuſt beneath it a Piece of Veal, or Roe-buck's Shin, with the Hair next the *Horſe*. Hunting-Cruppers are thoſe that have no Buckles, but faſten'd only to the Saddle by two Straps, tho' now not much uſed. The beſt are the *Engliſh* Cruppers with the Buckle, which may be ſlack'd or ſtraitned as you pleaſe. The Dock-piece of the Crupper ſhould be pretty large and full, that the *Horſe* may not ſo eaſily gall beneath the Tail. If a *Horſe* be low before, he ſoon galls, and *Mares*, which are uſually ſo, are more ſubject to it; and in this caſe 'tis convenient to have a Saddle that is higher before than ordinary, with a very little Stuffing in the Pannels behind, and a Crupper with two Buckles ſhould be alſo uſed. Others, to prevent the Inconveniency of Galling, ſew a Candle in the Dock-piece of the Crupper, whoſe melting ſoftens the Leather, and prevents the Infirmity.

As for the *Poitral*, or Breaſt-plate, it ſhould be of a juſt Length, and the Stays and Supporters neither too long, nor too ſhort. When it ſo happens that the Hair is cut and taken away in thoſe Parts of the Shoulders, where the Hulſters reſt, fix beneath them a Piece of Roe-buck, or Calf's Skin, well furniſk'd with Hair, or line the Part with very ſoft Leather ſtuffed with Wool: The Buckle alſo by which the Breaſt-plate is fixed to the Saddle ſhould be ſo placed, as neither to cut the Hair, nor hurt the *Horſe*; and if too far forward, put them back between the Saddle-bow and Pannel, or even upon the Bow it ſelf, with ſome Calf or Roe-buck's Skin beneath.

The *Girths* ſhould be large and ſtrong, and of good freſh Girthweb, and let there be no Knots upon them, which otherwiſe will gall and ſpoil the *Horſe*. The Saddle-ſtraps ſhould be of *Hungarian*, or elſe good, white, oil'd Leather, two on each Side of the Saddle-bow, with a good broad Surſingle.

The Stirrup-Leathers ſhould be of the ſame Leather, the Stirrup-Irons ſtrong, and either barr'd or grated where you place your Feet, and alſo pretty large, that you may ſooner quit them in caſe of a Fall. Some will have them to be fixed to the Stirrup-Leathers, without Swivels; thoſe that are lighteſt are moſt proper for a Courſe, or taking the Air.

The Iron which is put into a *Horſe*'s Mouth is called a *Bit* or *Bit-mouth*, in the Middle whereof there is always an arch'd Space for the Lodging of his Tongue, which is called the *Liberty*. It's the Opinion of the Duke of *Newcaſtle*, that as little Iron ſhould be put into a *Horſe*'s Mouth as poſſible; and we ſeldom uſe any other than Snaffles, Cannon-mouths jointed in the Middle, Cannon with a Faſt-Mouth, and Cannon with a Port-Mouth, either round or jointed.

As for the *Bits* now in uſe, beſides the Snaffle, or ſmall Watering-Bit, at *Fig.* I. there is the Cannon-Mouth jointed in the Middle at *Fig.* II. which always preſerves a *Horſe*'s Mouth whole and ſound; and though the Tongue ſuſtains the whole Effort of it, yet 'tis not ſo ſenſible as the Bars, which are ſo delicate, that they feel its Preſſure through the Tongue, and thereby obey the leaſt Motion of the Rider's Hand. The larger it is towards the Ends fix'd to the Branches, the gentler 'twill be. We ſhould make uſe of this Mouth to a *Horſe* as long as we can; that is, if with a ſimple Cannon-Mouth we can draw from a *Horſe* all the Obedience he is capable of giving, it will be in vain to give him another, this being the very beſt of all.

The Cannon with a Faſt-Mouth, at *Fig.* III. is all of one Piece, and only kneed in the Middle, to give the Tongue Freedom. It's proper to ſecure thoſe Mouths that chack or beat upon the Hand: It will fix their Mouths, becauſe it reſts always in one Place; ſo that deadning the ſame in a manner thereby, the *Horſe* loſes his Apprehenſiveneſs, and will ſoon reliſh this Bit-mouth better than the laſt, which being jointed in the middle, reſts unequally upon the Bars: This however, becauſe not jointed in the middle, is more rude. The middle of this Bit ſhould be a little more forward, to give the more Play to the *Horſe*'s Tongue, and the Bit ſhould reſt rather on the Gums, or Outſides of the Bars than upon their very Ridges.

The fourth Sort is called the *Cannon-Mouth with the Liberty*, after the Form of a Pigeon's Neck. When a *Horſe*'s Tongue is too large, ſo that the Thickneſs thereof ſupports the Mouth of the Bit, that it cannot work its Effects on the Bars, this *Liberty* will a little diſingage it, and ſuffer the Mouth of the Bit to come at, and reſt upon his Gums, which will make him ſo much the lighter upon the Hand.

The *Port-Mouth*, at *Fig.* V. is a Cannon with an upſet or mounting Liberty, proper for a *Horſe* with a good Mouth, but a large Tongue, working its Effects upon the Lips and Gums; and becauſe the Tongue is diſingaged, it will ſubject the *Horſe* that hath high Bars, and in ſome degree ſenſible. This uſeful Bit, if well made, will never hurt a *Horſe*'s Head.

The *Scatch-Mouth*, with an upſet or mounting Liberty, at *Fig.* VI. is ruder than a Cannon-Mouth, becauſe not fully ſo round, but more edged, and preferable to them in one reſpect; which is, that thoſe Parts of a Cannon-mouth, to which the Branches are faſtned, if not well riveted, are ſubject to ſlip; but the Ends of a Scatch-Mouth can never fail, becauſe of their being over-lapped, and therefore much more ſecure for vicious and ill-natur'd *Horſes*.

Mr. *Pignatel*'s Cannon-Mouth with the Liberty is proper for a *Horſe* with a large Tongue and round Bars, as being only ſupported a little by his Lips. Care ſhould be had never to work a *Horſe* with one Rein, as long as he has one of theſe Bit-mouths. The Deſcription Sir *William Hope* gives of this Bit is, that it has a gentle falling and moving up and down, and the Liberty ſo low, as not to hurt the *Horſe*'s Mouth, and certainly the beſt Bit for *Horſes* that have any thing of a big Tongue.

Some are of Opinion, that the beſt way to fit a *Horſe* exactly with a Bit, is to have a great many Bits by them, and to change till they hit the right; but at firſt be ſure to let him have a gentle one, and be rightly lodged in his Mouth, ſo as not to frumple his Lips, or to reſt upon his Tuſhes. Then let him be mounted, and pull'd two or three Steps back, whereby you will know if his Head is firm, if he performs frankly, or only obeys with Reluctancy, that ſo you may give him another Bit, which may gain his Conſent. If he inclines to carry low, you are not to give him a Liberty for the Tongue, which will riſe too high; for that, by tickling his Palate, would bring his Head down between his Legs. Note, That large Curbs, if they be round, are always moſt gentle.

We come next to the *Branches*, which are to be proportion'd according to the Deſign a Man has, either of bringing in, or raiſing a *Horſe*'s Head. They judge by the Line of the Banquet of its Effects, which diſcovers its Strength or Weakneſs. A hardy Branch is that whoſe Sevil-hole is placed upon the Outſide of the ſaid Line of the Banquet. [See Plate V. *Fig.* IV, V, VIII.] A gentle Branch is that, whoſe Sevil-hole is placed upon the Inſide of the ſaid Line. [See Plate *Fig.* VI.] The farther a Branch is from a *Horſe*'s Neck, the greater Strength will it have in pulling, and will bring it in beſt, eſpecially in the Hands of a Perſon that knows how to make uſe of it. Short Branches are ruder than long ones, if they have both the ſame Shape and Turn. The Branch muſt be proportion'd to the Length of a *Horſe*'s Neck; and one may ſooner err in chuſing one too ſhort than too long.

But to the Particulars of the ſeveral Sorts of Branches: 1. The *Strait Branch*, after the Form of a Piſtol [Plate V. *Fig.* I.] is commonly the firſt given to young *Horſes*, to form their Mouths, and make them to reliſh a Bit. 2. A *Branch*, after the Conſtable of *France*'s Faſhion, [at *Fig.* II.] proper for a *Horſe* that naturally carries his Head well, and in as becoming a Poſture as poſſibly he can. 3. A *Branch*, after the Form of a Gigot, or Leg, [at *Fig.* III.] proper for *Horſes* that naturally carry well, and will prevent them from carrying low when weary. 4. A *Branch*, after the Form of a bent Knee, proper for *Horſes* that arm themſelves againſt the Operations of the Bit; which is done firſt by bringing in ſo very much of their Heads, that the lower part of the Branches may reſt upon their Breaſts or Counters. The common Remedy is to give them ſhorter Branches, which does not rectifie the Matter, but makes them arm the more. Now this ſort of Branch, tho' ten Inches long, is ſo turn'd, that it cannot ſo ſoon reach their Counters as an ordinary one of ſix Inches, becauſe that inſtead of pulling down their Noſes, it raiſes them. The other ways *Horſes* arm themſelves is, to turn in their Heads ſo very much, when a Man would reſtrain them, that they immediately touch their Neck with their Chins, and ſo make the Branches uſeleſs. The only Remedy is, to place a Wooden Ball, cover'd with Velvet, or any other thing, to make it appear neat, betwixt their Jaw-bones, upon the Caulk-bands of the Bridle. Its Bigneſs ſhould be in Proportion to the Hollow between the upper part of the Jaws, and ſo adjuſted, that half the Ball may enter between the two Jaw-bones, and the other remain without, and meet with his Throat: It will then keep in its Place, and neceſſarily prevent the *Horſe*'s arming himſelf. 5. A *Branch*, after the *French* Faſhion, [at *Fig.* V.] to raiſe a *Horſe*'s Head, being a very difficult Work. This Branch, which is hardy, about a Third of an Inch at the Sevil-hole, and kneed an Inch and three Quarters at the Jarret or Ham, with the Eye of the Branch a little higher than ordinary, to give it the more Force, will do it a little. But, 6. [*Fig.* VI.] Another Branch hardier than it, being about two Thirds of an Inch at the Sevil-hole, and about two Inches at the Ham, is the beſt to raiſe a *Horſe*'s Head that carries very low. The falſe Ham, or part of the Branch, which is bruiſed or advanced forwards, more than the other part to which it is ſolder'd, is a great Help to it, becauſe it augments the Strength of that lower part. The Eye being of a good Height, will likewiſe add Strength to the Operation of the Branch; and the Shoulder, which is ſo turned, as not to conſtrain too much, will alſo aſſiſt the Branch to raiſe. 7. [*Fig.* VII.] Another Branch, that is hardy, about two Thirds of an Inch at the Sevil-hole, and has a falſe Ham, that is, the Branch is at that part a little bruiſed, or ſet forwards; ſo that the moſt advanced part is about an Inch and three Quarters, will bring in, as being hardy, to the very Sevil-hole. The Half-ham augments its Strength, and the lower part of the Branch, which inclines towards the *Horſe*'s Neck, makes it to raiſe a little; ſo that it will be good for a *Horſe* that carries his Neck ſtraight out, and difficultly brings in his Head to ſuch a Poſture as it ought: It brings in a great deal, and raiſes but little, which is juſt what we ſhould make uſe of for ſuch ſtraight ſtretched Necks, becauſe by ſtraining their Heads very much in, you oblige them to turn and bend their ſtraight Necks Archwiſe. But ſeeing it would be dangerous to bring them too much in, and thereby their Heads betwixt their Legs, the lower part of the Branch is made to incline backwards towards the Neck of the *Horſe*, which raiſes and places their Heads in the moſt beautiful Poſture ſuch Necks are capable of. 8. [*Fig.* VIII.] There is ſtill another Sort hardier than the laſt, being ſo about an Inch and a Sixth part, and equally hardy at the Ham and Sevil-hole, being proper for *Horſes* that carry their Heads high enough, but thruſt out their Noſes. If a Man makes good uſe of his Legs as he is pulling in a *Horſe*'s Head hard, there are very few *Horſes* but will be obliged to bring down their Noſes. But to conclude with one general Rule; you are to note, that the farther the Sevil-hole is without the

Line of the Banquet, the harder and ſtronger the Branch is; and the more it approaches, or even comes on this Side the ſaid Line, ſo much the more gentle it is. *Solleyſel*, &c.

CHAP. XV.

Of the Art of Shoeing, *or a true and exact Method of* Shoeing *all ſorts of Feet, tho' never ſo bad or deformed.*

OF the two Sorts, the firſt Method is to ſhoe for the Advantage of the Foot, and to fit ſuch Shoes to it, according to its Nature and Form, ſo as to better it, and if good, to preſerve it from becoming otherwiſe. The other Way does ſo diſguiſe the Foot, as to make it really appear better than it is. We treat of the firſt only, and ſhall here premiſe four Rules to be obſerved in ſhoeing all ſorts of Feet. 1. *The Toe before*, whereby is meant to give the Nails a good hold upon the Toes of the Fore-feet, the Horn being there very thick, but not ſo in the Quarters of them. *Quarter behind* is, that the *Horſe* has the Quarters of his Hind-feet ſtrong, I mean the Horn thick, and capable of ſuffering a good Gripe by the Nails; but at the Toes of thoſe Feet the Horn's thin, and therefore no Nails at all ſhould be put into them there. 2. *Never to open a Horſe's Heels*; which is, when the Smith in paring the Foot, cuts the Heel low, and almoſt cloſe to the Fruſh, and takes it down within a Finger's breadth of the Coronet or Top of the Hoof, ſo as to ſeparate the Quarters at the Heel, and thereby weaken the Subſtance of the Foot, making it to cloſe and become narrow at the Heels; and if there be any Weakneſs in the Foot, it will neceſſarily ſhrink and ſtreighten in the Quarters, which will quite ſpoil the Foot. 3. *Make uſe of as thin and ſmall Nails as poſſible*; for thick ones make a large Hole not only in driving, but when riveting, and being ſtiff, ſplit the Horn, and take it away with them. A tender Foot cannot neither be ſhod with ſuch big Nails, without the hazard of Pricking, eſpecially if there is but little Horn to take hold on. But Smiths, to prevent this, pierce their Shoes too near the Edge, which will in time ruine the Foot. 4. *Make the lighteſt Shoes you can*, according to the *Horſe*'s Size, becauſe heavy ones ſpoil the Back-Sinews, weary the *Horſe*, and, in caſe of an Over-reach, more eaſily come off.

Do not pare the *Horſe*'s Feet almoſt to the Quick, but if his Hoofs are ſmooth and tough, they may be done reaſonably near: Then fit a Shoe to them, neither too broad nor too narrow in the Web, nor let the Spunges extend any farther than the Heel; but follow the exact Compaſs of the Foot, juſt to the Corners of the Fruſh; neither muſt they appear much on the Outſide of the Hoofs at the Heels; but let the middle of the Spunge, which is that part of the Shoe next the Heel, be placed juſt upon the middle of the End of the Quarter, which touches the Corner of the Fruſh, which is called the *Heel*, and ought never to be pared. Now the middle of the Spunges being placed upon the Extremities of the Quarters, the *Horſe* will never become hoof-bound nor over-reach; whereas too long Spunges fatigue and weary them, make them to over-reach, ſpoil their Feet, *&c.* and too ſhort ones will make a *Horſe* go leſs at his Eaſe. The Shoe ought not to preſs at all upon the Sole, but reſt equally and exactly round the whole Hoof upon the Horn; and obſerve, if the Shoe upon the outer Edge of that Side next the *Horſe*'s Foot have any Raiſing or Unevenneſs therein, beat and level it with the reſt before 'tis ſet on, otherwiſe he'll infallibly ſpoil the Hoof. The Shoe reſting on any other part of the Foot but the Horn, will make the *Horſe* halt, unleſs in reſting upon the Sole it be thick and ſtrong.

Having fitted the Shoe, drive in two Nails; then let the Foot be put to the Ground, to ſee if the Shoe is right placed. This done, the reſt of the Nails are equally to be driven in; but more particularly obſerve to drive the Nails of the Heels of the Fore-feet low enough, for fear of the Quick, which in the Hinder-feet is quite contrary; for there the Heels are ſtrongeſt. Having drove in the Nails, and cut them over with the Pincers or Nippers; before you rivet them, take the cutting Knife, and cut the Horn that over-paſſes the Shoe, by ſtriking with the Hammer upon the Back of the Knife, till all the Horn be taken away that you deſire. Before the Nails are riveted, you muſt uſe the Knife again to cut away the ſmall Pieces of Horn made to riſe by the Nails in driving, which will infallibly prevent the *Horſe*'s cutting himſelf with the Rivets; but as the Nails ſink gradually into the Shoe as it wears, ſo that the Rivets looſen, and appear more above the Hoof, Care ſhould be taken to cut them as they riſe, elſe they will lame the *Horſe*.

In caſe of *low Heels*, pare only the Toe, and touch not the Heel at all, nor the Fruſh neither, unleſs it begins to corrupt, and then you muſt pare it flat. The Toe muſt not be cut with the Buttris, but the Cutting-Knife, or Raſped only. The Buttris is only uſed to give the Shoe a Seat, after the Toe has been cut with the Knife: For Example, the Breadth of one's Finger or Thumb, if the Foot be too long at the Toe; in which caſe the Shoe muſt alſo be pierced near the Edge at the Toe, for fear of Pricking; and ſo placing the Shoe after that manner, the too great Nouriſhment that went into the Toe will be forced to ſtrengthen the Heels, and in twice or thrice ſhoeing, the Foot will arrive to a good Shape, and the Heel alſo will ſtrengthen, in the time that you reſtrain the Toe by cutting it.

When the Heels happen to be low, and not narrow, and the Fruſh large or fat, ſo as, with much difficulty, to be kept from touching the Ground, the *Horſe* then will be liable to halt, eſpecially if rid on hard Ground: To prevent which you have nothing to do, but to give him Calkins, which is done by turning the Inſides of the Spunges the whole Breadth of the Shoes, and making them after the Faſhion of Calkins. Theſe kind of Calkins will do no great harm to his Feet, and he will go the more firmly with them in the Street, or on ſlippery Ground. Thus you will hinder his Fruſh to touch the Ground. Calkins after the Faſhion of the Point of a Hare's Ears are the leaſt dangerous, tho' no Calkins at all ſhould be uſed if poſſible.

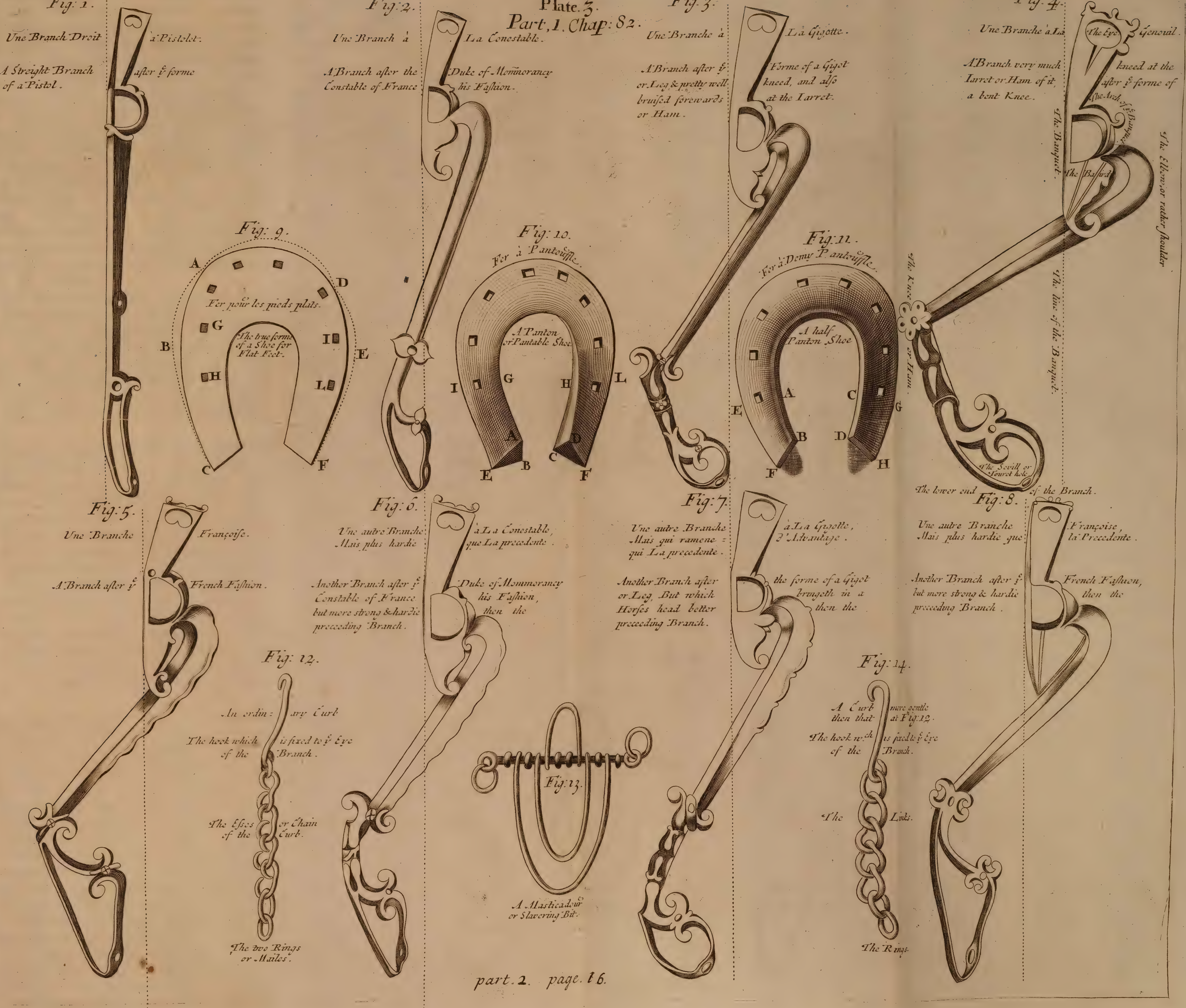


Fig: 1.
Une Branch Droit à Pistolet.
A Streight Branch after ye forme of a Pistol.

Fig: 2.
Une Branch à La Conestable.
A Branch after the Duke of Momnorancy
Constable of France his Faſhion.

Fig: 3.
Une Branche à La Gigotte.
A Branch after ye Forme of a Gigot
or Leg & pretty well kneed, and alſo
bruiſed forewards at the Iarret.
or Ham.

Fig: 4.
Une Branche à La Genouil.
A Branch very much kneed at the
Iarret or Ham of it, after ye forme of
a bent Knee.

Fig: 5.
Une Branche Françoiſe.
A Branch after ye French Faſhion.

Fig: 6.
Une autre Branche à La Conestable,
Mais plus hardie que La precedente.
Another Branch after ye Duke of Mommorancy
Constable of France his Faſhion,
but more strong & hardie then the
preceeding Branch.

Fig: 7.
Une autre Branche à La Gigotte,
Mais qui ramene = d'Advantage.
qui La precedente.
Another Branch after the forme of a Gigot
or Leg, But which bringeth in a
Horſes head better then the
preceeding Branch.

Fig: 8.
Une autre Branche Françoise,
Mais plus hardie que la Precedente.
Another Branch after ye French Faſhion,
but more strong & hardie then the
preceeding Branch.

Fig: 9.
Fer pour les pieds plats.
The true forme of a Shoe for Flat Feet.

Fig: 10.
Fer à Pantouffle.
A Panton or Pantable Shoe.

Fig: 11.
Fer à Demy Pantouffle.
A half Panton Shoe

Fig: 12.
An ordinary Curb

Fig: 13.
A Masticadour or Slavering Bit.

Fig: 14.
A Curb more gentle then that at Fig: 12.

The Eye
The Arch of ye Banquet
The Banquet.
The Baſtard
The Elbow, or rather ſhoulder
The Knee or Ham.
The line of the Banquet.
The Sevill or Tourret hole
The lower end of the Branch.
A
B
C
D
E
F
G
H
I
L
The hook which is fixed to ye Eye of the Branch.
The Eſses or Chain of the Curb.
The two Rings or Mailes.
The hook wch is fixed to ye Eye of the Branch.
The Links.
The Rings.

No ſort of Calkins will do for low Heels that are alſo narrow near the Shoe, though the Fruſh be large, which is not uſual; but ſhoe the *Horſe* with Panton Shoes, with a narrow Spunge, and very thick on the Inſide; I mean, that ſlope very much from the Inſide of the Shoe next his Foot to the outer Edge, and place the Spunge of the Panton Shoes upon the Heels, ſo as that the thick Edge of the Spunge may enter within the Corners of the Fruſh, to preſs them out when they grow; cut his Toe with the Paring-Knife, as occaſion is. Keep his Feet in his Dung, moiſtned a little with Water, after ſhoeing, till he leave halting: The Heel, and even the whole Foot, will become ſhapeable after thrice ſhoeing. Horſe-courſers, to cheat the Buyer, ſupply the Want of the Heels by making the Spunges of the Shoes great and thick: They ſpoil the *Horſes*. In ſhort, there is no helping of low Heels with a very large Fruſh, by Shoeing.

Thoſe *Horſe* sthat have flat Feet, if they are young, will have them always ſpread, and be in danger of growing ill-ſhaped; to remedy which, bar the Paſtern Veins, by tying them near the Joint with a fine Thread, that you may not retard the Cure. A little Silk is very good for that Purpoſe; then cut the Vein beneath, and let it bleed; and if it bleed too long, bind up the Orifice with a large Band and a Compreſs.

As for Shoes proper for ſuch flat Feet, forge according to the following *Fig. H, C, D, E* [Plate V. *Fig.* IX.] Shoes very ſtrait in their Quarters; turn them not into a Circle, neither follow at all the Shape of the Quarters of the Foot; but whoſe Branches from the Toe *A, D,* to the Spunges *C, F,* muſt be very ſtraight; and you muſt pierce the Holes *G, H, I, L,* very near the Edge. The Shoes muſt be alſo ſo placed, that you may have about the Thickneſs of two Crowns of Horn to take away at the Toe *A, D,* with your Knife; and they having their Branches ſtraight, undoubtedly a good deal of Horn will remain to be taken off at the Sides *A, B, C,* and *D, E, F.* which are retrenched by the Shape of the Shoe within the pointed Line, as appears by the Figure.

The Shoe being thus prepared, fit it to the Foot, and it matters not though it reſt a little upon the Sole; faſten it with very thin Nails, taking but a ſlender hold; and the *Horſe* being thus ſhod, put a Reſtrictive into his Foot, made of Chimney-Soot and Turpentine boil'd together on a ſlow Fire, and always ſtirring it till pretty thick. Apply it ſcalding hot with Hurds above it, and tye a Cloth about the Foot to hold all faſt. This will hinder the Over-growing of the Sole, and, with ſtopping the Paſterns, very much contribute to put a Stop to all the ſuperfluous Nouriſhment that went to the Sole and Coffin-bone: Put alſo ſome Hoof-Salve, ſpread upon Hurds by way of Plaiſter, upon the Coronet, applying it to the Onſet of the Hoof, to make the Foot grow. Let the Plaiſter be renew'd every four Days. The *Horſe* muſt not be work'd for four or five Days, that he may be uſed to his Shoes, which at firſt will preſs his Feet. Continue to ſhoe your *Horſe* after the aforeſaid Method every New Moon, making the Shoes gradually ſtraiter, not much at the Quarters, but conſiderably at the Toe *A, D,* which muſt be retrenched by all imaginable means, as it is mark'd in the Figure by the Circular Line *A, D,* which is mark'd with Points. The Shape of the *Horſe*'s Feet will be changed much for the better, after thrice or four times Shoeing; and obſerve for a certain Rule, always to uſe this Way of Shoeing three or four Days after the Change of the Moon, that the Hoof may grow the better.

When the Feet grow too much at the Sole, and that the Heels are ſtraiter nearer the Shoe than above, then you muſt not retrench the Sides of the Foot *A, C, D, F,* as before; but to enlarge the Heels, let them be ſhod with Panton Shoes, which, beſides their opening the Heels, will prevent the Growth of the Sole too much downwards: But in ſhoeing with the Panton, follow the Circumference of the Foot, neither muſt the Branches be ſtrait. The Sole muſt be kept ſtrong, without taking any thing but the Cruſt from it; for the *Horſe* otherwiſe will halt. Always ſhorten the Toe, by cutting it with your Knife as there is occaſion. The Shoe muſt be made wholly flat and unvaulted. Cauſe the *Horſe*, after the Fore-feet are ſhod, to ſtand with them all Day long amongſt his own Dung a little moiſtned, and let him not work for eight or ten Days.

When the *Horſe*'s Sole is round, and lower than his Hoof, and grows ſometimes ſo ill-ſhaped, as to reſemble an Oyſter-Shell, and become in a manner reverſed; the beſt and ſhorteſt Way is to bar the Paſtern-Veins, and ſeven or eight Days after the Operation, to make him Panton Shoes, with ſtrait Spunges, and extraordinarily thick on the inner Edge: They muſt be likewiſe altogether flat, and not vaulted; for almoſt all the round and high ſoled *Horſes* have narrow Heels near the Shoe; for which uſually many, thro' miſtake, make hollow Shoes, which in reality conſtrain, and make the Foot grow daily ſtraiter at the Heel. The little Bone, which is in the middle of the Coffin, preſſes downwards towards the Sole; the Toe grows long, and the Feet become ill-ſhaped and unſerviceable: To rectifie which, the Panton Shoe being forged and pierced near the Edge of the Toe, as aforeſaid, cut more or leſs from the Toe with your Knife, as you judge fit; then fit the Shoe ſo, as that the Slopings, or thick Parts of its Spunges, may enter within the Corners of the Fruſh; and being flat at the Toe, that it may reſt on the Horn, if a little on the Sole it matters not, and faſten it with thin Nails: Then uſe the aforeſaid Reſtrictive, and let him reſt for twelve Days or more, till he leaves halting: Work him by degrees, and if the *Horſe* is not old, his Feet, after three or four Shoeings, will aſſume a good Shape.

It's a great Abuſe to vault Shoes, when it may be forborn, becauſe the Foot being nail'd, and made faſt to the Shoe, aſſumes the Shape of it; and Nature finding that Paſſage open, through the Inclination ſhe has to furniſh ſuperfluous Nouriſhment to the Under-part of the Sole, preſſes always that way, and is alſo helped by the hollow Shoe to give that round Form to the Feet that makes a *Horſe* unſerviceable for the Street, or upon hard Ground. If the *Horſe* have his Sole but a little raiſed, ſo as not to be yet abſolutely round beneath, it will be helped after twice or thrice Shoeing; but the more it is out of ſhape, the more time will it take to rectifie: But if the Foot be extraordinary high or round in the Sole, the Paſtern-Veins muſt be forthwith barr'd; and that is the only Means to give a good a good Shape to thoſe flat kind of Feet. The main Deſign being to ſtop the ſuperfluous Humour, as before, and to confine the Nouriſhment to the upper part of the Foot, which ſhoeing with Panton Shoes will do, even without retrenching the Hoofs at the Sides, but only a little at the Toe; but keeping the Sole ſtrong, without taking any thing from it. The Shoe muſt be faſtned with very thin Nails, then fill his Feet with Tar ſcalding hot, with the foreſaid Reſtrictive, or otherwiſe, keep them amongſt his moiſtned Dung.

The firſt Shoeing of *Coach-Horſes* is of Conſequence; the Horn being to be made level where the Shoe reſts, take nothing from the Sole, but only as it were clean and whiten it, becauſe it has been already made hollow; ſhoe him juſt, and let the Shoe be pierced at a pretty Diſtance from the Edge; but the Nails muſt be drove low: For ſhould the Shoe be pierced round the Edge, the Nails in driving would ſplit the Horn, already too much weakned by the *Horſe-Merchant*, who had no other Deſign but to make his *Horſe*'s Feet appear hollow. Drive a Nail juſt at the Toe, that the Shoe may ſtay longer on without ſhifting its Place, and may remain ſtraight upon his Foot. Retrench not his Quarters, nor open his Heels at all, but let the Shoe follow the Compaſs of the *Horſe*'s Foot, whereby you will preſerve his Feet, and they will be always good. Thoſe who think to give Eaſe to their *Horſes*, by enlarging their Shoes, or vaulting them a little, inſenſibly ſpoil their Feet, which follow the Form of the Shoe, and ſo become miſ-ſhapen: For the more the Shoe is enlarged at firſt, the more it muſt be the next Shoeing; and 'tis the Way abſolutely to loſe your *Horſe*.

Thoſe *Horſes* which have big and large Feet, though they be not flat, are more ſubject to have them eaſily ſpoil'd than any other, if People do not take care at every Shoeing to retrench them, till the Nature of the Horn be changed.

As for *Hoof-bound*, or *Narrow-heel'd Horſes*, the Manner of curing them, and the Receipts for it, you will meet with hereafter among the Diſeaſes incident to *Horſes*; we ſhall only treat here how far Shoeing becomes a Remedy: Wherefore take the Heels very much down, without hollowing the Quarters, and pare the Fruſh flat. This will prevent Hoof-binding, and the Sinews of the Legs will be alſo preſerved, eſpecially if they be *Horſes* which work in the *Manege* upon ſoft Ground. It's likewiſe a Precaution never to open their Heels with the Buttris, as Smiths do; for they weaken the Quarters, by preſſing the Buttris edge-ways forwards: They alſo cut the End of the ſaid Quarter or Heel, take it even away within an Inch of the Hair, which they call *Opening the* * *Heels*, which yet they are ſo far from doing, that they take away the whole ſtrength of the Foot, which ſhould have been left altogether whole: If there is any likelihood that the *Horſe*'s Heel will become narrow, the ſureſt Way then is to ſhoe him with a Half-Panton Shoe, which is to turn the Branch of the Shoe in towards the *Horſe*'s Foot; for that Shoe will keep his Quarters in a Condition to open, and become wider, the Horn growing, the Heel opens, and ſo the Foot will continue well-ſhaped. And ſeeing undoubtedly the Shoe gives Shape to the Foot, and that the Shoe being inflexible, takes no other Form than it hath already, it neceſſarily follows, that the Half-Panton muſt force the Horn onwards, and ſo enlarge the whole: But, above all things, remember that when you ſhoe with the Half-Panton, always to keep the Sole ſtrong.

Some will not have the Fruſh pared at all: The beſt way is not to make the Sole hollow betwixt the Fruſh and the Quarters, but only to pare the Top of the Fruſh with the Buttris, which they call *Paring the Fruſh flat*; For if they did not pare the Fruſh at all, it would corrupt, ſtink, and breed the Teignes or Moths; for then the *Horſe* looks as if the Moths had gnaw'd his Fruſh; beſides there is no Advantage in leaving it ſo high. In ſhort then, every time the Foot is pared, the Heel and Fruſh ſhould be made flat, without hollowing the Quarters; and that for the leaſt ſtreightning of the Heels, the Spunges ſhould be turn'd in towards the Soles, after the manner of the Half-Panton, of which by and by. Now for thoſe *Horſes* which are Hoof-bound, after you have par'd their Feet, and left the Sole extraordinary ſtrong at the Heels, you muſt have Panton Shoes in the Shape of *Fig.* X. Plate V.

In forging the Panton you muſt make the inner Edge of the Spunge *B, A, E, C, D, F*, a great deal thicker than the outer Edge *I, E, L, F*; ſo that betwixt *A, G*, and *D, H*, there may be twice or thrice the Thickneſs of the Spunge *A B, C D*. ſo that the Shoe riſes by degrees from *G* to *A*, and ſlopes equally from *A* to *E*, the whole Length *A G, E I*; and ſo you will find the inner Edge of the Spunge much thicker than the outer; for the Thickneſs within, mark'd *A B*, is three times thicker than *E*. It's the Inſide of the Shoe, and that which touches the Sole, that is ſeen in the Figure; but great care muſt be taken that the Thickneſs of the Spunge *A B, C D*, diminiſh always towards *G H*, as may be perceived in the Figure; and all the reſt of the Shoe from *I L, G H*, round the Toe of the Shoe, be quite flat as other Shoes are, that the *Horſe*'s Foot may reſt eaſily upon it. The Spunges ſhould be ſtraight, that they may reſt on the Inſide of the Corners of the Fruſh; and all the Outſide of the Shoe, which is next the Ground, muſt be quite flat like another Shoe. *See Plate* V. Fig. X.

It's neceſſary in placing the Spunges of this Shoe upon the End of the Heel, which is the Extremity of the Quarters, that the ſame Extremity reſt upon the Middle, betwixt *A E*, and *D F*; which is the ſloping part of the Spunge: But yet the inner Edge of the Quarter *A G*, muſt not wholly reſt upon the Sole, tho' you keep it ſtrong enough; which ſhould be always done in uſing thoſe kinds of Shoes, and eſpecially at the Heels. Being then ſhod, anoint his Feet with the Hoof-Salve before mention'd, or thoſe deſcribed hereafter among the Diſeaſes. This Method will infallibly open and enlarge his Heels. Theſe kind of Shoes are not indeed fitted with a little Time and Pains, and the Smith muſt not ſpare putting the Shoe into the Fire again, either to open or ſtreighten the Spunges, as there is Occaſion; for the Shoe muſt exactly follow the Shape of the Foot, as well at the Heel as at the Toe; and though the inner Edge of the Spunge does but enter within the Heel about the Thickneſs of two Crown-pieces, it ſignifies little; for the Heel opening, will in a Month's time cover it all. Now if you would know the Reaſon why theſe kind of Shoes open the Heels, and help Hoof-binding, is that when a Heel grows, it is forced outward by the Shoe, becauſe the Spunge, which is thicker a great deal in the inner Edge than the outer, hinders the Heel to cloſe and tend that way; but forcing it outwards, it muſt neceſſarily enlarge and open, if the Shoes are right placed.

You muſt continue ſhoeing the *Horſe* after this manner, till his Heels be well ſhaped and large: Twice or thrice ſhoeing at the change of the Moon, or four or five Days after, will do it. Theſe ſort of Shoes never ſhift upon the Feet, but remain firm in one Place; the *Horſe* indeed will be for ſome time unſerviceable, and People muſt not pretend to travel with thoſe kind of Shoes till the *Horſe* is accuſtomed to them. However, if you have a Journey to make with a *Horſe* that is hoof-bound, but does not as yet halt with it, His Heels, when he is ſhod, muſt not be taken down at all, but kept as ſtrong as poſſible, and the Nails are only to be drove in the Toe. 'Tis true, this will not be the Way to help his Hoof-binding, but on the contrary render it worſe, it being only to make him perform his Journey that you do it.

The Remedy for Hoof-binding, when you are put upon a Neceſſity of taking out the *Horſe*'s Soles, you will meet with hereafter: But there are ſome *Horſes* ſo very ill hoof-bound, that though the Soles have been taken out, yet they can ſcarce force out their Heels. The ſhorteſt way for Cure is, to cleave the Fruſh almoſt down to the very Paſtern, immediately after the Sole is taken out; and when the Shoe is faſtned on, and the Charge or Apparel for Cure put upon the Sole, let the Clift be very well filled with Bolſters or Rolls of Linnen, firſt dipt in the healing Charge, which muſt be put into it at the Under-part of the Paſtern: Tye afterwards all up with a Cloth to keep them faſt, and always keep the Clift very open, till the Sole be wholly filled up again. If after this you ſhoe your *Horſe* with a Half-Panton Shoe, it will make his Heel become very large and well-ſhaped.

For *Cloven* or *Falſe Quarters*, a Shoe muſt be made, called the *Half-Panton*, repreſented in *Fig.* XI. Plate 5. at *E F, G H.* It is to be put upon a *Horſe* that hath one or more falſe Quarters, and conſequently narrow Heels. The whole Branches, and alſo the Spunges *F, B, D, H,* muſt be made ſtronger than ordinary; afterwards turn them up ſo that *A, B, C, D,* may be higher than the outer edge *E, F, G, H,* and ſo you will find that betwixt *A, B,* and *E, F,* the Shoe will ſlope outwards; alſo the other Branch *C, D, G, H,* will do the ſame; and the Reſt of the Shoe, *F, E, G, H,* will be altogether flat upon the edge of the Ground as an ordinary Shoe; for here is repreſented the inner ſide of the Shoe, becauſe the under ſide of the ſame *F, E, G, H,* muſt reſt upon the Ground, the whole compaſs of the Shoe, *F, E, G, H:* The Spunges are turn'd quite contrary in Vaulted Shoes, *viz.* outwards, towards the Ground; but here inward into the Foot: And whereas the Hoof-binding Shoes, already accounted for, have the inner edge of the Spunges a good deal thicker than the outer, both the edges of theſe are of one equal thickneſs: the dexterity is to turn the Spunges, ſo as to give them a right ſlope, and make the Shoe Hollow or Vaulted next the Ground.

In fitting on the *Half-Panton* Shoe, let the Foot be pared, the Sole kept ſtrong at the Heels, and the Shoe ſet ſo that the middle of the Heel, which makes the Extremity of the Quarters, be exactly put upon the Spunges *F, B, D, H,* ever being careful that the inner edges of the Spunges reſt not wholly upon the Soles: Then let the Nails be drove in neatly, and be very thin in the Shank, when the Shoe is Nailed and Rivetted, pour into the Foot melted *Pitch* and *Tallow* together, with Hurds and Splinters of Wood above them, to keep all faſt; and it will be very proper, if you have it, to put Oyl of *Bays* alone ſcalding hot into his Foot, with Hurds and Splinters, or to pour *Tar* ſcalding hot into it: or without making uſe of theſe, keep his Feet amongſt his moiſtned Dung, till he leaves Halting, and in the mean time anoint his Hoofs with *Hoof-Salve* at the *Coronets*.

There are ſome more eſpecially of the light kind of Horſes, that have unequal Heels, one of them ſtanding higher than the other, and is eaſily diſcern'd by looking at the *Paſtern*, juſt to the Heel: This way of Shoeing with the *Half-Panton* is the beſt Remedy, or to take out their Soles, and cleave the *Fruſh* to the very bottom; that ſo when it grows up again, the Heels may be kept of an equal height.

Some Horſes Legs, from the Knees to the Coronets, appear in *a ſtrait Line*, when they ſtand in their natural Poſition: to recover theſe by Shoeing, the Heels muſt be taken very much down almoſt to the Quick, without hollowing the Quarters; and if then the Leg does not fall back enough, but that ſtill he carries his *Paſtern-joint* too far forwards, make the Shoe go beyond, or exceed the Toe half a Fingers breadth: It muſt alſo be made thicker in that than any other part. In the interim, let the Back-ſinews of his Legs be anointed with the Ointment of *Montpelier*, which will reduce them to their proper Poſition; and the preparation whereof you will meet at the end of this Tract of *Horſemanſhip*.

If you find the Paſtern-joint *bend too far forwards*, and go out of its place, take down the Horſes Heels to the very Quick, without opening it, and put on a Shoe that will appear all round his Toe, two Fingers breadth without his Foot, and anoint the Back-ſinew as before: It's in like manner proper at firſt, when he carries theſe kind of Shoes, to walk him gently up and down in ones Hand, to aſſiſt the Joint to fall into its right place, and by no means upon rough, uneven Ground.

If you cannot recover the Legs of Horſes that ſtand from the *Knee to the Coronet in a ſtrait Line*, by the foreſaid Method; after you have taken his Heels down very much, and ſhod him with *Planch-Shoes*, as the *Mules* are, let him carry thoſe Shoes three or four Days, and walk him abroad that he may be accuſtomed to them; and then you muſt come to a Manual Operation; and firſt obſerve, that Horſes much troubled with theſe Infirmities, have a Sinew or Muſcle at the Ars or Plat-veins, and a little below the place where they Bleed Horſes in that part, which is near to the Junction of the fore-Thigh with the Shoulder. It's about the bigneſs of ones little Finger, much ſtretched and ſtiff, and lies ſtrait up and down, all along the Leg: this is the Muſcle that makes the motion of the Paſtern-Joint, and being ſtretched in this manner, keeps it forwards, and hinders it to be in its ordinary ſituation: Having found out this extended Muſcle, which you will eaſily do, open with the *Inciſion-Knife* the Skin downwards four Fingers breadth below the fore-Thigh vein, then cut it quite through croſs-ways, not at once, but by degrees: then turn the Knife to the other ſide of it, and gradually perfect the Cutting, and when done quite thro', waſh the Wound with Brandy, with Salt in it; and Work the Horſe after he has no more ſwelling where you Cut him, and that the Wound is healed up: If the Operation be dexterouſly performed, the Horſe will bleed but little, and the Wound will ſoon heal: And that you may go through with it the more ſecurely, and not cut the fore Thigh, or *Plat-Vein*; be ſure to make the Operation four Fingers breadth lower than the Veins: the Horſe will recover in eight or ten Days.

The like Operation is made upon Horſes that have their *Paſterns altogether caſt forwards*, by cutting them four Fingers breadth higher than the Knee, juſt upon the fore-part of the fore Thigh: firſt the Skin is cut above the Sinew, which is very ſtiff and ſtretched on the fore-part of the Leg; then raiſe it with a ſharp Ox, or wild Goats Horn: afterwards cut it with the Inciſion-Knife, quite through to the Horn, thruſt beneath it, and fill the Wound with Salt, putting Hurds or coarſe Flax, dipt in warm *Turpentine*, above it; the Horſe muſt be kept from coming at it with his Teeth; the Leg in wraping muſt not be preſs'd too hard, for fear it ſhould ſwell: They dreſs him thus for ſome Days, but Bleed him the very next, and anoint his Leg with the Duke's Ointment, deſcribed at the end of this Treatiſe of *Horſemanſhip*: this is continued, and the Horſe walk'd up and down for eight Days, till the Wound heals and the *Paſtern* falls to its place. When a Horſe is in a ſtrait Line from his Knee to the Coronet, and the Sinew not much raiſed from the Bone, but exceſſively ſtretched; the Cure is longer before it is perfected.

Arched Legs are thoſe that bend forwards at the Knee, when a Horſe is in his natural Poſition. Begin the Cure with Shoeing; you cannot pare the Heels too low; but if the Leg, when you have done this, is not in the Condition you could deſire, but continues much Arched at the Knee; make a *Planch-Shoe* for him, which muſt exceed the Foot, at the Toe, two or three Fingers breadth, and riſe alſo a little towards the edge; when you have faſtned it on, anoint the Sinew with the Ointment of *Montpelier*: But if all this does not procure the deſired effect, cut the Sinew a little below the fore Thigh-Vein as before; and if it ſwells, anoint him with an Ointment made of *Populion*, *Honey* and *Black-Soap*, an equal quantity of each, mixed very cold, with a ſmall Glaſs of Brandy: Walk him every Day, but obſerve never to cut the Sinew till his Heels be taken down, and he Shod.

Thoſe Horſes which *tread upon their hind Toes* without reſting upon their Heels at all, are cured in part, after the ſame manner as thoſe Horſes who have their *Paſterns* bending forwards, as if they were out of Joint: They uſually take their Heels down very much, give them Shoes longer an Inch or two than the Foot at the Toe, and anoint well the Sinew of the hind Leg.

For a *Stumbling Horſe*, take down his Toe very much, before you Shoe him, and alſo ſhorten it, but if he has his Sinew troubled, Legs ſpoiled, or Shoulders weak; you will find other Remedies than Shoeing for him hereafter: If the Horſe *over-reach*, the Spunge of his Shoe muſt follow the turn of his Foot: Some People turn their hind Foot-Shoes at the Toe, and prevent the ſtriking off the fore-Shoe, tho' the Rider is frequently, for want of Skill, the cauſe of his over-reaching.

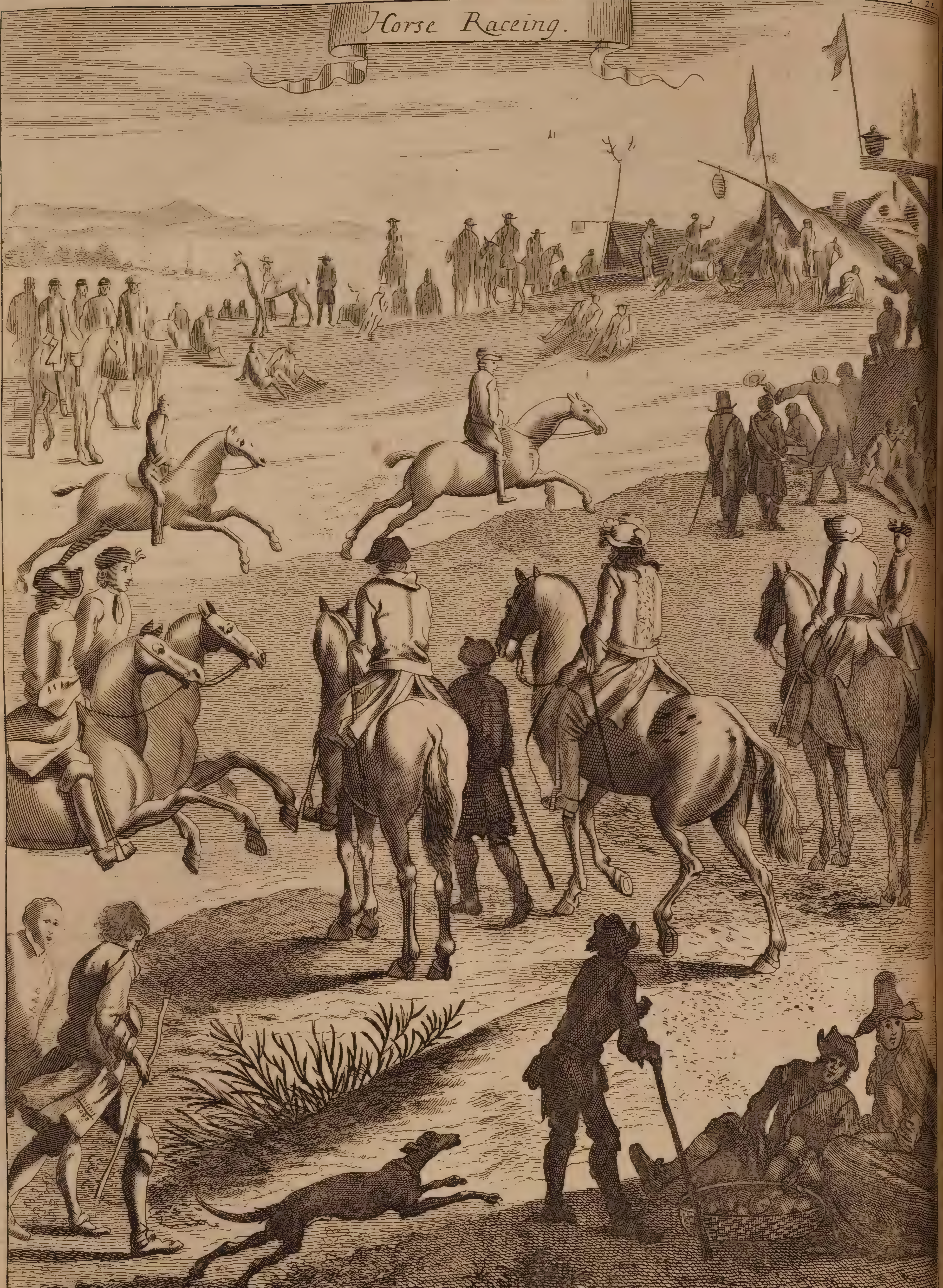
There are few Horſes that have been more than once Founder'd in the Body, which have not ſome of the Humour fallen down into their Feet, becauſe the point of the *Coffin-bone*, which is moſt advanced falls down and preſſes the Sole, and the middle of the Hoof above the Toe ſhrinks and becomes flat; and in this caſe the Horſe is ſaid to have *Creſcents*: Tho' they be really nothing but the Bones of the little Foot that hath left its place, and fallen downwards, and the Sole at the Toe appears round, and the Hoof above ſhrinks in: the ſame happens to Horſes that have had a Numbneſs in the *Coffin*, the Symptoms of which are alſo *Creſcents*: Such Horſes tread only on their Heels, ſetting down their Toe a pretty while after their Heel; neither can they reſt upon any part but the Heel: Horſes in theſe two Caſes, are a long time recovering: Now in Shoeing them, never pare a Horſe Founder'd in the Feet; becauſe the Sole in that part ſhould be always kept ſtrong; neither muſt the Heels be taken down too much: As ſoon as he is Shod, pour the Oyl of *Bays* ſcalding hot into his Sole with Hurds above it, and Wood Splinters to keep it faſt, and continue once a Day, to pour in the Oyl ſeven or eight times.

Calkings ſpoil the Feet, cauſe *Bleymes*, ruin the Back-ſinews, and make Horſes tread upon the Toes only of their hind Feet and trip: They are however convenient in time of Froſt: When you are neceſſitated to uſe them, let the *Smith* pare the Horn a little low at the Heels, and turn down the inner Corners of the Spunge into the Corner of the Anvil, and ſo make a Calking after the ſhape of the point of a Horſes Ear; which will do little prejudice, whereas the great ſquare one ſpoils the Foot.

There are ſeveral things that make a Horſe *Cut*; as Wearineſs, weakneſs in the Reins; not knowing how to go; not being accuſtomed to Travel; and laſtly, bad or too old Shoeing: Every Horſe that cuts after a long Journey, gives a favourable proof of his Goodneſs. It's eaſily diſcern'd by the Skins being cut on the inſide the Paſtern-Joints, and many times galled to the Bone, ſo as to have him frequently Halt, and have his Paſtern-Joints ſwell'd.

If a Horſe Cut before, take off his two fore Shoes, the Out-quarters of each Foot very much down, and place the inner edge of the Shoe ſo, that it may exactly follow the compaſs of the Foot, and no ways exceed it towards the Heel: Then cut the Spunges equal with the Heel, and ſo Rivet the Nails into the Horn, that they may not at all appear above it: Or elſe burn the Horn with the point of a hot Iron, a little below the hole of each Nail, and then beat down and rivet them in theſe holes: But if notwithſtanding this, the Horſe continue ſtill to cut himſelf, or Interfere, thicken the Inner quarters and Spunges of his Shoes, ſo as to double the thickneſs of thoſe upon the out ſide, and always pare down his Out-quarters very much, even almoſt to the Quick without touching thoſe within; but be ſure always to rivet the Nails very juſtly and cloſe.

Unſhoe the Horſe and pare down his Out-quarters as before, if he cut behind: Give his Shoes Calkings only on the inſides, and ſuch by turns as may make them exactly follow the compaſs and ſhape of his Foot without exceeding it, eſpecially in the Inner-quarters; and if the Nails be not exactly riveted, one ſingle Rivet will occaſion a great diſorder. But if



Horse Raceing.

To the Right Honourable Algernon Capell,
Earle of Eſsex, Viſcount Malden & Baron Capell of
hadham &c.t
This Plate is humbly dedicated by Richard Blome.

if after all this your Horſe continue to Cut, drive the Nails always upon the Inſides, only let a Beak be made at the Toe to keep the Shoe firm in its place: this will do in ſome time, tho' the Horſe be afterwards Shoed after the uſual way. Some faſten little Boots of Leather, or of an old Hat about the *Paſtern-Joints*, made faſt at top only, and narrower there, while others wrap a piece of Sheep-skin about the Joint, with the Woolley-ſide next the Horſe; and when worn out, apply a new one. Reſt and good Feeding is beſt for a Horſe that cuts thro' Wearineſs.

CHAP. XVI.

Of Hunting, *or* Hunting Horſes.

HUnting is (or at leaſt ought to be) a pleaſing and profitable Exerciſe, intended to make us ſtrong and active, and to recreate and delight the Mind: Therefore a *Horſeman* that is of a Warlike Nature, ought to chooſe ſuch ſorts of Hunting as are moſt capable to anſwer thoſe ends; ſuch as hunting the *Stag*, *Buck*, *Fox*, and the like; and in other Countries that of the *Wild-Boar* and *Wolf*. And as on the one ſide, I would not recommend to him deep mouthed *Hounds*, that ſort of hunting being too lazy an Exerciſe for one that would keep himſelf in vigour; ſo on the other ſide, I would not adviſe him to ſuch very fleet ones as ſome of the *Northern*, that the following them is more properly called Running than Hunting; and my Reaſon is, becauſe to follow thoſe extraordinary fleet ones, a Man muſt have ſuch light Horſes, and keep them ſo finely and nicely, that they are not fit for any other Service; not that I would have them put to any other, but when occaſion requires: As if a Man were to go to the Army on a ſuddain, if his Hunters be a good ſtrong ſort of Horſes, with firm Limbs, and not too tenderly kept, what a great convenience it is to him, I leave to any one to judge.

I ſhall not trouble you with any other directions for the chooſing a *Hunting Horſe*, than that (according to the Compleat *Horſeman*) he ſhould go ſmooth, and not raiſe his fore-Feet too high, that his Head and Neck ſhould be high and well placed; without reſting too much upon the Snaffle; and alſo giving a little ſnort with his Noſtrils, each ſtroke he makes, which is a Token that he has a ſound Wind: Our Author goes on, ſaying, be ſure that he has good Wind and Speed, that he is naturally of a healthful and hardy Conſtitution, and withal that he has ſo much ſtrength (that as I ſaid before) you may, if you have a mind to it, make uſe of him at the Army for Marching, and the like; and above all, keep him not too tenderly, leſt when you take him from *Hunting* for another uſe, you find his Body not hardy enough to ſuffer a new method of keeping.

Some of our well-bred Twelve-ſtone *Horſes*, that have been ſent abroad, have proved extraordinary good for the War.

It is very requiſite to make a *Hunting Horſe* acquainted with a Bit, and to teach him a little to ſtop and turn, which not only hinders him from galloping upon his Shoulders, and makes him ſurer footed than otherwiſe perhaps he would be, but renders him more capable of being fitted for the War whenever you have a mind to it.

I need not ſay much in telling you how to ride a *Hunting Horſe*, the great Saddle being the ground of all; in ſhort, you muſt mount him as directed in the Tenth Chapter, and ſit in the ſame poſture, only make your Stirrups ſhorter, and let your Legs fall nearer the *Horſes* ſides. In galloping lean forwards to eaſe him, and if you have a Snaffle Bridle, in hard Riding, lay your right Hand upon the Rein of the ſame ſide, the better to feel your *Horſe*, and becauſe ſometimes you can't turn him with one Hand.

In other Countries they hunt in light Bits, and though a Snaffle be very pleaſant and eaſie, yet I am of the Opinion that a Bit is much more advantageous, in that it makes the *Horſe* have a better Mouth, and the Rider a better Hand.

I would not have any thing in this Chapter offend ſuch Perſons as are wholly Strangers to Military Affairs, and not at all inclined that way, keeping their *Horſes* only for Pleaſure and ordinary Buſineſs, they may (if they pleaſe) go on ſtill in their own Road; what I have ſaid will be no inconvenience to them, and may be of ſervice to ſuch as love the War, and warlike Exerciſes.

CHAP. XVII.

Of the Race, *or* Race Horſes.

IF you would have good *Running Horſes*, they ſhould be thus ſhaped; let them be as light as poſſible, large and long, but well ſhaped, with a ſhort back, long ſides, and a little long legged, and narrow breaſted, for ſuch will gallop the lighter and nimbler, and run the faſter. *Solleyſell* ſays, he ſhould be ſomewhat long bodied, nervous, of great Mettle, good Wind, a good Appetite, very ſwift and ſenſible of the Spurs, that he ought to be of an *Engliſh Breed* or *Barb*, of a little ſize, with pretty ſmall Legs, but the back Sinews at a good diſtance from the bone, ſhort jointed, and neat well-ſhaped feet.

The excellent Breeds of *Running Horſes* that we have in *England*, though (through the ſeveral Abuſes which have been made) they have been unfortunately miſchievous to a great many Perſons, yet if rightly regulated, and made uſe of, might be very advantageous to the Kingdom, as well as pleaſant and diverting to Men of Quality.

The advantage is this; by having *Plates* run for at ſeveral times, and in ſeveral Counties, we come to know exactly the Speed, Wind, Force, and Heart of every *Horſe* that runs, which directs us infallibly in our choice when we have a mind to furniſh our ſelves for the War, Hunting, Breeding, the Road, and the like; whereas if we could ſee no ſuch Trial made, we muſt ſtand more to our hazards, and ſhould not be ſo ſure to meet with good ones: For a *Horſe* may Travel well, Hunt well, and the like, and yet when he comes to be pent hard, and forc'd to the top and extremity of what he can do, may prove not good at Heart; and what Perſon of Quality is not glad to breed or buy the beſt? The ſame failure in Nature which makes a *Horſe* faint-hearted when he is ſtrained to his utmoſt, and kept to it, will make him ſo if he is deſperately wounded: For ſome *Running Horſes* that have wanted neither Wind nor Speed, have been beaten only by their Hearts ſinking in them when they come to be hard preſs'd.

As for the regulating this matter, I could wiſh that our Nobility and Gentry would not make a Trade of Racing ſo much as ſome have done. When they run only for Plates, or their Matches are for no more than may be loſt without damage to their Eſtates, 'tis very innocent Diverſion; but to run for ſo great a Sum that the loſs can't be well born, and conſequently one muſt endeavour to win the ſame (if not more) back again, it draws one into vaſt Expences by way of preparation for a Revenge; and then if a ſecond ill Fortune comes, I need not relate the unhappy conſequence: But if one prove ſucceſsful, he is apt to fancy he ſhall prove ſo again, and ſo before he thinks on't, he is declared a *Jocky*, ſets up for a Brother of the *Spur*, and runs ſo faſt, that ſometimes neither his Eſtate nor Friends can keep along with him, turning his Diverſion into a Misfortune.

I ſhall ſpeak of the Methods of ordering *Running Horſes*, when I come to the following part of this Diſcourſe, which is of *Keeping*. We will therefore now ſuppoſe a *Horſe* ſet to run for a Plate, and that the Hour of ſtarting is at hand.

When the *Drum* beats, or the *Trumpet* ſounds (according to the Cuſtom of the place where you run) to give notice for Stripping and Weighing. In the firſt place be ſure to have your Stomach empty, only taking ſomething to keep out the wind, and to ſtrengthen you. If you are ſo light that you muſt carry weight, let it be Shot, equally quilted in your Waiſtcoat; but if you are juſt weight it is better, for then you have only to dreſs you according to your own fancy. Your Cloaths ſhould be of coloured Silk, or of white Holland, as being very advantageous to the Spectators. Your Waiſtcoat and Drawers muſt be made cloſe to your Body, and on your Head a little Cap tied on: Let your Boots be gartered up faſt, and your Spurs muſt be of good Mettal.

Thus equipped, you are to mount, and come to the place of Starting, where going off briskly or gently, as occaſion requires, make your *Horſe* perform the *Courſe* or *Heat* according to your deſign intended. For Example: If you would win the ſame, and your *Horſe* excels in goodneſs more than ſpeed, ſtart him off roundly, and run him to the very top of what he can do during the whole *Courſe* or *Heat*; and by that means, if the *Horſe* you run againſt be not ſo good at bottom, though he has more ſpeed, you ſhall beat him, becauſe he will be run off of it a great way before he comes to the end: But on the contrary, if your *Horſes* Talent be Speed, all that you can do is to wait upon the other *Horſe*, and keep behind him till you come almoſt to the Stand, and then endeavour to give a Looſe by him. Sometimes when you are to run more Heats than one, it will be your Policy to loſe a Heat; and in ſuch a caſe, for the eaſing and ſafeguard of your *Horſe*, you muſt lie behind all the way, as much as you can, provided you bring him in within diſtance.

As for your Poſture, place your ſelf upon your Twiſt, with your Knees firm, and your Stirrups juſt at ſuch a length, that when your Feet are thruſt home in them, you can raiſe your ſelf a little in the Saddle; for without that allowance your Legs will not be firm when you come to run: The counterpoiſe of your Body muſt be forwards to facilitate your *Horſe*'s *Running*, and your Elbows muſt be cloſe to your Body; but above all, be ſure not to incommode your *Horſe* by ſwagging this way or that way, as ſome do: For ſince Weight is a great matter in running, and a troubleſome Rider is as bad as ſo much more weight, I need not tell you how neceſſary it is to take great care of your Seat and Hand; you muſt therefore beware of holding your ſelf by the Bridle, or of jobbing your *Horſes* Mouth upon any occaſion; you muſt take your right Rein in the ſame Hand, holding up your *Horſe*, &c. as you find it neceſſary, and every now and then remove the Bridle in his Mouth. But theſe things are learn'd better by Experience and Practice than by Book.

When a Plate is run for by Heats, every Man that rides muſt weigh juſt at Starting in great Scales brought into the Field for that purpoſe, and at the end of the ſame Heat: For if you want of your weight at coming in, you ſhall loſe your Heat, although you are the firſt *Horſe*. Between the firſt and ſecond Heat, you have half an Hour to rub your *Horſes*, and then the *Drum* or *Trumpet* giving warning again, you mount, *&c.* as before, and ſo till you have finiſhed all, which is ſometimes three Heats, and ſometimes three Heats and a Courſe, according to the cuſtom of the Place.

I forbear ſaying any thing of the ſeveral Ceremonies relating to the Judges, and the Articles by which *Plate Races* and *Matches* are regulated, becauſe beſides that 'tis very eaſie to inform ones ſelf of them at a Minutes warning; they are more or leſs, according to the different Cuſtoms of the Place where you Run.

When you keep *Running Horſes*, which I would adviſe you to do only for Plates, and Matches of Sport and good Fellowſhip, and not for large Sums; if you do not breed them your ſelf, be ſure to buy no *Horſe* that has not extraordinary good Blood in his Veins: For a *Running Horſe* coſts a great deal of Money to keep, and a good one eats no more than a bad one, nor requires more attendance. Some Men to ſave twenty or thirty Guinea's in the Price of a young *Horſe*, have loſt Hundreds by him afterwards.

A *Horſe* that you have tried once or twice at a Twelve-ſtone Plate, you may be ſure to make an extraordinary Hunter of; or if he be well turn'd, and diſpos'd for it, a War *Horſe*: In ſuch a Caſe a Man has a great deal of Satisfaction, becauſe he knows what his *Horſe* is, and what he can do.

Note, That the Poſture, Manner of Riding, *&c.* is the ſame in a Match as in a Plate Race, only that there being but a ſingle Courſe to be run, you muſt puſh for all at that one time; whereas when there are ſeveral Heats, there is more ſaving, and variety of Play.

CHAP. XVIII.

Of the Faults and Imperfections of Horſes; *and firſt of the* Eyes, Jaw-Bones *and* Legs.

S*Olleyſel* and others inform us, that ſeeing all Eyes appear better than really they are in Sun-ſhine, you are to take a *Horſe* into the Shade, put your Hand above his Eye, keep off the too great Light, look ſlopewiſe upon him and then you will perceive the very Ground of them. Now to make a right Judgment, view them at Night in the Stable, placing the Eye between you and the Candle; tho' this is not infallible neither. The Chryſtal and Ground of the Eye, being the two Parts that conſtitute it, if the firſt be not tranſparent, but obſcure and troubled, ſo as that you cannot ſee thro' it, it's a Sign the Eye is not good. There ſhould be alſo a white Circle about it, but there are *Horſes* which have good Eyes without it. A reddiſh Chryſtal ſhews, that the Eye is inflamed or influenced by the Moon: A dead Leaf-colour'd Chryſtal upon the lower part is an infallible Mark that the *Horſe* is lunatick, and a Defluxion frequently attends it; but to know a lunatick Eye when there is no ſuch Defluxion actually upon it, if one of the Eyes only be ſubject to it, it will appear leſs than the other, the Chryſtal being troubled, and the Ground of the Eye black and browniſh.

As to the Ground or Apple of the Eye, it ought to be large and full, and ſo clearly perceived, that you may certainly know if there be a Dragon or white Spot in the Bottom of the Eye, which will blind him quickly. A tranſparent greeniſh white Bottom is a bad Sign: But here note, that if you look a *Horſe*'s Eye when oppoſite to a white Wall, the Reflexion will make it appear whitiſh, and a little inclining to Green, tho' indeed good. Again obſerve, if an Eye which is troubled and very brown be leſs than the other, it is loſt without Recovery, and the other is in great Hazard: But an Eye may be accidentally leſs than another, and in no danger of Blindneſs. Try if you can perfectly ſee through the Chryſtal of thoſe little Eyes, that are ſunk and very black: Then look to the Bottom, and that the Pupil be large; for the ſmall, narrow and long Pupils are in greater danger of loſing the Sight than any other.

General Obſervations about knowing the Eyes are, the Walking or Step of a blind *Horſe*, which is always unequal and uncertain, unleſs the *Horſe* be mettleſome, and mounted by a briſk Horſeman, in which caſe the Fear of the Spur will make him ſo free and reſolute, that his Blindneſs will be ſcarce perceivable. Again, a blind *Horſe* will always prick up his Ears, and move backwards and forwards when he hears any enter the Stable. Laſtly, For the Colours moſt ſubject to bad Eyes, they are the very dark Grey, the Flea-bitten, White ſpotted, Roan and Peach-bloſſom'd.

The next thing is to examine the Two Jaw-bones near the Throat, which being pretty large and hollow, and tapering gradually from the Throat to the Chin, will contribute much to the Goodneſs of the Mouth. Then you are to obſerve the Swelling, Hardneſs, or moving Kernels between thoſe two Bones, which in a *Horſe* that is above Six Years old are more to be fear'd than in thoſe that are younger; however, the *Horſe* may do very well for all that: But where there is a fix'd and painful Kernel, faſtned to the Jaw-bones, it's almoſt always a Sign of the Glanders, eſpecially in a *Horſe* paſt the Age of Seven, and a Diſtemper, whatever Secrets ſome have pretended to remove it, that is very rarely cured: However, a fixed Kernel may be cauſed by a Rheum or Cold, and by due Application be diſcuſs'd; but if neglected, for the moſt part it turns to a Glanders. Fixed and large Hardneſſes on the Inſide of one of the Jaw-bones are no Sign of the Glanders, which are beſt remov'd by tying them hard about the Roots, in the Decreaſe of the Moon, with a Thread of Crimſon Silk, and daily anointing 'em with the Juice of Purſlain. A fixed Kernel, that a *Horſe* cannot endure to be touched becauſe of the Pain he endures, is a ſufficient Indication that you ought not to meddle with ſuch a *Horſe*; but conclude, eſpecially if he caſts only at one Noſtril, that it is the Glanders.

Many are the Infirmities which a *Horſe*'s Legs are ſubject to, and ſhould therefore be diligently heeded. If they appear altogether ſtraight, or as it were all of a Piece, it's a Mark they are bad. A Leg may be ſaid to be right planted, when the Paſtern is placed about Two Fingers Breadth more backward than the Coronet. *Horſes* that are ſtrait upon their Members, are quite contrary to thoſe that are long-jointed; that is, whoſe Paſterns are ſo long and flexible, that the *Horſe* in walking almoſt touches the Ground with them, which is a greater Imperfection than the other, and irremediable. Some long-jointed *Horſes* indeed there are that do not bend their Paſterns in walking, and yet may prove ſerviceable: This Imperfection of having the Paſtern-Joint too much bended ſhould be as carefully taken notice of in the Hind-legs, as in the Fore, to which ſome *Horſes* are more ſubject; and if they have Wind-gales, they are more dangerous behind than if they were before; and therefore narrowly obſerve, that the Paſtern-Joint be neither too ſtiff, nor too ſmall, nor on the contrary too flexible and pliant. And as for thoſe *Horſes* which are ſhort legg'd, or ſhort jointed, they are ſubject to become ſtraight upon their Members, eſpecially if their Heels are left too high in Shoeing; and therefore they ought, by frequent Paring, to be kept very low. Before we leave the Inſpection of this Part of the uſeful Animal here treated of, it will be likewiſe neceſſary to take notice, that a *Horſe*, without being gall'd or hurt, is incident to a Swelling beneath the Skin round the Paſtern-Joint, in the Form of a Circle, and about half the Breadth of one's Finger, which they call Paſtern-crown'd, and proceeds from an Humour gather'd there through much Travel. Avoid the chuſing of thick, ſtiff, ſhort and unpliant Joints; for glib and flexible ones, if they are not too long, are one of the prime Qualities neceſſary in a *Horſe* of *Manage*.

The next Imperfection to be minded in a *Horſe*'s Legs, is when they are arched, that is, when his Knees are bended archwiſe. This Expreſſion relates to the Fore-Quarters, and the Infirmity is incident to ſuch *Horſes* as have their Legs ſpoil'd with Travelling. The *Horſes* called *Braſſicourts* have their Knees likewiſe bended Archwiſe; but this Deformity being natural to them, they are notwithſtanding ſerviceable; neither do I ſay, that the others are abſolutely uſeleſs. In the next place, you are to examine whether the back Sinew of the Fore-leg be large, firm and well-diſtanced from the Shank, and no Hardneſs to ſtop your Hand, or movable Gelly to ſlip between your Fingers: And if the back Sinew quite fails, as it were, juſt beneath the Ply, or grows very ſmall, this very much weakens the Strength of the Leg; and ſuch *Horſes* are, for the moſt part, ſubject to ſtumble, or trip and ſtrike with their Toes againſt the Stones. Wind-galls, or ſmall Swellings full of Water, may be eaſily perceived by the Eye on the Sides of the Paſtern, but are not prejudicial, unleſs hard and painful, which will ſoon lame the *Horſe*. In the next place, you may feel if there be a Splint or no, which is a callous Swelling upon the Shank-bone, on the Inſide below the Knee, and ſometimes on the Outſide. *Horſes* are alſo ſometimes troubled with a pegged or double Splint on the Outſide of the Shank, over-againſt one another: Whether the Splint mount upwards or no is an immaterial Queſtion; but this is certain, that when it joins to the Knee, it always lames the *Horſe*. *Fuzies* are Two Splints joined by the Ends, and ſo dangerous, that no body would have any thing to do with a *Horſe* that is troubled with them. The ſame thing may be juſtly ſaid of thoſe *Horſes* that have the *Oſſelets*, which are very hard Excreſcences, reſembling a little Bone on the Inſide of the Knee, and never on the Outſide, appearing to be of the ſame Subſtance with the reſt of the Knee, and only diſtinguiſhable from the Knee by its deſcending a little lower. Some *Horſes* have two of them, one upon each Foreleg.

Malenders are Chops or Chinks on the Bending or Joints of a *Horſe*'s Knee, which ſometimes ſuppurate, and as the *Horſe* grows old, the Pain of them will increaſe, and make him halt at firſt going out of the Stable. That which is called the *Form* is a Swelling in the very Subſtance of the Paſtern, and not in the Skin, and affects the Hind, as well as the Fore-legs; a Diſtemper not very common, but very dangerous. The *Crown-Scab* is an itching Scurf upon the Coronet, and is of two Kinds, moiſt and dry. It makes the Hair to ſtare, and the Coronet to ſwell, being an Infirmity which a *Horſe* very rarely recovers. When you find the Hams of a *Horſe* nearer to each other than the Feet, eſpecially the Hocks, this is called, *Cloſed Behind*; and ſuch *Horſes* have commonly a weak Hind-hand, and in great Deſcents are apt to ſtrike their Hams againſt one another. The *Ham* ſhould be large and full, nervous and dry. A *Capelet* is a moveable Swelling in the Tip of the Hock, which, when grown large, is painful, and makes a *Horſe* loſe his Belly. A *Voſtigon*, a pretty large Swelling of ſoft and ſpungy Fleſh, between the Fleſh and the Skin, in the Hollow next the Hock, ought not to be over-look'd; it comes on both Sides the Ham, and ſometimes on one only. On the Backſide of the Ham, below the *Capelet*, comes the Swelling called the *Curb*, which makes the *Horſe* frequently to halt, and is incurable. On the Inſide of the Ham there's a Bone ſomewhat high and elevate, below which the Ham ſometimes ſwells by a degorging of the great Vein, and this is called *Variſſe*; that does not make a *Horſe* halt, but by its exceſſive Swelling ſometimes ſpoils his Sale.

As for the *Spavin*, there are ſeveral Sorts of them, *viz.* the Ox, the Dry or Bone, and Blood or Wet *Spavin*. The firſt is a callous and griſly Swelling, as hard as a Bone, and ſo painful, that it makes a *Horſe* loſe his Belly. Some *Horſes* halt with it at firſt coming out of the Stable, when the *Spavins* are young. Theſe Sorts of *Spavins*, when they firſt ſeize a *Horſe*, are more difficult to be obſerved, becauſe they do not riſe much above the Subſtance of the Legs, which grow bigger in ſome *Horſes* than in others; but yet at their firſt piercing 'em, commonly make a *Horſe* halt, and when the Swelling increaſes, he halts no longer: But ſince they rarely happen in both the Hams alike, one is eaſily diſcern'd to be bigger than the other, and the more by placing your ſelf before the *Horſe*, a little towards one of the Shoulders, than if you were juſt behind him. As for the *Dry Spavin*, when a *Horſe* in Walking raiſes one of his Hind-legs higher than the other with a Twitch, he is ſaid to have it; nay, will have it many times in both Hind-legs: This after degenerates into an *Ox-Spavin*. The *Blood* or *Wet Spavin* is a Swelling on the Hoof, continually ſupplied with Blood from the Maſter-vein, and is eaſier cured than the laſt, which, as well as the *Ox-Spavin*, is produced much on the Inſide, beneath the Bending of the Ham.

The *Jardon* is a Swelling on the Outſide of the Ham, as hard as the *Spavin*, mounting up almoſt as high as the Part where the *Veſtigon* grows. It's not ſo common, but yet more dangerous than the *Spavin*; and if upon the Fore-Sinew of the Leg, between the *Spavin* and the *Jardon*, there is as it were a Circle that unites them, and ſurrounds the Nerve of the Inſtep, the *Horſe* is ruined paſt Recovery. *Spavins* and *Jardons*, when they are Hereditary, are incurable, and more to be in young than old *Horſes*. The *Selender* lies in the Ply of the Ham, though there are Chops and Creviſes ſometimes in the Fore-legs, which reſemble the *Malenders*, and are called the *Selenders*. *Rats-Tails* grow upon the Back-Sinews, being known by the Part's being hairleſs from two or three Fingers Breadth below the Ham to the very Paſtern-joint: They are ſometimes dry, ſometimes moiſt, but always cruſty, callous, and more elevated than the reſt of the Leg. 'Tis rare, tho' ſome *Horſes* have them only in their Fore-legs. Large *Coach-Horſes* are thoſe that are moſt ſubject to thoſe and the following Infirmities. There are a Sort of *Warts* or *Leek-heads* growing about the Paſterns and the Paſtern-joints, and Half a Finger thick above the Height of the Skin, ejecting filthy ſtinking Stuff, and hard to cure: Thoſe in the Paſterns are hid by the long Hair of the Fetlocks, ſome of which are very malignant, ſhed the Hair, and grow like Walnuts; others are flatter, but more dangerous than the biggeſt, being eaſily diſcover'd, and without Hair; but for the moſt part ſend forth Matter, which may be dry'd up for a Seaſon.

The Soles are ſometimes affected with mattering kinds of Warts, or rather Figs, upon the middle of the Fruſh towards the Heel, and commonly exceeding the ordinary Height of the Fruſh: Sometimes they grow on the Sides of the Fruſh, and when they are conſiderably raiſed above it, ſo as to touch the Ground as the *Horſe* rides, they make him to halt. You may know when a *Horſe* has been cured of the Figs, becauſe the Foot will be larger than the reſt, tho' the *Horſe* be well recover'd. *Traverſe Mules*, or *kibed Heels*, Chops and Clefts, ſurrounding the Back-parts of the Paſtern-joints, where they bend, are more painful than Figs: But this ſhould not hinder you to buy the *Horſe*, if his Legs are not gorged and ſwell'd, becauſe they may, though with ſome Difficulty, be dried up. A white, ſharp, and corrupt Humour, called *Waters*, affect the Hind, but rarely the Fore-legs, known by the Moiſtneſs of the Paſterns and Paſtern-joints beneath the Hair, and ſometimes mount up to the very Ham. They frequently cauſe the Paſterns to ſwell, the Legs to be ſtiff, the *Horſe* lean, and ſeparate the Fleſh from the Coronet: They are eaſily ſtopt at firſt, but afterwards with Difficulty. The Cure in Winter and cold Weather is not ſo eaſie as in Summer.

CHAP. XIX.

Of the Faults and Imperfections of the Feet, Body *and* Flanks.

YOU ought to know *Horſes* very well, to be able to judge exactly of ſome Sorts of Feet, ſome appearing to be weak, when they are not really ſo; the little Horn they have being tough, ſolid and capable to ſerve: Again, others appear good, which are pain'd, for being too fat and fleſhy. The ſureſt Way then is, to take them of a good Shape: The Hoof ſhould be very near round; the Horn tough, ſolid, high, ſmooth, dark-colour'd, and without Circles. You may likewiſe make a good Judgment of it, by obſerving the Manner of the Shoe's fitting it. If the Foot be circled, 'tis a Sign the Hoof is altered, or the Horn naught. Thin-footed *Horſes* halt, or mean their Feet a long time after they are ſhoed, before they recover Strength; but to know when a Foot is fat, or the Hoof thin, is the moſt difficult thing in the Knowledge of *Horſes*, the Horn being as beautiful as the beſt, only the Hoof is ſomewhat longer than the Size of the *Horſe* will allow of. You are alſo to conſider, if the *Horſe* has not a Cliff in his Foot, called a *Falſe Quarter*, occaſion'd by his caſting his Quarter, and having a new one; for then the Horn becomes uneven, ugly, larger and ſofter than the reſt of the Hoof; and if the Cliff be conſiderable, let it hinder you from buying. Thoſe Over-reaches, or calking Treads upon the Coronet, do not prejudice the *Horſe*, if no Swelling remains on the Coronet. You are by no means to omit lifting the Foot, whoſe Heel ſhould be pretty high, broad, large and open; the Fruſh proportionable to the Foot, *i. e.* not too little and dry, nor too large and fat; for thoſe which are little fall to the Share of the hoof-bound, or narrow-heel'd *Horſes*: But when the Fruſh is too large and fat, it's higher at the Heels than the Sole, and is always a Sign of a very bad Foot. Moſt *Horſes* which have low Heels have large Fruſhes. Proceed and conſider, whether the Sole be ſtrong, the whole Foot hollow, and at a pretty Diſtance from the Shoe, which are beſt: But for thoſe which People call *Weak Feet*, you are to heed, that tho' their Heels be indifferent high, they are but thin at the Point of the Fruſh; and that though the Sole be hollow, yet they have ſo little Strength in their Feet, that they eaſily halt, and hard Ways lame them; ſo that People are frequently obliged to let them ſtand oft, and give them but moderate Labour. In *Hoof-binding*, the Heels do not take a right Compaſs, but are narrow towards the Clift of the Fruſh; ſo that the whole Heel is a little more than two Fingers Breadth; whereas a *Horſe* ſhould always have about Four, little more or leſs, according to the Size. As for narrow-heel'd *Horſes*, which have high Heels, thoſe that have them not, and others that have the back part of their Paſterns next to the Heels, as if they were pointed, have commonly very bad Feet, and for the moſt part hoof-bound. Laſtly, There is another Imperfection attending *Horſes*, in *French* called *Crapaudine*, or Tread upon the Coronet, being a kind of Ulcer there, from whence iſſues filthy Matter, which by its Sharpneſs dries up the Horn, beneath the Part where the Tread is made, wherein is form'd a kind of Hollow or Groove down to the very Shoe. Feet too large, or too little, are a great Imperfection, and by no means to be choſen; and there is no body but will reject founder'd Feet, the Hoof whereof oftentimes ſhrinks and falls in towards the middle of the Foot, have many Circles quite round the Foot, and appear altogether altered and dry, with the Heels all circled.

In the next place you are to examine, whether a *Horſe* hath a good Body, and be full in Flank. It's no good Sign they are ſo when the laſt of the Short-Ribs be a conſiderable Diſtance from the Haunch-bone, or when the Ribs are too much ſtreightned in their Compaſs; whereas they ought to be as high as the Haunch-bone, or very little leſs when the *Horſe* is in good Caſe. A narrow-cheſted *Horſe* can never have a good Body, nor Breath well; and ſuch *Horſes* as have ſtraight Ribs, being great Feeders, and conſequently come to gulf up their Bellies, ſo as it not being poſſible for the Entrails to be contain'd within the Ribs, they will preſs down, and make a Cow's Belly. They are alſo difficult to be ſaddled, but yet they have generally good Backs; and though their Croups are not ſo beautiful, being for the moſt part pointed; yet to ſupply that they have excellent Reins: They are commonly called *Sow-Backs*. A light-body'd and fiery *Horſe* a Man ought never to buy; but Fierineſs ought never to be confounded with Vigour and high Mettle, which laſt does not conſiſt in fretting, trampling, dancing, and not ſuffering any *Horſe* to go before him, but in being very ſenſible of the Spurs.

Light-belly'd *Horſes*, which are very apt to be troubled with *Spavins*, *Jardons*, &c. you are to ſhun; and whereas painful Scratches in the Hind-legs ſometimes take away a *Horſe*'s Belly, this ought not to deter you from buying, unleſs they be in the Back-Sinew of the Leg a pretty way above the Paſtern-joint, which is one of the moſt troubleſome external Maladies a *Horſe* can have. Without a low caſed *Horſe* eats much Hay, he cannot be made plump, which will make him have a Belly like a Cow with Calf, and may be remedied with a Surcingle about a Foot and half broad, with two little Cuſhions to it, that may anſwer to the Top of the Ribs on each ſide of the Back-bone, to preſerve the Back from being gall'd.

As to the Flank in a *Horſe*, it may be full enough, and yet if it fall too low over-againſt the Stiffle, it promotes Purſineſs, eſpecially if the *Horſe* be not very young. If he makes a String or Cord in Breathing, by attracting the Skin of his Belly where the Ribs fail, his Flank begins to alter, or at leaſt 'tis a Sign his Body is over-heated, that he hath been ſick, or will in a ſhort time become ſo. Sometimes indeed this Cord appears in vigorous *Horſes*, that have been indiſcreetly over-rid, and there is no Sign of actual Purſineſs, but only that in a ſhort time it may become ſo. A Man may be readily deceived in this Diſtemper at the Beginning of it; and therefore you muſt conſider the *Horſe*'s Age, becauſe young ones are very rarely purſie: Then ſee whether his Flank be not ſwallow'd up, or fallen too low. To be the more certain, preſs his Wind-pipe near the Onſet of the Head, that ſo you may make him cough, and note the Sound of it: A dry one is naught, a dry one and reiterated is worſe; the moiſt is not ſo hazardous; if he farts and coughs, it's a certain Sign of Purſineſs. The ſureſt Way is to view him in the Stable immediately after he has drunk, or when he is eating his Oats. You cannot ſo well judge of him after travelling, when he hath not drank a pretty while, or when he is at Soil or Graſs. You ſhould likewiſe diligently obſerve if the *Horſe*'s Flanks redouble as he is breathing; as alſo, whether the Motion of his Flanks appear at the upper End of his Short-Ribs, which is a Sign they are altered; but ſtill much more if they beat, and make their Motion at the very Top, and juſt by the Back-bone; or too low, and over-againſt the flat part of his Thighs. If the *Horſe* be too far gone, his Lungs will be dried up, and he is paſt Cure. The Flank may be right and ſound, and yet the *Horſe* have a Wheezing or Blowing, which proceeds not from any Defects in the Lungs, but the Narrowneſs of the Paſſages between the Bones and Griſtles of the Noſe, which is diſpleaſing to People, though the Beaſt is not purſie. Thick-winded *Horſes* are thoſe that breath a little more freely than the former. There are ſome Wheezers that make a Noiſe thro' the Noſe, which is no Impediment to the Goodneſs of the *Horſe*. As to a *Coach-Horſe*, I would adviſe you not to buy him before you ſee him draw; for if ſo be he ſtoops with his Hind-parts, and raiſes his Fore, he will draw right; but if he does quite otherwiſe, it's manifeſt he will draw ill. Cheſt-foundring is known by the ſame Symptoms as Purſineſs, only young *Horſes* are ſubject to the firſt, as well as old ones; and 'tis a Diſtemper proceeding from Crudities in the Stomach, and other Infirmities, obſtructing the Paſſages of the Lungs, in which there are Hopes of Recovery, but not in Purſineſs.

CHAP. XX.

Of the Walking *or* Treading; *Of his* Mouth, Vigour *and* Agility; Mounting, Trying, Colour *and* Marks *of a* Horſe *you intend to buy.*

A *Horſe* ſhould ſtand equally on his Legs, and not one Foot advanced before another; only 'tis no ill Sign for him to advance one of his Hind-legs, letting the Toe only touch the Ground; but if he advances one of his Fore-legs, and point it only to the Ground, it's a Sign of his being pain'd in the Leg. Indeed there are ſome *Horſes* who can never plant themſelves right, though their Legs are good. In a true Poſition, the Diſtance between his Feet ſhould be leſs than between his Fore-Thighs, at that Part next to the Shoulders; the Knee ought not to be too cloſe, but the whole Leg ſhould deſcend in a ſtraight Line to the very Paſtern-joint; and the Feet ſhould be turn'd neither in nor out. Then for the *Jarrets*, or Hams, they ought not to be too cloſe; the Inſtep muſt be perpendicular to the Ground; put him back with your Hand, to try if he turns the Toes of his Hind-feet much outwards; in which caſe, eſpecially for the *Coach*, he will be of no great Service.

The next Thing is to obſerve, in his being trotted along the Street in one's Hand, how he lifts up, keeps up, and ſets down his Legs; alſo if he keep his Rein ſtraight and equal, his Head high, well placed and firm: Then let ſome body ride him a Foot-Pace, and if you find he raiſes his Legs hardily and with Eaſe, without croſſing them, carrying his Feet too much in or out, and alſo bends his Knees as much as is needful, 'tis well; the Stay is good, when he keeps them up as long as he ſhould, his Head and Body remaining in a good Poſture, and if he does not ſuddenly put down one Leg, to give Eaſe to another, which is weak and painful. The Trot is good, if firm, without reſting upon one Side of the Foot before the other, or ſetting down the Toe or Heel before the other. It is a Sign of Foundring if he ſets his Heels firſt on the Ground; but if his Toes, 'tis a Sign he has been a Draught-Horſe. Some *Horſes*, notwithſtanding they raiſe, ſtay and tread well, have a bad Walk; and therefore you are to ſee that he walks quickly, and alſo lightly on the Hand, not preſſing, nor reſting too much on the Bit, but always changing a Point, keeping his Head high, with a quick Motion of his Shoulders. He walks eaſily when his Fore and Hind-feet make as it were but one Motion; and ſurely when he treads firm and ſure, and lifts up his Legs indifferently high; but if he does not bend them enough, he will be cold in his Walk, (as they call it) and apt to ſtrike upon the Stones and Clods.

To have a good Mouth, a *Horſe* ought to have a well-raiſed Neck, and if it be ſomewhat large and thick, it ſhould be at leaſt well turned; his Reins ſtrong and well-ſhaped, as well as his Legs and Feet; but if his Jaws be too cloſe, and that he has alſo a ſhort thick Neck, ſo that he cannot place his Head right, his having a good Mouth will ſignifie little, becauſe you cannot make uſe of it. If you preſs the Bar in his Mouth pretty hard with your Finger, it's a Sign 'tis ſenſible, and his Mouth good. If the Bar has been hurt, tho' heal'd, it ought to be ſuſpected almoſt as much as a bad Mouth, becauſe the Scar will never have the Senſe of Feeling it had before, nor will the Mouth of the Bit reſt ſo equally upon it: But to be certain of a *Horſe*'s Mouth, you muſt put him on pretty ſmartly, and then preſently ſtop him; by his Parting you will ſoon know if he be ticklish mouth'd, by his chacking the Bridle, or throwing up his Head. Again, by his Stop, you will find if he ſtops eaſily, and by the leaſt Motion of the Hand, with his Head firm and well placed. He is a good *Horſe* that champs continually on the Bit: His Mouth ſhould be full of Froth, which, if thin and fluid, or of a pale Grey, or Yellowiſh Colour, it denotes a bad temper'd Brain; but if white, thick, cleaving to his Lips and Branches of the Bridle, the Mouth is freſh, the *Horſe* well conſtitution'd, and ſound in the Body.

To try the Vigour and Agility of a *Horſe*, when he is ſtanding ſtill, keep him faſt with the Bridle-Hand, pinch him, which is to apply your Spurs juſt to the Hair of his Sides, his Impatience, Struggling to go forwards, champing upon the Bit, without thruſting out his Noſe, is a good Sign; but you are not to think ſo of every *Horſe* that ſhews a great deal of Mettle when he is pinched, ſince that proceeds moſt from the Thinneſs of their Skin, yet are of a dull Nature: But a *Horſe* truly vigorous ſhould be calm and cool, ride patiently, and not diſcover his Mettle but when required. Some *Horſes* when you give them the Spurs, will not endure them, nor go forwards, but cleaving, and as it were faſtning to them, ſtrike out and go back ; and if you preſs them hard, they will then fall a Piſſing and not move out of the Place : In ſhort, every *Stone-Horſe*, *Gelding*, or *Mare*, that does not feel the Spurs, but obſtinately cleaves to and kicks againſt them, ought to be look'd upon to be of a croſs and ſullen Nature, and therefore rejected.

A Man ought never to buy a *Horſe* that has any other Will, ſave that of his Rider ; and therefore when you mount a *Horſe* to try, let him be ſuch as you find very apprehenſive of Strokes, and even of the leaſt appearance of them, and yet without Fretting, or Fierceneſs : A *Horſe* that Walks ſecurely and deliberately, without too often needing the Whip, and Fretting, paſſes from the Walk to the Gallop, and from that to the Step, without diſquietude ; but always Champing the Bridle, Trots with glibneſs upon his Shoulders, and Gallops eaſily, ſnorting a little through his Noſtrils : If you find him well upon his Haunches, his Head firm and well placed, and the feeling of the Bit equal and juſt, you will ſeldom have cauſe to complain of his Price.

As to the manner of mounting and trying a *Horſe* you have a mind to buy ; after you have ſeen another ride him, take him your ſelf, as he comes out of the Stable, and without frighting him in the leaſt with your Legs or Whip, ſlack the Bridle-hand about four Fingers breadth more than's neceſſary, to feel him on the Hand, letting him go at a Step, as he pleaſes, and even with the toſſing of his Head, even for a quarter of an Hour : If he is inclined to ſtumble, he will trip more than once, and perhaps ſalute the Ground with his Noſe ; If he be heavy on the Hand, he will reſt wholly on the Bit, and be a burden to the Bridle-hand ; if dull and lazy, he will flag inſenſibly, and at laſt ſtand ſtill : To put forwards again, you are gently to move your Body, Legs, and even your Arms, by which means you will better know him in half an Hour, than half a Day otherwiſe. Again, if after this Eſſay, you cauſe him to go an attentive Pace, and that he be under the Apprehenſion of your Spurs, he will unite all his Strength and Mettle to pleaſe you.

As for *Amblers*, they ſhould move roundly and equally, their Hind quarters exactly accompanying their Fore ; and if the Perſons that ride them make but a little motion with their Bodies, 'tis a certain Sign that they go well, not only the Amble, but the Step : But the beſt Obſervation of all concerning them, is to take notice if they Over-lay, that is, with their hind Feet over-paſs a foot and an half or two foot the print of their fore Feet, for the more they do it, the better they Amble, becauſe they muſt conſiderably ply the Haunches, which is the perfection of the Amble : Shuffling and mix'd Paced *Horſes* are generally worth nothing, and the ill Cuſtom proceeds from their firſt Fierineſs or Weakneſs in their Reins and Legs ; but if you find thoſe inclin'd to it of their own accord, that were never guilty of it before ; it's a ſign their Legs are ſpoil'd, or grown weak.

All thoſe that regard either Colours or Marks in a *Horſe*, as being compoſed and nouriſh'd by the four Elements, are laugh'd at by the Duke of *Newcaſtle*, yet to give the Names and a brief Explication of Colours *Horſes* uſually are of, and which are vulgarly eſteemed beſt, will not be amiſs in this place. *Bay* is the moſt common of any, and thoſe are called *Dappled Bays* that have dark Spots on their Croup : the *Dark Bay* is almoſt Black, with a little brown Hair upon the Flanks and Tip of the Noſe, and therefore by ſome called *Brown Bay* : the Mane's and Tails of all theſe are Black, and there never was a Bay but the Extremities were ſo : There are ſeveral ſorts of *Gray's*, as 1. the *Branded*, that has large black Spots diſperſed here and there. 2. The *Silver Gray*, with a very ſmall mixture of black Hairs, and ſo much only as may diſtinguiſh it from the White. 3. The *Sad*, or *Powdered Gray*, that has a large mixture of black Hairs in it, and very pretty, when the Mane and Tale are White. 4. The *Black Gray*, almoſt the ſame, with a great deal of Black, and but little White. 5. The *Browniſh*, or *Sandy colour'd Gray*, being Bay colour'd Hairs mix'd with Black. 6. The *Dapple*, commonly known. As to *Pyebalds*, there are *Black*, *Bay* and *Sorrel*, and the leſs White the better Sign of their goodneſs. The *Wine*-like Roan, and that with a black Head, Mane and Tail, are agreeable Colours : There are thoſe alſo of a *Starling* Colour, not unlike the browneſt Gray, only more Freckled and much Whiter. Others of a *Peach*, or *Bloſſom* Colour, which tho' pleaſing to the Eye, yet they are very rarely pliant to the Spur.

As for the *Sorrel*, there are few *Horſes* of this Colour, which is a kind of Bay, of a Brown, or rather Reddiſh Colour, but are good, eſpecially if they have black Manes, Tails and Legs : Tho' there are ſeveral Kinds of them, the difference principally conſiſts in their Manes or Tails, 1. the *Red*, or *Cow-colour'd*, the Mane and Tail white, or the ſame with the Body. 2. The *Bright* or *Light*, the Mane and Tail white, and not much worth. 3. The *common Sorrel*, a medium between the Red and Bright, and called Sorrel without any diſtinction. 4. *Burnt Sorrel*, deep Brown and Reddiſh, and ſhould have the Mane and Tail always white : A beautiful and good Colour. Theſe *Horſes* in general anſwer readily to the Spurs, but are moſtly of a Cholerick Conſtitution. To ſay nothing of the *Rubicon*, which is a Black or Sorrel with white Hairs here and there on his Body ; the *Mouſe Colour* or *Dun* is well known, and thoſe with black Liſts on their Backs, are called *Eel-back'd* : others have black liſted Legs and Hairs ; as alſo black Manes and Tails. Some are of a *bright Dun*, but the dark are moſt ſerviceable, eſpecially with black Extremities.

Thoſe of a *Wolf* Colour, whether bright or dark, are for the moſt part very good *Horſes* : The *Tyger* is the ſame with the *Branded Gray*, only the ſpots are not near ſo big : The *Deer* colour is well known, and thoſe are beſt that have black Manes, Tails and Legs, and thoſe that have a black Liſt on their Backs are ſtill better.

It's certain there are good and bad of all Colours, but the *Bay*, *Cheſnut*, *Dapple-Gray*, *Roan* with a blackiſh Head, the burnt and dark *Sorrel*, the *Black* with a Blaze in the Forehead, are reckoned all good Colours ; the *Flea-bitten*, eſpecially in their fore-parts, are commonly excellent, and if they are ſo all over their Bodies, the Mark is ſtill ſo much the better, but rarely good, that have them only on their Hind-quarters.

As to the particular Marks of *Horſes*, thoſe are eſteemed good that have the far Fore-foot, and the near Hind-foot white : But a white far Hind-foot, and the two fore-feet white are eſteemed bad: The two hind-feet, eſpecially if there is a Star in the Forehead, are reputed good Marks: The two fore-feet and one hind-foot white, are ſomewhat better than the two fore-feet alone: Four white Feet are not commonly ſtrong: Two white Feet of a ſide, and to be croſs-white-footed is a bad Mark: Ermin'd white Feet are excellent; the higher the white aſcends on the Leg, ſo much the worſe is the *Horſe*: A Feather which is only a turning of the Hair, like an Ear of Barley, or Oylet-hole, when far extended along the upper part of the Neck, near the Mane, is a good Mark, and ſtill better, if on each ſide the Neck: So likewiſe if there be two or three of them ſeparate from each other in the Forehead, or the like on the Ply of the hind Thigh. As to thoſe that have white Faces, or Blazes; they will have that *Horſe* to be of an odd Diſpoſition, that has a Blaze divided in the middle croſs-ways, but that his near hind Foot being white, will rectifie the Blemiſh; a White or Grey *Horſe* without a Star is eſteemed the better for it; and when it has been made by Art, you will find not only no Hair grow in the middle of it, but the white ones will be much longer than the reſt: the manner of doing it in *Holland* is thus; They roaſt a large Onion in hot Aſhes, divide it into two parts, and dipping it in ſcalding hot Walnut Oil, immediately apply the flat ſide of it to that part of the Forehead, where they deſign the Star ſhould be; and having kept it there for half an Hour, take it off, and anoint the ſcalded place with the Ointment of *Roſes*; and as ſoon as the Scarf-skin falls off, ſome white Hair will grow up there.

CHAP. XXI.

Of the Marks of a good Horſe, *to know his Age, and judge of his Shape.*

THE Marks of Beauty and Goodneſs in a *Horſe* are theſe; his Ears ſhould be ſmall, thin and ſharp, carrying them well; or if they be long, but well ſet on, upright and moving, it is not amiſs. His Face ſhould be lean and bony, his Forehead ſwelling outwards, and the Feather of his Face ſet pretty high, that is, above his Eyes, or at the top of them; and if he is mark'd with white (provided it is not too much) upon his Face, or the ſnip of his Noſe, ſo much the better. His Eyes ſhould be round, black and ſhining, ſtanding out from his Head: His Cheek-bones or Chaps, ſhould be lean and thin, with the ſpace between them wide, and free from Knots and Kernels; and his Wind-pipe large. His Noſtrils ſhould be dry and wide, ſo that upon the leaſt ſtraining a fiery Redneſs is ſeen in them. His Muzzle ſhould be ſmall, his Mouth deep, and his Lips ſhould ſhut tight and well, the Upper being about an Inch longer than the Lower.

To know the Age of a Horſe.

YOU muſt remember that a *Horſe*, when he has all his Teeth, hath juſt Forty; that is, four and twenty Grinders, twelve on each ſide, ſix above, and ſix below, on the ſame ſide; then twelve Gatherers, ſix above and ſix below, on the fore-part of his Mouth, which makes ſix and thirty; and laſtly, four Tuſhes, one above and one below on each ſide, which makes up the Forty. The firſt year he has his Foals Teeth, which are only Grinders and Gatherers, without any Tuſhes; they are ſmall and white. The ſecond year the four foremoſt Teeth will appear browner and bigger than the reſt. The third year he changes the next to them, and leaves no Foals Teeth before, but two upon each ſide above, and the ſame below. The fourth Year he changes the next to them, and leaves but one upon each ſide above, and the ſame below. The fifth Year his foremoſt Teeth are all changed, his Tuſhes being compleat on each ſide, and the Teeth that came in the room of the laſt Foal's Teeth which he caſt, are hollow, having a little black Speck in the middle, which is called the Mark in a *Horſe*'s Mouth, and ſo continues till the Eighth Year, or thereabouts. The Sixth Year he has new Tuſhes, about the bottom of which you may ſee a little Circle of new Fleſh, and the Tuſhes will be white, ſmall and ſharp; But, ſays *Solleyſell*, the upper Tuſhes will be a little Channel'd, and ſomewhat hollow'd and grooved on the inſides; but when he is above Six they will fill up, and become a little round on the inſides, which is an Obſervation that rarely or never fails. The Seventh Year all his Teeth are grown to perfection, and the Mark in his Mouth (as we call it) is very plain to be ſeen. The Eighth Year all his Teeth are full and ſmooth, the Mark being ſcarce viſible, and his Tuſhes grow yellower. The Ninth Year his foremoſt Teeth ſhew longer, yellower and fouler than before, and his Tuſhes grow blunt.

But tho' theſe Obſervations are juſt enough, the Matter may be more particularly ſtill illuſtrated from *Solleyſell*, who ſays, that after a *Horſe* has Razed, you cannot judge of his Age, but by the Length of his Teeth; that as the Gums in time grow lean, they make the Teeth to appear the longer, and 'tis certain the longer they are, the older the *Horſe*, and they'll contract, ruſt, and grow yellow; only ſome old *Horſes* have very ſhort and white Teeth, and ſome will have a black ſpeck like the true Mark, after they are paſt Eight or Nine, but 'tis hollow.

Not to repeat any thing that has been ſaid before of the Tuſhes; when you find by your Fingers that thoſe of the upper Jaw are worn equal with the Palate, the *Horſe* is then at leaſt Ten Years Old; An Obſervation that ſcarce ever fails, unleſs the *Horſe* when young, carried a bigger mouth'd Bit than was proper for him: Young *Horſes* have always their under-Tuſhes ſharp pointed, pretty long, ſomewhat edg'd on both ſides, and without Ruſt: But as they increaſe in Years, they grow big, blunt, round, and ſcaly, and even extremely thick, round and yellow in very old *Horſes*: To have long Teeth and black Specks in them, is to be Shell-Toothed, a Mark that laſts all their Life; the ſame appearing on the other fore Teeth as well as in the corner'd one's. In Age the points of the Gatherers ſtand out a little, and when very old point almoſt ſtraight forwards; but when young near ſtraight up, and juſt equal with the outer edges of thoſe above.

Thoſe who do not require exactneſs, but would only know if a *Horſe* be Old or Young, let them lift up the upper Lip, and if his upper Teeth be long, yellow, and are paſſing thoſe below, its a

Sign of Age, as the contrary betokens Youth. As there are ſome *Horſes*, whoſe Teeth continue always white and ſhort; theſe when they fall into Cheats Hands, are frequently counter-mark'd by them, by hollowing the corner Teeth with an engraving Iron, and putting ſome double Ink immediately into that Hole, and there letting it dry, will hold as long as the Teeth remain hollow. Others have the dexterity to burn a grain of *Rye*, with a red hot Iron, in the hollow of the Teeth, which will make them perfectly black. But to obviate ſuch Cheats, you may conclude, if you find any Scratches on the outſides of the hollow of the Teeth, becauſe the Graver ſometimes ſlips and ſcratches the other part, that they are countermark'd: Obſerve in like manner, the inſides of the upper Tuſhes, which ſhould be grooved till the *Horſe* be Seven: Neither are the Signs of Old Age to be over-look'd, *viz.* the upper Teeth long, over-paſſing the lower, and yellow; the lower part of the nether Jaw-bone ſharp and edged; the under Tuſhes uſed, big and ſcaly.

As for the filing of a *Horſe's* Teeth to make them ſhort, 'tis ſcarce a practicable Cheat; but to proceed therefore to ſome other Rules on this weighty Head; ſome have recourſe to the Joints of the Tail, paſſing their Hand along it, to feel for a Knot in the upper part, which comes forth when he is between Ten and Twelve, and a ſecond when he is fourteen: Others there are that put back his under Lip, and ſo many Years old they ſay he is as there are Plys therein; but theſe are no ſure Marks, the beſt way after the Mark is gone, is to obſerve whether his Legs be neat and good, his Flank well truſſed, but not too full and ſwallowed up; and laſtly, narrowly to examine his Feet, and take notice of his Appetite.

But before *Solleyſell* concludes, he adds ſome other Obſervations to know a *Horſe*'s Age that is paſt Mark, to this effect; that when the Pits above the Eyes are extremely hollow, 'tis for the moſt part a Token of Old Age; tho' *Horſes* begot by old Stallions have them very deep at four or five Years old; as alſo their Eye-lids and Eyes wrinkled and hollow; that contrary to young *Horſes*, the nether Jaw in old one's is always ſharp and edged: So that a Perſon who is uſed to it, will before he opens a *Horſe*'s Mouth, judge pretty near his Age. That there are ſome who will pull the ſkin of the nether Jaw Bone or Shoulders a little to them, and ſay, if it continues long without returning to its place, the *Horſe* is not young, and the longer in returning the older. On which, however, there is no great dependance, by reaſon the Skin of a Lean *Horſe*, tho' young, will be longer in returning to its place, than the Skin of an old one that is Fat and Plump. That Seeling, or the growing of white Hairs, mix'd with thoſe of his natural Colour on his Eye-brows, is another Token of old Age: That a *Horſe* never Seels till Fourteen, and always before Fifteen, or Sixteen at fartheſt; but that the light Sorrel and Black ſooner Seel than others: That however *Horſe* Courſers have the Addreſs to pull out thoſe white Hairs with Pinchers, but that if it cannot be effected without making the *Horſe* look bald and ugly, they colour their Brows to make the Buyer believe they are young: That 'tis no bad Method to judge of his Age by inſpecting his Palate, for the older he is, the leaner grows his Roof, and drier towards the middle, and the high and plum Ridges in young *Horſes* are diminiſhed by Age: So that in very old *Horſes* the Roof of the Mouth is nothing but Skin and Bone; and this is a good Remark, eſpecially in *Mares* that ſeldom have any Tuſhes, by which you may know their Age: He concludes that the Grey become white, as they grow old, and white all over, when very Aged; but that thoſe which are Foal'd Grey, are known by their Knees and Hams, that continue for the moſt part of that Colour. *Soleyſell.*

The Shape of a Fine Horſe.

From his Head look down to the Breaſt, which ſhould be broad and beautified with Feathers. His Fore-Thighs to the Knees ſhould be firm and ſinewy without any ſwelling, and his Knees ſhould be cloſe knit, carrying an equal proportion. From the Knees to the Paſterns his Legs ſhould be clean and nervous, and the Inſide of his Knees ſhould be free from any Seam, Scar or Scab. His Paſterns ſhould be well knit, and not too long, and he ſhould tread right upon them. His Hoofs ſhould be black, ſmooth, tough and hollow, and rather a little long than round. For the ſhape of his Neck and Creſt, and the ſetting on of his Head, I refer you to what has been ſaid before. The Chine of his Back ſhould be broad, even and ſtraight; his Ribs round in compaſs and bending outwards, and his Fillets ſtrong and ſhort. He ſhould be Home-ribb'd, and his Body ſhould be well let down. His Buttocks ſhould be round, full and plump, lying in a level with the reſt of his Body. His Gaſcoyns ſhould be full and brawny, being well let down as far as the middle Joint, which ſhould be nothing but Skin, Bones, Veins and Sinews; and his Hind-Legs clean and ſinewy. Theſe are generally Marks of Beauty and Goodneſs, and the more a *Horſe* has of them the better; for I never yet ſaw a *Horſe* compleatly perfect.

To obſerve theſe things exactly, you ſhould do well to have the *Horſe* you intend to buy, ſtript naked and led out before you; and when you have viewed him all over, having ſome able and truſty *Farrier* with you to make enquiry into thoſe hidden Maladies, which might eſcape your own or another's ſearch, you have only to examine his Goings, which muſt be true and nimble, with eaſe to himſelf as well as his Rider.

But the ſureſt way of Buying is to be acquainted with good Breeders, and taking young *Horſes* that are but juſt Backt, to have them Manag'd and order'd according to your own Fancy.

If you have lived altogether in the Country, or have never learnt to Ride of a Maſter, nor indeed never deſign any ſuch thing, as having no Inclinations to Military Affairs or Martial Exerciſes (as it is not neceſſary all Gentlemen ſhould) however it is very commendable and Gentile to ſee you get up your *Horſe* with a good Air, and to ſit handſomly; tho' it be only upon the Road, or a Hunting, Hawking, or the like; and to hold your Reins like a Horſeman, knowing which way to guide, and ſtop without Jobbing and ſpoiling his Mouth, and making ſuch odious and ridiculous Poſtures that ſome are apt to do. To which end you may be pleaſed to take notice thereof, and to conſider what has been already ſaid concerning the Art of Riding, and endeavour to put ſo much of it in practice as you ſhall find ſuitable to your Inclinations, eſpecially that which relates to Mounting, and the true Poſture of a good Horſeman; and if you would have that Character, never Ride upon the Road in a Jockey-Cap or Snaffle-Bridle; but with a Bit and Piſtols well adjuſted and fitted to your Pad.

I ſpeak this to ſuch that are not at leiſure, or unwilling to learn in an *Academy*; for though I think it abſolutely neceſſary for thoſe that are Martially inclined, and requiſite for all the reſt of the Nobility and Gentry, as it is a Manly and Gentile accompliſhment to Ride well: Yet it is better to know ſomething, than to be ignorant of all; and for thoſe that will not learn of others, to get what they can of themſelves.

If you are a compleat Horſeman, you will take delight in having your Pads ſtop, and turn readily, and to make them be put a little upon the Haunch, which will render them infinitely agreeable.

CHAP. XXII.

Of the Way to preſerve Horſes *ſound in and after Journeys; and how to recover them when harraſs'd, and lean after Travelling.*

BUT juſt to mention, that his Shoes ought by no means to be too ſtraight, but exactly ſhaped; and that he ſhou'd be ſhod ſome Days before you ſet out: Let him, in the next place, have a Bit that is not too heavy; the Mouth of it ſhould reſt upon his Bars, about Half a Finger's Breadth above the Tuſhes; the Curb as the Hollow of the Beard, a little above the Chin, and if it galls him, let the Place be defended with a Piece of Buff, or ſoft Leather. Let not the Saddle reſt upon his Withers, Reins, or Backbone. Its Stuffing ſhould be of Deers-Hair, or the long Hair of *Horſes* Manes or Tails, or even of Ox-Tails, which does not harden near ſo much with the Sweat as the ordinary Hair of Oxen and Cows: And ſome there are who uſe well-dried Moſs, as leaſt apt to harden with Sweat. If the Saddle be placed too forwards, the Fleſh of the Shoulder will appear raiſed at the Point of the Fore-bow, when the *Horſe* is in Motion: The ſame will happen if the Pannels be too much ſtuff'd before, or that the Toes of the Fore-bow be too narrow and ſtraight. The Fore-bows ſhould be always diſtant from the Withers two or three Fingers breadth; and when they lie too near, rectifie it by ſtuffing that Part of the Pannel called their *Breaſts* or *Paps*. If, by reaſon of the Lowneſs of the *Horſe* before, or otherwiſe, there is a Neceſſity of a Crupper, let it be neither too ſtraight down, nor too ſlack. As for the Dock-piece, it ſhould be large and full, and greaſed every Day, if he gall underneath, waſhing the Sore with Water and Salt. The Breaſt-plate ought to be of a juſt Length, and the Buckles muſt not gall. The Stirrup-Leathers ſhould be ſtrong, as alſo the Stirrup-Irons, and pretty large.

Being thus precaution'd, begin your Journey with ſhort Marches; ſuffer your *Horſe* to piſs as often as you find him inclined, and even invite him to it; but do not do ſo by your *Mares*. Let him drink of the firſt good Water you meet with, after Seven in the Morning in Summer, and near Ten in the Winter. Draw up his Head five or ſix times while he is drinking, moving him a little betwixt every Draught; and if he be very warm, make him redouble his Pace to warm the Water in his Belly. On the other hand, ride him very ſoftly for about half an Hour before you come to your Inn, that being not too warm, or out of Breath, you may immediately unbridle him, or elſe let him be walk'd in a Man's Hand till he cools. Let his whole Body, after he is ſtabled, be well rubb'd and dried with Straw; ungirt him, take off the Crupper, ſlacken the Breaſt-plate, and put ſome Straw betwixt the Saddle and his Back; then let ſome freſh Litter be ſhak'd down beneath him, to oblige him to ſtale or piſs. Here 'tis worth obſerving, that the moſt People think to ſupple their *Horſes* Legs, by rubbing them down as ſoon as they are put into the Stable, imagining that the ill Humours, which may be ſtirr'd thereby, may be diſſipated by Tranſpiration; it's a groſs Miſtake. 'Tis true, it does in ſome meaſure rarifie, but not all diſcuſs; ſo that the remaining part, inſinuating it ſelf as a Vapour amongſt the Nerves, is afterwards condenſed by Cold into a Water, or viſcous Humour, that cannot be diſpell'd by Rubbing; and therefore let not your *Horſes* be rubb'd down till they are perfectly cooled.

Being arrived at your Inn, as ſoon as your *Horſe* is partly dry'd, and ceaſes to beat in his Flanks, let him be unbridled, his Bit clean'd, and let him eat his Hay at pleaſure; and if there was no Conveniency to let him drink on the Road, if he be very warm, you will find him eat very ſparingly; in which caſe give him his Oats waſhed in Ale or Beer, or ſome of them only, if you intend to feed him again after he has drank. Duſt and Sand will ſometimes ſo dry the Tongues and Mouths of *Horſes*, that they loſe their Appetite; in which caſe let them have ſome Bran well moiſtned with Water, to cool and refreſh their Mouths, or elſe let their Mouths and Tongues be waſhed with a wet Spunge. That Water which is leaſt quick and penetrating is beſt for them; and if you are under a Neceſſity of giving them ſuch a Drink, let it be warm'd in the Sun, or over a Fire, ſtirr'd with the Hand, or mix'd with a little Hay. River is preferable to Spring, and Spring to Fountain or Draw-Well-Water.

Theſe Directions will do after moderate Riding, but when you have rid very hard, unſaddle him, ſcrape off the Sweat with a Sweating-Knife or Scraper, and always go with the Hair: Then rub his Head and Ears with a large Hair-cloth, wipe him alſo between the Fore and Hind-legs; rub him ſo all over, till he be thoroughly dry; then put on the Saddle, and cover him, and if the Place be warm, let him be gently led up and down in it for a Quarter of an Hour. He muſt not drink till he be thoroughly cool'd, and have eat ſome Oats. The Saddle ſhould be dried in the Sun, or by the Fire, and not upon his Back, and the Pannels beaten with a Rod, that they may not harden, and hurt his Back.

As to the Galling of his Back, you diſcover it beſt when he has ſtood an Hour or two unſaddled, by the Swelling of the Part; and if it be only ſwell'd, tye a Bag with warm Dung upon the Swelling, or rub and chafe it well with good Brandy, or Spirit of Wine, and then ſet Fire with a lighted Paper to what remains upon it: But if the Skin be cut, waſh it with warm Claret, mix'd with a Fourth part of Sallet-Oil, or freſh Butter, or bathe it frequently with Brandy, if the *Horſe* will endure it.

Care ſhould be taken when a *Horſe* is put up, and before he is unbridled, to examine and clean his Feet; and at his Return, if watered abroad, let his Feet be ſtopp'd with Cow-Dung; and if in the Evening, let them remain ſo all Night, to keep them in a good Condition: But if his Feet are brittle, let his Fore-feet, at the Onſetting of the Hoof, be anointed with Butter, Oil, or Hogs Greaſe, in the Morning before Watering.

If your *Horſe* eats his Oats too greedily, let them be ſpread in the Manger; and for ſuch a one, that as ſoon as unbridled, inſtead of eating, will lie down to Reſt, if his Eyes be lively and good, you may conclude he is not ſick; however, his Feet pain him, and great Care muſt be taken that he be eaſed, by taking off his Shoes, or otherwiſe, as you find Occaſion. Thoſe *Horſes* have tender Feet that have low Heels, or but a ſmall Thickneſs between the Sole and the Hoof, in that Part which is about two Fingers Breadth, or leſs, above the Toe, or Fore-part. The *Horſe*'s Dung ſhould be alſo examined; if too thin, 'tis a Sign the Water he drank was too cooling; if there are Grains of Oats amongſt it, either he hath not chew'd well, or he has a Weakneſs in his Stomach; if his Dung be black, dry, and in hard and ſmall Pieces, he has over-heated his Body.

After a Journey is over, draw the two Heel-nails of the Fore-feet, and if it be a large Shoe, Four. Bleed him two or three Days after in the Neck; feed him for ten or twelve Days with wet Bran only, without giving him any Oats; and keeping him well litter'd, ſtop his Feet with Cow-Dung: And to preſerve his Legs, take Cow or Ox-Dung, thin it with Vinegar, add to it a Handful of ſmall Salt; rub his Fore-legs from the Knees, and Hind-legs from the Gambrils, by chafing them with and againſt the Hair; and thus leave him till Morning, not wetting his Legs, but giving him Water that Evening in a Pail. Waſh his Legs next Morning in a River, or with Well-Water. Cow-Dung ſpoils a *Horſe*'s Hoof; and therefore to recover him, fill a Hole with a wet blew Clay, and make him keep his Fore-feet in it for a Month. If you are afraid you have founder'd your *Horſe*, mix two Quarts of Vinegar cold, together with as many Pounds of Salt, and bathe and rub hard his Fore-legs with it for about half an Hour, then pour ſome Oil of Bays ſcalding hot into his Feet, about which put Hurds, or coarſe Flax, with thin Slices of Wood fix'd croſs-ways above it, to keep all faſt. For want of the Oil of Bays, thoſe of Walnuts, Rape-ſeed and Fiſhes will do.

If your *Horſe* be harraſs'd and lean after a long Journey, the beſt way to recover him is to give him half a Pound of Honey, very well mix'd with ſcalded Bran; and when he has eat that well, give him next a whole one, and then two Pounds every Day, and continue it till you find him empty, and purged well with it. Some give them Powder of Liquoriſh in ſcalded Bran for a conſiderable time, and to cool their Blood, three or four Gliſters will not be amiſs. Wet Bran is good for a lean *Horſe* every Night, above his Proportion of Oats. Graſs is excellent for him, if he be not purſie. If a *Mare*, give her a *Horſe*, and if ſhe never had a *Foal*, it will enlarge her Belly. Exceſſive Feeding ſhould be prevented: Cut Straw, mix'd with Oats, will hinder a *Horſe* from eating too greedily, and is very wholſome; and when a *Horſe* begins to drink heartily, it's a certain Sign he will in a ſhort time recover.

CHAP. XXIII.

Of Horſes *for the Coach, Waggon, Burthen,* &c.

I Need not ſay much concerning the Coach, Waggon, Carriage, Burthen, and the like, it being not quite ſo difficult to find *Horſes* proper for thoſe uſes, as for what hath been ſaid in the foregoing Chapters.

For your Coach in Town, *Dutch* or *Flanders Horſes* are beſt. Now in the chooſing of theſe obſerve that they be well quarter'd and ſhort Backt; that they have ſtraight and ſound Limbs; that they Trot well and nimbly; that their Eyes be good, and that they carry good Bodies: Not but that I would have you examine them at large, according to all the Rules of Beauty and Goodneſs: But becauſe the contraries to what I here particularly name are the moſt frequent and uſual Faults in theſe kind of *Horſes*.

In the Country, or for Travelling, our *Engliſh Horſes* are the beſt, if well choſen; for their ſize the beſt is about Fifteen Hands and an half high, and they muſt be Squat and well Truſt, with ſound Legs and Feet, *&c.* In obſerving their Trot, take notice if they lift up their Feet nimbly and evenly, and keep their middle Joints behind wide aſunder, 'tis very good.

For Carriages, Waggons, Servants, and all ſort of Drudgery, you have nothing to do, but to make choice of plain and ſtrong *Horſes* that are in Health and Vigour, and withal free from Maladies, their Buſineſs being nothing but Servile Labour; only be ſure that your Baggage *Horſes* above all have ſhort and ſtrong Backs, and be of a pretty large Size.

CHAP. XXIV.

Of Riders, Keepers, Grooms, &c.

THE Buſineſs of a Rider being to Back, Mouth and Manage young Horſes, he ought to be very skilful and adroit, bold and firm on Horſe-back, with a juſt and even Hand, being exactly perfect in all the Leſſons, Aids, and the like, that are to be taught a Horſe, either for the War, Pleaſure, *&c.* He ought to ſuit to every Horſe ſuch a Bridle and Saddle as is fitteſt for him. He ſhould be a Man of Temper and Judgment, never beating a young Horſe, but when he is forced to it, and this with Diſcretion, endeavouring if poſſible to win him by Sweetneſs and good Uſage; and with all this, he ſhould be ſober and diligent, for without that he will not be able, and unleſs he is diligent, he will be unwilling to perform his Duty with that Exactneſs which is requiſite in ſuch an Employment.

By *Keepers*, I mean ſuch as have the keeping of Running Horſes; and that you may the better know their Buſineſs, I will give you the Method of a Running Stable. You muſt have for every Running Horſe, a little a little Boy to ride him his Airings, Water-courſes, and the like: And over all theſe a Keeper, who orders and overlooks the whole buſineſs of Dieting and Exerciſing; for which end he muſt underſtand all that which belongs to the keeping of a Running Horſe, of which ſee more hereafter.

A *Groom* ſhould be ſturdy, healthful and ſtrong; His buſineſs is to underſtand the ordinary ways of keeping all ſorts of Horſes; that is, for the War, Pleaſure, Travel, and the like. And above all, he ought to be free from Drinking; for the beſt Groom in the World, when he is Drunk, is in danger of ſpoiling his Horſe by Heats, Colds, and their giddy brain'd Extravagancies.

In general; As for all ſorts of Servants in and about your Stables, be ſure that they underſtand their reſpective places, and deport themſelves well therein; for good Servants (well ordered) conduce very much to the Preſervation of your Horſes, and have always a good Equipage.

CHAP. XXV.

Of Keeping, Dieting and Ordering the Running Horſe.

A Horſe that is deſigned for Racing ſhould be tractable, and no ways Reſty or Skittiſh; his Head ſhould be ſmall and ſlender, with very wide Noſtrils, and a large Thropple; he ſhould alſo have a pretty large Reach, and good Feet: his Age ſhould be ſix Years at leaſt; no Horſe under that having a ſufficient Strength for a Four Mile Courſe, without running the hazard of being over-ſtrained. In the keeping of Running Horſes, unleſs a Man has Experience and Practice, the beſt Rules imaginable are inſufficient; but becauſe it is impoſſible to ſet up a Fund, and build without a Foundation, I ſhall give you ſome Directions, leaving you the liberty to vary or add according to your own Obſervation, as occaſion requires.

There are three States of Body in which a Horſe may be.

1. Fat and Foul.
2. Lean and Poor.
3. In a moderate State between both.

Now you muſt be ſure to proportion and order the Diet and Exerciſe of your Horſe ſuitable to the ſtate and condition he is in. You muſt alſo (for the ſame end) have a ſpecial regard to the particular Nature and Conſtitution of every *Horſe*: But your own Remarks (upon due Practice) and common Reaſon will direct you ſufficiently in thoſe Points. For is it not very reaſonable to take more time to bring a foul *Horſe* to ſharp Exerciſe, than one that is already in a pretty tolerable Condition; and that a *Horſe* of a ſpending nature ought not to have ſo violent Exerciſe, as one of a harder Temperament? I will therefore pitch upon a Fat *Horſe*, that being the difficulteſt of the Three, and examine how to bring him into ſuch a good order, that he ſhall perform his Courſe to the beſt advantage; and by diſcourſing of this, you will know how to deal with the other two.

If therefore you match a *Horſe* that is fat and foul, either by running at Graſs, or ſtanding at Soil, by too high keeping, or by any other means of reſt, for the firſt fifteen days at leaſt, riſe by Day-break, and having put on his Bridle waſh'd in Beer, and tyed to the Rack, clean the Stable from the Dung, and then dreſs him very well, that is to ſay, firſt Curry him all over from the Head to the Tail, from the top of his Shoulder to his Knee, and from the top of his Buttock to his hinder Gambril, then duſt him all over with a *Horſe*'s Tail; or a clean duſting-cloth, then curry, or rub him all over with the *French Bruſh*, beginning at his Forehead, Temples and Cheeks, ſo down his Neck, Shoulders and Fore-legs to his Hoofs, then along his Sides, and under his Belly, and laſtly his Buttocks, and Hinder-legs; then rub him all over with your wet Hand, not leaving as near as you can one looſe Hair about him, nor one wet Hair, becauſe you muſt keep rubbing him until he is rub'd dry with your Hands. Then with your wet Hand clean his Sheath, his Yard, his Stones and his Tuel, and indeed you muſt not leave any ſecret place uncleanſed, as his Ears, Noſtrils, Fore-Bowels, and between his hinder Thighs. This done, take a Hair-cloth and rub him all over, but eſpecially his Face, Eyes, Cheeks, between his Chops, the Nape of his Neck, and down his Legs, Fetlocks, and about his Paſterns. Having done all this, rub him all over with a clean Woollen-cloth, beginning at his Head, and ſo to every part of his Body as before directed; then take a wet *Mane-comb* to comb his Mane and Tail; when you have thus dreſs'd him, put over him his Body-cloth, which muſt be thicker for the Winter Seaſon than for the Summer, for which fine Cotton is moſt fit; then put on his Saddle, girting the foremoſt Girt pretty ſtrait, and the other a little ſlack, and wiſp it on each ſide of the *Horſe*'s Heart, that both the Girts be of equal ſtraitneſs; then put on a warm Breaſt-cloth, which may cover both his Shoulders.

When the *Horſe* is thus dreſs'd, and made ready, take a little Beer in your Mouth, and ſquirt it in his, and ſo lead him out of the Stable and mount him, leaving ſome of the Helpers to clean the Stable, and ſhake up the Litter; for be ſure that your *Horſe* ſtands upon a good ſtore of freſh dry Litter both Night and Day, which Litter ſhould be Wheat-ſtraw, if poſſible, or for want of that uſe Oat-ſtraw, but Barly and Rye-ſtraw are eſteemed unwholſome, the one cauſing Heart-burning, and the other Scouring.

When you are thus mounted, walk forth your *Horſe* a Foot-pace (which is called Rakeing) for about two Miles upon ſound and ſmooth Ground, and if you can, upon hilly places, where gallop him gently, but rack, or walk him down gently that he may cool as much as you heated him, and by this time the Sun will be riſen, ſo that you may walk him to ſome River or clean Pond, and permit him to drink his fill; then bring him gently out of the Water, and walk him away very eaſily; not as Ignorant Grooms do, who as ſoon as a Horſe comes out of the Water force into a Gallop, which either teaches him to run away with you as ſoon as he is Water'd, or makes him refuſe to Drink, fearing the violence of his Exerciſe which is to follow; having walked him a pretty ſpace, offer him more Water; if he drink, then gallop him again, but if he refuſeth gallop him to occaſion thirſt, and always exerciſe him before and after drinking. And when he hath ſufficiently drunk, bring him gently home without a wet Hair; when you are come to the

Stable Door alight, (his Litter being prepared for him) and by Whiſtling, ſtretching the *Horſe* upon the Straw, and raiſing the Straw up under him, ſee if you can cauſe him to Piſs, which if at firſt he doth not, yet by accuſtoming him to it, he will ſoon be brought thereunto; for it is not only wholſome for him, but cleanly for the keeping the Stable.

Theſe things being performed bring him into his Stall, and firſt tie his Head up to the Rack in his Bridle; then with hard Wiſps rub down his Fore-legs as hard as you can, then unlooſe his Breaſt-cloth, and rub his Head, Neck, and Breaſt very well with a dry Cloth; then take off his Saddle and Body-cloth, rubbing his Body very well, eſpecially his Back where the Saddle was, and ſo Cloath him up with a Linnen-ſheet, over which caſt a good ſtrong Houſing-cloth, and over that his Woollen Body-cloth, which in the Winter may be lined with thin Cotton; then girt theſe Cloths on with his Surſingle, which ſtuff round, with reaſonable big and ſoft Wiſps, which is more eaſie for him to lie down with, than with thoſe ſmall hard Wiſps.

After he is thus Clothed up, pick his Feet, and ſtop them up with Cow-dung; then caſt into his Rack a little bundle of Hay well duſted, and hard bound up, for him to tear out as he is bridled up, and having ſo ſtood about an Hour and a half come to him, and firſt rub his Head, Face, and the Nape of his Neck, with a clean Rubber made of new rough Hempen-cloth, which is excellent for his Head, diſſolving all groſs and filthy Humours; then draw his Bridle, and with a clean Cloth make the Manger ſo clean as poſſible, taking away all the ſcattered Hay, and caſt it into the Rack; then take about a Quart of ſweet, dry, old, and clean Oats, the whiteſt and heavieſt being the beſt, for thoſe that are muſty breed Infirmities, the Moiſt cauſeth ſwelling in the Body, the New breeds Worms and pain in the Belly, and thoſe half-dreſt deceive the Stomach, and ſpoileth the *Horſe*. The Black Oats are not ſo good as the White, becauſe they make foul Dung, ſo that one can't ſo well know the State of his Body.

This Quart of Oats put into a Sieve that is ſomewhat leſs than a Riddle, and bigger than a *Reeing-Sieve*, which will let the light Oats go through, but keep in the full plump ones: In this Sieve, ree, dreſs, and toſs them very well, that there be no duſt or foul thing therein, and ſo give them your *Horſe*, and if he eats them with a good Stomach, you may give him as much more ſo ordered; and ſo let him reſt till about eleven of the Clock, and then viſit him again, and having rub'd his Neck, Head and Face, give him about the ſame quantity of Oats ſo dreſt and ordered as aforeſaid; then ſhutting up the Light that he may be in Darkneſs, leave him till about One of the Clock: For the darker you keep him in your Abſence, the better it will occaſion him to feed, and to lie down and take his reſt; and therefore it is cuſtomary to arm the Stalls where the *Horſes* ſtand, round about, and over the Rack with ſtrong Canvaſs, as well for darkneſs as for warmth.

About One of the Clock give him the like quantity of Oats dreſt as aforeſaid, and after you have rub'd his Face, Head, the Nape of the Neck, and cleaned the Stable from the Dung, give him a little Knob of Hay, and ſo leave him till about Four a Clock if in the Summer, and three if in the Winter; then come again, clean the Stable, and bridle him up, having wet the Snaffle with Beer, and ty'd him up to the Rack; then take off his Cloths and dreſs him in all points as before directed for the Morning; then Cloath and Saddle him as aforeſaid, and bring him forth, uſing what means you can to make him piſs and dung at the Stable Door upon the foul Litter; then mount and ride him forth as in the Morning, but not to the Hills, chooſing plain Grounds near ſome River, and ſo give him his Airing, Galloping him before and after his Water, then raking him gently up and down. In your raking you muſt obſerve in all your Paſſages (eſpecially when you would have him empty himſelf) to let him ſmell upon all the old and new Dung you meet with, which will make him empty his Body, and repair his Stomach.

After you have Water'd him, and ſpent the Evening in Airing him (for nothing is more wholſome, or ſooner conſumeth foulneſs than early or late Airing) ride him Home, and obſerve to do all that you did to him in the Morning as well within doors as without, and ſo leave him on his Bridle for above an Hour; then go to him, rub him well, draw his Bridle, clean his Manger, put up his ſcattered Hay, give him about a Quart of Oats well dreſt and ſifted, and ſo leave him till about Nine a Clock; then viſit him again, firſt rubbing down his Legs with hard Wiſps, then with a clean Cloth rub his Face, Head, Neck, and Fore-parts, then turn up his Cloths, rub his Buttocks, Fillets, and Hinder-parts, which done, put down his Cloths, give him another Quart of Oats, and put into his Rack a little bundle of Hay as before directed, then toſs up his Litter to make his Bed ſoft, and ſo leave him till the next Morning, and then come to him early as before directed, and do every thing as you did before. And thus keep him for the firſt Fortnight; in which by this double daily Exerciſe his Fleſh will be ſo hard, and his Foulneſs ſo conſumed, that the next Fortnight (if you be a Temperate Man) you may venture to give him gentle Heats. But whereas ſome might object, that many *Horſes* that have good Appetites, would be half ſtarv'd, or grow very weak, if they were ſcanted to a Quart of Oats at a Meal: It's anſwer'd, that this Proportion is not ſet down as an Infallible *Rule*, for if he eats it with a good Appetite, you may give him another; and ſo the Proportion is left to your Judgment and Diſcretion.

As concerning his Heats obſerve theſe directions; Firſt that two Heats in a Week is enough for any *Horſe* of what ſtate of Body ſoever. Secondly, that one Heat ſhould be given upon that Day in the Week, on which he is to be run his Match: As for Example; If your Match is to be run upon a *Monday*, then your fitteſt Heating Days are *Mondays* and *Fridays*, and the *Monday* to be always the ſharper Heat, becauſe it is the Day of the Match, and there is three Days reſpite betwixt it and the other Heat: If the Match Day be on a *Tueſday*, then the Heating Days are *Tueſdays* and *Saturdays*: If on *Wedneſdays*, then the Heating Days are *Wedneſdays* and *Saturdays*; and if on *Thurſdays*, then the Heating Days are *Thurſdays* and *Mondays*, and ſo of the reſt. Thirdly, give no Heat (except in caſe of extremity) in Rainy or Foul Weather, but rather differ Hours and change Times, for it is unwholſome and dangerous; therefore in caſe of Shours and uncertain Weather, be ſure to provide for him a warm lin'd Hood with linnen Ears, and the Nape of the Neck lin'd to keep out Rain, nothing being more dangerous than for cold wet to fall upon his Ears, the Nape of his Neck, and his Fillets. Fourthly, give your Heats (provided the Weather be ſeaſonable) as early in the Morning as poſſible, that is, by Day-break.

As to your ſecond Fortnight's keeping, obſerve all things, as before directed for the firſt Fortnight, only before you put on his Bridle, give him about a Quart of Oats clean ſifted, which as ſoon as he has eaten, bridle him up, and dreſs him in all particulars as in the firſt Fortnight, alſo Cloth, Saddle, Air, Water, and bring him home in all points as in the firſt Fortnight, only put no Hay in his Rack to tear out, but only draw with your Hand as much fine ſweet Hay well duſted, as you can well gripe, and let him as he ſtands on the Bridle tear it out of your Hand; which if he doth greedily, then give him another, and another, and ſo let him ſtand on the Bridle about an Hour; then come to him, and after rubbing, and other Ceremonies performed as aforeſaid; ſift and dreſs about a Quart of Oats, and ſet them by; then take a Loaf of Bread that is three Days or more old made after this manner.

Take three Pecks of clean Beans, and one of good Wheat, mix them together, and grind them to fine Meal; then ſift it through a fine Sieve, and knead it with a little Water, and a good quantity of Yeſt to make it light, and ſo let it lie for ſome ſpace to make it light before you make it up into Loaves, which muſt be well Bak'd.

At three Days old you may give your *Horſe* ſome of it, but not ſooner, new Bread being dangerous, occaſioning Surfeits; but if you are conſtrained to give it ſooner, or that it is then damp or clammy, then cut it into thin Slices aad lay it to dry, and ſo crumble it amongſt his Oats.

But to return to our former Diſcourſe. This Bread of three Days old chip very well, and cut into thin ſlices (as much as may countervail the quantity of Oats) very ſmall, and mix'd with the Oats, and ſo give them your *Horſe*. You may give him as much Bread as may countervail the quantity of Oats, or more if you think fit.

About Eleven a Clock viſit your *Horſe*, and having perform'd your By-ceremonies before treated of, give him the ſame quantity of Bread and Oats as you did in the Morning, and ſo let him reſt till the Afternoon; and about One of the Clock, or after, if you intend to give him an Heat the next Day, feed him with Bread and Oats, as you did in the Forenoon, and ſo conſequently every Meal following for that Day, obſerving every thing as before directed you,

But if you intend the next Day to give him an Heat, then only give him a Quart of good clean ſweet Oats, and as ſoon as he has eaten them, put on his Bridle, and tye him up, not forgetting all the aforeſaid Ceremonies; then Dreſs him, Cloth him, Saddle, Air and Water him as before directed; and when you bring him home, order him as before ſhewed, only give him no Hay; after he hath ſtood about an Hour on the Bridle, give him another Quart of clean Oats, which when he hath eaten, put on his Head a ſweet clean waſh'd Muzzle, and ſo let him reſt till about Nine of the Clock at Night.

As concerning the uſe of the Muzzle, and which is the beſt, you muſt know that as they are moſt uſeful, being rightly made, ſo they are hurtful if falſly made: The true Uſe of them is to keep your *Horſe* from eating up his Litter, from gnawing upon Boards and Mud-walls, and to be ſhort, from eating any thing but what he receives from your Hand. Theſe Muzzles are ſometimes made of Leather, and ſtampt full of Holes, or elſe cloſe, but they are not wholſome; for if it be alom'd Leather, the Alom is offenſive, if liquor'd, the Greaſe and Ouze are as bad; beſides, they are too cloſe and too hot, occaſioning oft-times Sickneſs in your *Horſe*, and to keep his Dung longer in his Body than otherwiſe he would do.

The beſt Summer Muzzle is the Net-muzzle, made of ſtrong Packthread thick knit, with ſmall Maſhes at the bottom, and waxing wider and wider up to the middle of the *Horſe*'s Head, and bound about the top with ſtrong Tape, having on the near ſide a Loop, and on the far ſide a long String of Tape to be faſtned to the *Horſe*'s Head.

The beſt Winter Muzzle is made of ſtrong double Canvas, with a round bottom, and a ſquare Lettice Window of ſmall Tape before his Noſtrils, down to the bottom of the Muzzle; and this muſt alſo have a Loop and a String to faſten it to his Head as the other.

At Nine of the Clock at Night viſit your *Horſe* again, and having performed your By-Ceremonies as aforeſaid, give him a quart of clean ſifted Oats, and as ſoon as he hath eat them, put on his Muzzle, toſs up his Litter, and leave him for that Night. The next Morning very early go to him, and if he is laid, do not diſturb him, but imploy your time until he riſeth, by ſifting and cleaning a quart of Oats, which rub between your Hands, and waſh them in a little Ale or ſtrong Beer, but not too moiſt, and ſo give it him; as ſoon as he has eaten them, bridle him up, hang by his Muzzle, uncloath him, and dreſs him as before directed; then put on his Body-cloth, his Breaſt-cloth, and ſo Saddle him; then being ready to go forth, take his Bridle Rein, draw it over the top of the Rack, then raiſe up his Head; then take a new laid Egg waſh't clean, which break in his Mouth, and cauſe him to ſwallow it; after which waſh his Tongue and Mouth with a little Beer, and ſo lead him forth, obſerving the former Directions to cauſe him to Piſs or Dung; then mount him, and rake him gently to the Courſe; and every while make him to ſmell upon other *Horſes* Dung, whereby to cauſe him to empty himſelf the better.

When you are come within about a Mile of the Start-poſt, alight and take off his Body-cloth and Breaſt-cloth, girting on his Saddle again; and having ſent away your Groom with thoſe Cloths, and the clean dry Rubbing-cloths, let him ſtay at the laſt End of the Race till you come; then rake him gently up to the Starting-poſt and beyond; make him ſmell to that Poſt, as alſo to the firſt Poſt, which is called the *Weighing-Poſt*, that he may thereby take notice of the Beginning and End of his Courſe.

And now that we are come to giving of Heats again, it's proper to add the following Directions, as ſet down in the *Compleat Horſeman*, to what has been already offer'd upon this nice Subject, *viz.* That if the Weather be ſeaſonable, as aforeſaid, let the Heats be taken at Break of Day, but by no means in the Dark, as being unwholſome and dangerous. When you begin your Heat, let your *Horſe* be ſtarted round and ſharply, at near a Three Quarters Speed; and if it be on the Day of the Week that his Match ſhall go on, then, according to his Strength, Goodneſs of Wind, and Chearfulneſs of Spirit, run him the whole Courſe through; and by no means do any thing in Extremity, or above his Wind; but when you find him a little to yield, then draw a little and give him Eaſe, that he may do all with Pleaſure, and not with Anguiſh: For this manner of Training will make him take Delight in his Labour. The other Heat in each Week muſt be more gentle, the Deſign of it being only to increaſe Wind and cauſe Sweat, that ſo the Scouring you are to give him after his Heat may have ſome looſe Greaſe to work upon and bring away. You ſhould therefore let him go over the Courſe at a ſlow and gentle Gallop; for if both the Heats were ſmart, the *Horſe* would not be able to hold out, there being ſo ſhort an Intermiſſion between them for him to reſt and recover his Vigour. Likewiſe in Courſing, you ought to obſerve upon what Ground he runs beſt, whether up Hill, or down Hill, upon ſmooth or rough Ground, wet or dry, a level, or ſomewhat riſing Ground, that you may manage him for your Advantage.

Having thus courſed the Courſe ſtrongly and ſwiftly, after a little time ſlightly galloping him up and down the Field to rake his Wind, and chear his Spirits (your Groom being ready with your Cloaths and other Neceſſaries) ride to ſome warm Place out of the Wind, as under ſome Tree or Hedge, where alight, and with a graſing or ſcraping Knife, which is commonly made of ſome broken Sword-blade or Sythe, or for want thereof, of a thin Piece of old, hard Oaken Wood, faſhion'd like a broad long Knife, with a ſharp Edge; and uſing it with both your Hands, ſcrape off all the Swet from every Part about him; and thus do until you find there is no more Sweat ariſes; and ever and anon move him up and down, and then with dry Cloaths rub him very well all over; then take off the Saddle, and having ſcraped and rubb'd his Back, put on his Body-cloth and Breaſt-cloth, then his Saddle, well girted on; then gallop him gently forth, and again a little Space after, rub his Head, Neck and Body, as you ſit on his Back; then walk him about the Fields or Downs to cool him, and when you find that he dries apace, rake him gently homewards, ſometimes raking, and ſometimes galloping; but do not bring him to the Stable until he is quite dry; and when ſo, then diſmount, and endeavour to make him piſs and empty himſelf; then lead him into his Stall, and gently tye his Head up to the Rack with his Bridle; which done, preſently, as having prepar'd it before, give him this following Scouring.

Take a Pint of good Canary, an Ounce of pure clear Roſin, bruiſed to fine Duſt, and brew them together very well, until incorporated together; then put thereto a Pint of good Sallad Oil, and brew them alſo well together; and, laſtly, take an Ounce and an half of brown Sugar-candy, finely beaten to Powder, and mix them together; then mull all upon the Fire, and being luke-warm, and your *Horſe* newly come in from his Heat, as before ſhew'd you, draw his Head up to the Rack, and with a Drenching-Horn give him this Scouring, which is ſtrong, and takes away all manner of molten Greaſe and Foulneſs whatſoever.

As ſoon as you have given him this Scouring, preſently let his Legs be rubb'd, and take off his Saddle and Cloaths, and finding his Body dry, run ſlightly over it with your Curry-comb, and after with a Bruſh; then duſt well, and laſtly rub over his whole Body with dry Cloaths, eſpecially his Head, Nape of the Neck, and about his Heart; this done, cloath him up warm, as at other times, and wiſp him round with great warm Whiſps; and if you throw over him a little looſe Blanket, it will not be amiſs, eſpecially if the Seaſon is cold.

Your *Horſe* muſt faſt two Hours after taking the Scouring, all which time continue with him, and keep him ſtirring, uſing ſome Noiſe; for nothing is worſe than to ſleep or reſt at ſuch a time, and it hindereth the Operation of the Medicine; whereas ſtirring enliveneth the Spirits, and ſtirs up thoſe Humours that ſhould be removed. After he has thus faſted upon his Bridle, take a Handful of Wheat-Ears, (being your Pollard that is without rough Beards;) but before you give it him, put your Hands under his Cloaths againſt his Heart, alſo upon his Fillets, Flanks, and on the Nether-part of his Thighs; and if you find any new Sweat to ariſe, or any Coldneſs of Sweat, or if you find his Body to beat, or his Breath to move faſt, then do not give him any thing; for it is a Sign that there is much Foulneſs ſtirr'd up by the Medicine, and ſo makes him ſick; therefore in ſuch caſe only take off his Bridle, put on his Collar, and toſs up his Litter, that he may lie down, and ſuffer him to take his Reſt for about two Hours, leaving the Stable dark, and free from Noiſe. But if you find no ſuch Symptoms of Sickneſs, then proffer him the ſaid Ears of Wheat by two or three at a time, and if he eats the Handful, give him another; then give him a little Bundle of Hay, as before directed, and draw his Bridle, rubbing his Head well. About an Hour after he hath had his Hay, ſift him a Quart of good Oats, to which put two or three Handfuls of ſplitted Beans, which muſt be very clean dreſt from the Hulls, ſo that there may be nothing but the ſplitted Beans themſelves: To theſe Oats and Beans break two or three good Shives of Bread, clean chipt; which give him, and ſo leave him for two or three Hours. At Evening, before you dreſs your *Horſe*, give him the like Quantity of Oats, Beans and Bread; and when he has eaten them, bridle him up, and dreſs him, as before directed; then cloath him up, but neither ſaddle him, nor ride him forth for this Evening after his Heat, (he being inwardly foul, and the Scouring yet working in his Body) neither muſt he drink any Water. But after he hath ſtood about an Hour and a half upon his Bridle, take three Pints of clean ſifted Oats, and waſh them in ſtrong Ale or Beer, and ſo give it him; which will inwardly cool and refreſh him ſo well, as if he had drunk Water. Then having reſted a little while, feed him well that Night at his feeding times with Oats and ſplit Beans, or Oats and Bread, or altogether, or each apart, as you find his Stomach beſt inclined unto; then put ſome Hay in his Rack before you leave him, and go to Bed.

The next Day very early firſt feed, then dreſs, cloath, ſaddle and air him abroad, giving him Water, as hath been ſhew'd before; then bring him home, and feed him with Oats, Beans and Bread, as aforeſaid; but give him very little Hay, and keep your Heating Days, and the Preparation the Day before, as hath been ſhew'd, without any Omiſſion or Addition. Thus you ſhall ſpend the ſecond Fortnight, in which your *Horſe*, having received four ſound Heats, and as many Scourings, there is no doubt but his Body will be inwardly clean; then the third Fortnight order him according to the following Rules.

The third Fortnight make his Bread finer than before, after this manner: Take two Pecks of clean Beans, and as many of fine Wheat, grind them on the black Stones, ſearce them thro' a fine Range, and knead it up with Yeſt to make it light, then work it up, and bake it as the former.

With this Bread (having the Cruſt cut away, and being old) with clean ſifted Oats, and clean ſplit Beans, feed him this Fortnight, as you did the former Fortnight; alſo you muſt obſerve his Heating-Days, and the Day before his Heat, as in the former Fortnight, only with theſe Differences:

Firſt, Give him not his Heats ſo violent as before, but with a little more Pleaſure, and not overſtrain him: Next, do not after his Heats, when he comes home, give him any more of the former Scouring; but inſtead thereof, immediately upon the End of the Heat, after he is a little cool'd and cloathed up, and in the ſame Place where you rub him, by drawing his Head up aloft as you ſit in the Saddle, or raiſing it up otherwiſe, give him a Ball ſomewhat bigger than a *French* Walnut with the Rind and all, of that Confection before mention'd, being the true Manner of making the Cordial Balls.

But to return to our former Diſcourſe: Having thus ſpent the three firſt Fortnights, the fourth and laſt Fortnight you muſt make the Bread much finer than either of the former; as thus: Take three Pecks of fine Wheat, and one Peck of clean Beans, grind them to Powder on the black Stones, and bolt them thro' the fineſt Bolter you can get; then knead it up with very ſweet Ale-Yeſt, and new ſtrong Ale, with the Whites of about Twenty Eggs. Do not put in any Water, but inſtead thereof you may put in a little new Milk; then work it up, kneading it well; then bake it, and order it according to your former Directions.

With this Bread (the Cruſt being cut clean away, and with Oats ſunned, beaten, and rubb'd over with your Hands, then new winnow'd, ſifted and fine dreſt, and with the pureſt ſplitted Beans) feed your *Horſe* at his ordinary Feeding-times, after ſuch manner as you did the laſt Fortnight.

Keep his Heating-Days the firſt Week of this laſt Fortnight as you did in the former Fortnight, only forbearing one Heat the laſt Week, and give him not any Heat, at the leaſt for five Days before his Match; but give him long and ſtrong Airings, to keep him in Wind, nor need you give him this Fortnight any Scourings.

If in this Fortnight, Morning and Evening, you burn in your Stable, upon a Chafing-Diſh of Coals, ſome good Frankincenſe or Olibanum, mix'd with Storax and Benjamin, to perfume and ſweeten the Place, it is very good for him, and he will take great Delight therein. And in this Fortnight, when you give him any waſh'd Meat, waſh it not in Ale or Beer, but in the Whites of Eggs, or Muſkadine, which is leſs purſie. Alſo in this Fortnight give him no Hay, but what he takes out of your Hand after his Heats, except he is a very bad Feeder, very tender, and a great Belly-loſer.

The laſt Week of this Fortnight, if he is a foul Feeder, uſe the Muzzle continually; but if he is a clean Feeder, and will touch no Litter, then three Days before your Match it is convenient to uſe the Muzzle.

In the Morning before the Match, feed well both before and after Airing and Watering, as at other times before Noon; and after Noon leſſen his Meat a little.

Before and after Evening Airing feed him as at Noon, and water as at other times; but be ſure to come home before Sun-ſet.

This Day cool him, ſhoe him, and do all extraordinary Things of Ornament about him, provided there be nothing to give him Offence, or to hinder his Feeding, or any other material or beneficial Action: For ſometimes it happens, that when they have been ſhoed with light Shoes, and other Actions of Ornament done about them the Night before the Courſe, they have taken ſuch Notice thereof, that they have refuſed both to eat and to lie down; but ſuch *Horſes* are old, and long experienced in this Exerciſe: For as to the nice and ſtrait Platting up of their Tails, altho' ornamental, yet I do not much approve thereof, by reaſon it may give Offence to the *Horſe*; therefore forbear thoſe unneceſſary Ornaments. And as to the neceſſary things to be done to him, rather do them the Day before, becauſe on the Morning of the Courſe he ſhould find no Trouble or Vexation.

On the Match Day come to him very early, take off his Muzzle, rub his Head well, and give him a pretty Quantity of Oats, waſhed in Muſkadine, or in the Whites of Eggs; but if he refuſes them, then give him fine dreſt Oats dry, and mix'd with a little Wheat, or with your lighteſt Bread; and as to Beans, give him none. Of any of theſe Foods give him but ſuch a ſmall Quantity, as may keep Life and Soul together: Then if he be a *Horſe* that is an evil Emptier, retaining his Meat long, walk him abroad, and in the Places where he uſeth to empty, there entice him to empty; which as ſoon as he hath done, bring him home, put on his Muzzle, and let him reſt, until you have notice to make ready, and lead forth; but if he be a free Emptier, then you need not ſtir him, but ſuffer him to lie quiet.

When you have notice to prepare for leading him forth, then come to him, and having waſh'd his Snaffle in a little Muſkadine, take off his Muzzle, and bridle him up; but if you think him too empty, you may give him three or four Mouthfuls of the waſh'd Meat laſt mention'd, and then bridle him up, and dreſs him. After you have pitch'd your Saddle and Girts with Shoe-makers Wax, put it on his Back, girting it as gently as may be, ſo as he may have a Feeling, but no Straitneſs; then lay a Sheet over the Saddle next his Skin, and over it his ordinary Cloaths, wiſping them about with ſoft Wiſps; and if you have a Counter-pane, or Cloth of State, for Shew ſake, faſten it above all. All theſe things being done, you are ready to draw out, take half a Pint of the beſt Muſkadine, and give it him in a Horn, and ſo lead him away.

In all your Leadings upon the Courſe of gentle and calm Motions, ſuffer him to ſmell upon every Dung that thereby he may empty himſelf; and in ſpecial Places of Advantage, as where you ſhall find Ruſhes, long Graſs, Heath, or the like, walk him and entice him to piſs; but if you find no ſuch Help, then in ſpecial Places upon the Courſe, and principally towards the latter end, and having uſed the ſame Means before, break ſome of your Wiſps under his Belly, to cauſe him to piſs. And in your Leading, if any white or thick Froth or Foam ariſe about his Mouth, wipe it away with a clean Handkerchief, carrying a ſmall Bottle of clear Water with you to waſh his Mouth now and then with.

When you come to the Place of Starting, before you uncloath him, rub and chafe his Legs with hard Wiſps; then pick his Feet, and waſh his Mouth with Water; this done, uncloath him, mount his Rider, and ſtart fair, and ſo wiſh Succeſs unto him.

The Courſe being perform'd, you muſt order him as after a ſharp Heat; for which I refer you to my Directions about Heats.

Notwithſtanding all that has been ſaid upon this Head, it will not be improper to add a few more uſeful Obſervations out of *Solleyſel* in this place, about preparing a *Horſe* for a Match: Note then, that if his Dung be neither ſo thin as it will run, nor ſo thick but that it will a little flatten on the Ground, and be of a pale yellow Colour, then the *Horſe* is clean, and well fed: It denotes inward Heat if in round Pellets, and it be blackiſh or brown; if greaſy, it ſhows Foulneſs; if red and hard, then he hath had too ſtrong Heats, and Coſtiveneſs will follow. It indicates an internal Coolneſs of Body, or too moiſt Feeding, if it be pale and looſe.

As to his Urine; it's a Sign of Health when it is of a pale yellow Colour, and rather thick than thin, and of a ſtrong Smell. If it be of a high Complection, clear and tranſparent, like old *March* Beer, then he has taken ſome Surfeit, and is inwardly inflamed. If it be like Blood, or inclining to a Blood-colour, he hath had too ſore Heats, being over-ridden, or ridden too early after Winter-Graſs. It denotes a Conſumption of Body when of a green Colour, and if attended with bloody Streaks, there is an Ulcer in the Kidneys. Black, thick and cloudy Dung is a Preſage of Death.

When a *Horſe* that ſtands ſtill in the Stable, or walks a Foot-pace, or the like, ſweats, or if his Sweat be white and frothy, like Soap-ſuds, then he is foul, and wants Exerciſe; but when the Sweat is black, and ſeems to be no other than if Water had been thrown upon him, it's a Sign he is luſty, and in a good Caſe. Laſtly, Though there are Directions already given for Watering in the Evening after a Heat, yet you may in the three laſt Fortnights (finding your *Horſe* clean, and his Greaſe quite conſumed) give him a reaſonable Quantity of Water made Milk-warm, ſomewhat late at Night, and let him faſt about an Hour after.

Again, if the Weather be unſeaſonable, you ſhall at your Watering-Hours water in the Houſe with warm Water, throwing an Handful of Wheat-bran, or Oat-meal into it; but the laſt is the beſt.

CHAP. XXVI.

Of Keeping a Horſe *for* Pleaſure, Hunting, Travel, *&c.*

I Would have your Keeper of theſe *Horſes* to riſe early in the Morning by Day-break, or before, according to the Seaſon of the Year, and to ſift your *Horſe* about three Pints of good dry old Oats, and put thereto one or two Handfuls of ſplitted Beans with the Husks, and give it him. After he has eaten them, let him dreſs him according to the Order of good Horſemanſhip; that is, firſt curry with the Comb, then duſt, then rub with the Bruſh, then duſt and rub with your wet Hands, after that with a clean Wollen-cloth, next with a clean Linnen-cloth; next pick all obſcure Places, and laſtly comb down his Mane and Tail. Having thus done, ſaddle him, and ride him forth to Water, warming him very moderately both before and after Water, and ſo bring him home without Sweat. Then after you have rubb'd him all over, cloath him, and let him ſtand on his Bridle above an Hour; after which give him the former Quantity of the ſaid Provender, and when he hath eaten it, give him in his Rack a pretty Bundle of Hay, and ſo let him reſt till after Dinner, and then give him the former Quantity of the ſaid Provender, and ſo let him reſt till the Evening; only give him more Hay, if Occaſion requires. At Evening dreſs him well, according to the Directions for the Morning: Then ride him forth to Water, obſerving the ſame Method as in the Morning; and when you come home, dreſs and cloath him up, as aforeſaid, and let him ſtand on his Bridle as before; then give him the former Quantity of Provender, letting him reſt till about Nine of the Clock, at which time give him the former Quantity of Provender, and a pretty good Bundle of Hay, and ſo leave him till the Morning.

This Method obſerve concerning his ordinary Keeping at Home where he hath Reſt, and that you may diſpoſe of Hours at your Pleaſure; but if you are on a Journey, or the like, ſo that you cannot obſerve theſe Times, then divide the main and whole Quantity of Meat into Four Parts, and by Conſequence into greater Quantities, and give him them at the beſt Conveniency, always obſerving to give the leaſt Quantity before Travel, as a Third part before taking *Horſe*, and the Two others after you come to Reſt.

The reaſon of my dividing his Meals is, becauſe it is very advantagious for the *Horſe*; for to give it him at twice fills the Stomach more, makes the Digeſtion worſe and the Appetite weak; whereas to give little and often, makes the Stomach always craving, the Digeſtion always ready, and the Appetite never wanting. I muſt confeſs it is a greater Trouble, requiring more Attendance; but who will be ſparing of his Groom's Pains for the benefit of a good *Horſe*.

If you intend to give him an Heat, as to Hunt, Travel, Gallop, or the like, which were not amiſs to do two or three times a Week; then obſerve all your former Obſervations, only the Night before give him little or no Hay. In the Morning early before his Heat, and before his Dreſſing, give him three or four handfuls of clean ſifted Oats, waſh'd either in ſtrong Ale or Beer; then Dreſs him, Saddle him, and give him his Heat. But if it be ſudden and violent, then let it be when he hath very well emptied himſelf.

After his Heat rub him very well, and bring him dry into the Stable; then Cloath him up warm, and let him ſtand on his Bridle about two Hours; next give him a little Bundle of Hay to tear out upon his Bridle, and an Hour after feed him, as hath been already ſhewed, only with the firſt Oats give him a handful or more of *Hempſeed* well duſted and mixed.

At Night warm him a little Water and give it him luke-warm; then about an Hour after give him his Provender, with a pretty good Bundle of Hay, and ſo let him reſt till the next Morning.

The next Morning do all things as in his ordinary Keeping.

Let him ſtand on Litter both Night and Day; but change it often, and keep the Planks clean.

If you intend to Travel a Journey in the Morning, then give him no Hay, or but little the Night before: If you take your Journey in the Afternoon, then give no Hay, or but little in the Morning.

In your Journey ride moderately the firſt Hour or two, but after according to your Occaſions or Fancy. Water before you come to your Inn, if poſſible; but if you can't, then give warm Water in the Inn after he is fully cooled.

Oil of *Trotters* is excellent, being applied very warm and well chafed in, for the keeping of his Sinews and Limbs nimble, as alſo to help Lameneſs and Stiffneſs.

Neither Waſh your *Horſe* nor Walk him; for the firſt endangereth Foundering in the Body or Feet, and breedeth all Surfeits; and the latter is the ground of all ſtrong Colds, which turn to Glanders and Rottenneſs: But if neceſſity compel you to either, as foul Ways and long Stays, then rather waſh his Legs with Pails of Water at the Stable Door, than waſh him in a Pond or River. And for Walking, rather ſit on his Back to keep his Spirits ſtirring, than lead him in the Hand.

Theſe are ſufficient Directions for clean and ordinary Keeping of a *Horſe*.

CHAP. XXVII.

Of ſeveral Excellent Medicines for curing Maladies moſt frequent in Horſes.

TO Treat at large of *Medicines* and *Farriery* would take up a Volume it ſelf; *Markham*, *Snape*, and others have done it already; and all Gentlemen that keep good *Horſes* have their particular *Farriers*, in chooſing of whom they ought to be very cautious. This Chapter gives you ſome particular Medicines and Directions for ſuch Maladies and Miſchances that very often happen, being ſuch as have been Approved of by Perſons of Quality, and very good Horſemen. But for as much as he is eſteemed a better Horſeman, that can keep his *Horſe* in good Health (by preventing ſuch like Maladies) than he that can cure them, I ſhall begin with ſome Obſervations relating thereunto. And firſt,

Of Sickneſs in General.

WHenſoever you perceive your *Horſe* to forſake his Meat, to Droop, or ſhew any Symptom of Sickneſs, if it be not great, forbear letting Blood, which is a great weakening of the Spirits; but if the Signs be great and dangerous, then let Blood immediately; and for three Mornings together (the *Horſe* being Faſting) give him half an Ounce of a Powder called *Diahexaple*, brewed either in a Pint of fine Syrup of *Sugar*, or for want thereof the like quantity of *Moloſſes*; alſo a Pint of *Dragon Water*, or *Carduus-Water*, or a Quart of ſweet ſtrong *Ale-wort* will do as well; This Drench give him in a Horn, and if he is of Ability of Body, Ride him after it in ſome warm Place, ſuffering him to Faſt about two Hours: At Noon give him a ſweet *Maſh*, Cloath him warm, and let him not drink cold Water.

This *Diahexaple* Powder being not commonly known, and by conſequence not rightly prepared, I ſhall here give the Receipt to make it.

Take of Ivory, *the Grains of* Paradice, *and* Myrrh, *of the Roots of* Gentian, Enula Campana *and* Turmerick, *each a like quantity; then beat and ſearce them into a ſubtile Powder, and give him ſuch a quantity thereof as before directed.* This comforts and ſtrengthens the inward Parts, helps the Lungs, reſiſts Putrefaction of Humours, opens Obſtructions, and if taken in time, not only recovers him, but prevents many Diſtempers.

Obſervations relating to Sickneſs.

IF you find in your *Horſe* a Shortneſs of Breath, loathing of his Meat, an Heavineſs of Countenance, dull Eyes, ſtaring Hair, a rotten or dry Cough, an extream Looſeneſs, or Coſtiveneſs, Yellowneſs of the Eyes and Skin, no caſting his Coat, Lean and Hide-bound, to have a ſtaggering Pace, a Frantick Behaviour, extraordinary Lying Down, or Beating himſelf, or a faint or cold Sweat, all theſe are apparent Signs of Sickneſs.

Obſervations from the Dung.

YOU ought to obſerve his Dung, which is a certain Rule to know the Condition of his Inward Parts; yet before a Man paſſeth his Judgment, he ought to conſider what Feeding he hath had, which is a great matter. For example, if the Dung be of a pale and whitiſh yellow Complexion, and clear, hanging together without ſeparation, more than as the weight breaks it in the falling, being neither too Thick nor too Thin, theſe are Signs of his being clean, well fed, and free from Maladies: If it be well coloured, yet fall from him in round knots, then 'tis a Sign of foul Feeding, and he hath either too much Hay, and too little Corn or Oats, or too much Litter. If his Dung be rediſh and hard, then he hath had too ſtrong Heats, and Coſtiveneſs will follow; if it be pale and looſe, it denotes inward coldneſs of Body, or too much moiſt Feeding; if it be in round Pellets, and blackiſh, or brown, it ſhews inward heat in the Body; if it be Greaſie, it ſhews Foulneſs, and ſome of that Greaſe is molten, but can't come away; if he voids Greaſe in Groſs Subſtance with his Dung, and if the Greaſe be white and clear, then it comes away kindly, and there is no danger; but if it be yellow and putrified, then the Greaſe hath lain long in the Body, and Sickneſs will follow if not prevented.

Concerning Feeding.

OBſerve that if there be any Drink, or Meat that is good for the *Horſe*, and if he refuſe to take it, do not force him to it, but uſe gentle

Means, tempting him when he is moſt Thirſty, or Hungry; alſo mix the Drink, or Meat he loveth beſt, with that which he loveth worſt, till both be made Familiar to him.

Concerning the State of his Body.

YOU muſt obſerve that the ſtrongeſt State of Body, which is the higheſt of Fleſh, provided it is good, hard and without inward Foulneſs, is the beſt; yet you muſt take Notice that his Shape and Feeding are to be conſidered: As to his Shape of Body, ſome that be round, plump, and cloſe knit will appear fat, when really they are lean and in Poverty; and others that are Rawbon'd, Slender, and looſe knit together, will appear Lean, Deformed and Poor, when they are Fat, Foul, and full of Groſs Humours. So likewiſe as to their Feeding, ſome will Feed outwardly carrying a thick Rib, when inwardly they are Clean, and without all manner of Foulneſs; and there be others (as the latter) that appear clean to the Eye, ſhewing nothing but Skin and Bone, when they are full of inward Fatneſs; In this Caſe there are two Helps, the one inward, and the other outward: The Inward Help is only ſharp Exerciſe which diſſolves and Melts the Foulneſs, and ſtrong Scourings, which will bring it away: The outward Help is Handling and Feeling his Body, eſpecially his Ribs towards his Flank, and if his Fleſh generally handle looſe and ſoft, your Fingers ſinking or pitting in, 'tis a Sign of his Foulneſs; but if his Fleſh be hard and firm, but only upon his Hindmoſt Rib handles ſoft and Downy, 'tis a Sign there is Greaſe and Foul Matter within, which muſt be removed, let him appear never ſo Lean. If he be Fat and Thick, and as it were cloſed up between the Chaps, or if his Jaws handle full and Fleſhy, 'tis a Sign of much Foulneſs, both in the Head and Body; but if he handle Thin, Clean, and only with ſome Lumps or ſmall Kernels within his Chaps, in ſuch caſe it is a Sign only of ſome Cold newly taken.

Concerning his Hair.

YOU muſt well obſerve your *Horſe*'s Hair in General, but eſpecially his Neck, and thoſe Parts that are uncovered; for if they be ſleek, ſmooth, and cloſe, then he is in good Caſe, but if his Hair be rough and ſtaring, then he is inwardly cold at the Heart, wants Cloaths and warm Keeping, or elſe there is ſome Sickneſs creeping upon him.

Concerning Lameneſs, or Stiffneſs.

TAke notice that if your *Horſe* be ſubject to Lameneſs, or Stiffneſs of Joints or Sinews, Surbating or Tenderneſs of Feet, firſt give him his Heats upon ſoft and ſmooth Ground, forbearing hard and Stony High-ways or the like.

Obſervations from the Urine.

ALthough it is the general Opinion that the Urine is a Deceiver, yet ſomething may be diſcovered thereby, *viz.* If the Urine be of a High and Ruddy colour like Blood, then he hath been Over-ridden, or Ridden too early after Winter-graſs; if the Urine carry a white Cream on the top, it ſhews a weak Back, and a Conſumption of Seed; if it be of a pale yellowiſh colour, rather thick than thin, and of a ſtrong ſmell, it is an healthful, ſound and good Urine; if it be of an high Complexion, and clear like old *March Beer*, his Body is inflamed, and he hath taken ſome Surfeit; A green Urine ſhews a Conſumption of the Body; Urine with bloody Streaks, denotes an Ulcer in the Kidneys, and a black thick cloudy Urine ſhews Death.

Concerning the Privy Parts.

IF your *Horſe*'s Stones hang down, ſide or long from his Body, he is out of Heart or Luſt, and is either ſick of Greaſe, or other foul Humours; but if they be cloſe couched up, then he is in good plight and health.

Having given you theſe Obſervations concerning the State and Condition of your *Horſe*, our next Buſineſs ſhall be to proceed to *Diſeaſes*, and their *Cures*.

Receipts of Julips, Gliſters, *and* Potions *for cooling a* Horſe, *Over-heated by violent Exerciſe, approved by the late Duke of* New-Caſtle.

For a Cold.

TAke half a Pound of Honey, with as much Treacle mixt together, then take a Pound of Cummin-ſeed, an Ounce of Bay-berries, and an Ounce of Anniſeeds all beaten to Powder, which mix together, and put ſo much thereof into the Honey and Treacle, as will make it thick like a Haſty-pudding: This give your *Horſe* both before and after his Riding.

For a Cold, with a violent Cough.

THE *Compleat Horſeman* preſcribes this Receipt; Take Honey of Roſes, and Juice of Liquoriſh, of each an Ounce; two Drams of Fenugreek Seed; as many of Grains of Paradice, Cummin Seed, Cinnamon, Cloves, Ginger, Gentian, Birthwort Roots, Aniſe and Coriander Seed; all which reduce to Powder, and give him the whole in a Pint of White Wine, with ſix Ounces of Carduus Benedictus Water. This and the like Compoſitions are much better.

For a Cold with Beating in the Flanks.

IF the Cold and Cough is accompanied with a Beating in the Flank, and Palpitation of the Heart, take the Leaves of Mallows, Violets, Herb Mercury and Pellitory of the Wall, of each three Handfuls; an Ounce of Anniſeeds, or a Handful of green Fennel, if in the Summer: Boil them half an Hour in a large Pot or Kettle, in three or four Quarts of Water, adding an Ounce and an half, or two Ounces of Liver of Antimony in fine Powder: Preſs it out, after the Decoction is half cold, and add four Ounces of Lenitive Electuary, and a quarter of a pound of freſh Butter to the ſtrain'd Liquor, mix and make a Glyſter to be injected every Day, with an Ounce of *Sal Polychreſt*, after you have walk'd the *Horſe*; and when he has got two Glyſters, this Draught will be proper for him, *viz.* Take half a Pint of the Water of Viper's-Graſs, as much of Carduus Benedictus, Scabious, Roſes and Bitter Succory, of which give him a Quart, with an Ounce of Zedoary, and two Drams of Saffron, both of them in fine Powder, or inſtead of them, an Ounce of the Confection of Hyacinth, without Musk or Amber; then rinſe the Horn with the half a Pint that remains, and make him drink that alſo: This done, let him ſtand four Hours with a Water-bit in his Mouth, and as ſoon as you unbridle him, lay moiſtned Bran before him to eat, and at Night inject the Glyſter with an Ounce and an half of *Sal Polychreſt*.

For Eaſing his Head.

TO make him void a great quantity of Water and bitter Flegm, and thereby eaſe his Head; you are to take Aſſa Fœtida, and Powder of Savin, of each half an Ounce, which tie to the Bit in a Bag, and when he has ſtood two Hours bridled, unbridle him as long, and then put in the Bag again.

Of the Univerſal Cordial Powder for a Cold or Cough.

THis Powder by reaſon of its general uſefulneſs in other Infirmities as well as in Colds and Coughs, they who keep *Horſes* ought to have ready made by them; of which this is the Receipt: Take half a pound of Saſſafras, as much of Zedoary, of Elicampane, Gentian, Carling, Thiſtle, Angelica, Cubebs, Spaniſh Vipers-Graſs, Maſter-wort, and Marſh Mallows, round and long Birth-wort, Bay Berries, the Rinds of Oranges and Citrons, and Savin, of each four Ounces, Cardamoms, Liquoriſh, Myrrh, ſhavings of Hartſhorn and Ivory, Coriander Seed, Seed of Caraways, Cummin, Aniſe and Fennel, two Ounces of each, Cinnamon an Ounce, Cloves, Nutmegs and Oriental Saffron, of each half an Ounce, all freſh and gathered in the Spring, or about the time of *Advent* before the Froſt; let them be ſeparately reduc'd to a coarſe Powder, which ſtrain firſt through a Hair-ſieve, then mix them; the weight of each Ingredient being adjuſted after the Powdering, and Searcing: The Doſe is two Ounces in a Quart of Wine, keeping the *Horſe* Bridled four Hours before, and two Hours after.

But ſince the Vertue of this Powder decays by long keeping, an Ingenious Perſon has found out a Method to keep it Thirty Years together in its full Vertue, by reducing it thus into Balls. Take a Buſhel of ripe and black Juniper Berries, gather'd the end of *Auguſt*, or beginning of *September*, beat and put them into a Kettle, with eight or nine Quarts of Water, which boil on the Fire, and ſtir ſometimes, till it grows thick; after which preſs out the Liquor, and paſſing the remaining ſubſtance thro' a Searce, throw away the Huſks and Berries, and mix the ſtrained Pulp with the ſtrained Liquor: Boil it over a clear Fire, ſtirring it till it aſſumes the Conſiſtence of Broth: Then take it off, and when 'tis half cold, mix it in a Mortar, with the Powders preſcribed above, adding a Pound of the Grains of Kermes, which were left out in the preſcription of the Powder, becauſe they loſe their Vertue by being kept in Powder: Make Balls weighing twelve Drams each, to be dried on the Strainer with its bottom upwards in the Summer, and reſerved in a Sieve or Skillet, to prevent their growing Mouldy: The ſame Powder may be made into Balls with Cordial Waters, which will more eaſily dry: But the Mucilage of Juniper Berries very much enlarges the Vertue of the former. Theſe Balls, when they come to be uſed muſt be beaten into a coarſe Powder, and exhibited in Wine: For if they are preſcribed whole, they may perhaps be voided as entire as when they were taken: The Doſe is two Balls.

But when theſe Balls, or Univerſal Powders cannot be got, this Receipt may be very ſucceſsfully uſed: Take Barberries, Gentian, round Birth-wort, Myrrh, Florentine Orris, ſhavings of Hartſhorn, Elecampane, four Ounces each: Of Zedoary, Cummin, Anniſeed and Savin, two Ounces each, half an Ounce of Cinnamon; Cloves two Drams; two Ounces of Flowers of Corn-poppies dried: All the Ingredients are to be beat apart, and Searced thro' a Hair Strainer: Let them be thoroughly mix'd and kept hard preſs'd in a Leather Bag tied cloſe: The Doſe is two Ounces infuſed all Night in Wine. The uſual Cordial Powders made of Liquoriſh, Coriander Seed, Aniſe and Fennel, are much inferior to the Univerſal Cordial Powders or Balls.

To Comfort a Horſe *Over-ridden.*

TAke a Pint of new Milk, and put therein the Yolks of three new-laid Eggs well beaten, three penniworth of Saffron, and two or three Spoonfuls of Sallet Oil, let them be luke warm, and given to him in a Drenching-horn.

Honey is a very Sovereign thing for the Lungs, for a Cold, and to open all Obſtructions; and if you put a good Spoonful thereof in his Oats for ſome time together, it will work notable effects, and recover a very Purſey *Horſe*.

Horſes of great Exerciſe, or ſuch as are over-heated, muſt be often let Blood, ſometimes three or four times in a few Days, until you find good Blood to come.

To let a *Horſe* Blood in the Mouth, and then to rub it with Salt, and cauſe him to drink his Blood, is an excellent thing; but you muſt Purge him well, that his Greaſe may come away, for *Horſes* of great Exerciſe would elſe be always Founder'd in the Body, and then they will never thrive, until that melted Greaſe be brought away.

The beſt Purge is an Ounce of *Alloes Socatrina* lap'd up in freſh Butter, and made into Pills, which give him after he has reſted a while. Then give him this following Julip.

Take Mell Roſarum, Conſerve of Damask Roſes, and Burrage, with Syrup of Violets, of each four Ounces, Burrage, Endive, Succory, Bugloſs, and Plantain-Water, of each about a Pint and a half, which ſaid Water and Conſerves uſe thus. Put the Conſerves into a Mortar, and beat them together; then mix them well together with the Waters, and give it your *Horſe* in a Drenching-horn cold, and if you add Syrup of Lemmons it is very good; of this Drink give him twice or thrice a Week for about a Month, and let him reſt afterwards, and it will be effectual.

All the time of this great Heat, feed him with Wheat-bran amongſt his Oats waſh'd in ſtrong Beer, or Ale if he likes it; for Bran is very good to get out his Belly, and to moiſten him, becauſe it dries up all ſuperfluous Humours that heat him. Likewiſe in his Water when he drinks put ſome of the Bran, which is very good to cool and moiſten him, and to looſen his Skin, if he be Hide-bound, which Heats do occaſion.

Lettuces, Succory-Roots and Endive-Roots are very good to cool him, being boiled in the Water he drinks: And during the time of his Cure, let him have no violent Exerciſe, only gentle Walking.

To refreſh a *Horſe*, give him Carrots with his Oats, and waſh his Oats in Small-Beer, which is very good.

A Cooling Julip *in a* Fever.

TAke Barley-water a Quart, two Ounces of Syrup of Violets, and an Ounce of Syrup of Lemons, mix theſe together, and give him to quench his Thirſt.

If he is looſe of Body in his Fever, to bind him take an Ounce of Ivory, with as much Harts-horn, raſp them, and put them in three Quarts of Water, which muſt boil till about half is conſumed; then ſtrain it thro' a Cloth; and to this Liquor put four Ounces of the Juice of Barberries, and an Ounce and a half of Syrup of Pomegranates, and give it him in a Drenching-horn cold.

But other Authors are more particular as to this Diſtemper of a *Fever*, telling us, that vigorous young *Horſes* of a ſlender Make, are frequently attack'd with *Putrid Fevers*; that the Symptoms are their hanging down their Heads ſtupidly, and being ſcarce able to keep their Eyes open, reeling as they go, with a Blackneſs, Roughneſs and Drineſs in the Tongue and Roof, great Heat over all the Body, red Eyes, hot ſharp Breath, and Flanks beating violently. Let him Blood immediately in one Part or another, and feed him with green Barley, Dandelion, and the Tops of Vine-Leaves, only in ſuch a Proportion as to keep him from ſtarving; and let his Drink be two Ounces of white Tartar, in fine Powder, boil'd in two Quarts of Water for a Quarter of an Hour, which Decoction put into a Pailful of Water, with a Handful of Barley-flour, and let him drink as he pleaſes.

The following Remedy is excellent, *viz.* a Quart of Water, with two Ounces of Salt of Tartar, put into a Brazen-pot with a Cover, and ſet over the Fire, till the Salt is diſſolved; and having in the ſame manner diſſolved an Ounce of *Sal Armoniack* in Powder, in another Quart of Water, mix the two Solutions in a Pail; fill it with Water, adding a little Barley-flour, to qualifie the unpleaſant Taſte: This ought always to be mixed with his Drink; and when he does not eat nor drink, keep him always unbridled with a Bag tied to the Bit, containing Half an Ounce of the Powder of Aſſafœtida, and as much of Savin. Cordial-Waters are very good in this Caſe, and that made of three Pints of the Waters of *Scabious*, *Carduus Benedictus*, *Scorzonera*, and *Queen of the Meadows*, with an Ounce of the Confection of *Alkermes*, is uſually preſcribed.

Above all, *Gliſters* are to be uſed in a Fever, of which the Purgative ones muſt not be uſed daily; but this cooling one may. Take a ſufficient Quantity of the ſoftning Herbs and Fennel-ſeed, beaten with an Ounce and an half of *Sal Polychreſt*, and two Handfuls of whole *Barley*; and when they are boil'd and ſtrain'd, add four Ounces of the Oil of *Roſes*, and as much of *Violets*, and three of extracted *Caſſia*, or *Benedictum Laxativum* to it; inject it often, rubbing the *Horſe* now and then againſt the Hair: But if the Fever continues three Days without Intermiſſion, the *Horſe* is gone, and no Medicines will do.

The following Preſcription, which purges without heating the Body, being neceſſary to be exhibited in the Declenſion of a Fever, it cannot well be omitted. Put two Ounces of the Powder of white *Tartar*, and as much of fine *Nitre*, into an Earthen-Diſh, and kindle them with a live Coal; and when ſufficiently burnt and cold, beat them into fine Powder; then put the Stuff into a Quart of Water, and as much of White-Wine, with Four Ounces of *Sena*: Let them ſtand all Night in a cold Infuſion, which pour ſtrained upon four or five Drams of *Scammony* in fine Powder, incorporated with half a Pound of Honey, prepared with the Herb *Mercury*, ſtirring all gently with a Peſtle in a Mortar: Give the whole Quantity, keeping the *Horſe* bridled four Hours before, and three after. His Food muſt, inſtead of Oats, be moiſtned Bran, and walk him for an Hour gently, after 24 Hours. It's a Medicine which may be ſafely given on all Occaſions, without any Danger of heating or inflaming the Body.

For a Fever *and* Foundring *together.*

WHen theſe are join'd, a very timely and quick Aſſiſtance is requir'd; and therefore a Gliſter ſhould be given him of the emollient Decoction, with half a Pound of Honey luke-warm, or an Ounce of *Crocus Metallorum* in fine Powder, boiled in five Pints of Beer for half a Quarter of an Hour. Pour off the Liquor after it ſettles, ſtrain it through a Linnen-cloth doubled, adding a Quarter of a Pound of Butter: Inject the whole luke-warm at four in the Afternoon, and exhibit this Remedy two Hours after, keeping the *Horſe* bridled till Eight. Take of the diſtill'd Waters of *Carduus Benedictus* and *Scabious* each Eight Ounces, Four Ounces of the Water of the *Queen of Meadows*, and as much of thoſe of *Cinnamon* and *Succory*; Two Ounces of thin Conſerve of *Roſes*; One of the Confection of *Alkermes*, without Musk or Ambergreaſe; Half a Dram of *Venice-Treacle*, and Six Grains of Powder of *Oriental Saffron*; mix, and give it with a Horn, which rinſe, and the *Horſe*'s Mouth, with a Mixture of the Waters of *Carduus Benedictus*, *Succory* and *Scabious*, of each an Ounce and a half. Inject the Glyſter above at Four in the Afternoon of the next Day; bleed him at Six in the Two Plate-Veins of the Thighs, keeping him two Hours after bridled: The Doſe of the Remedy repeat twice or thrice, but ſpare to Bleed, unleſs in caſe of Neceſſity. In the Interim let him eat a little Hay; inject Glyſters often, and waſh his Mouth frequently with Verjuice, Salt and Honey: Let his ordinary Drink be an Infuſion of the Dough of a Penny-Loaf ready for the Oven, in a Pailful of Water; 'tis much better than Flower. It's a good Sign, when the *Horſe* continues long in a lying Poſture, that he has no great Difficulty of Breathing.

A Cooling Potion.

TAke a Quart of Whey, four or five Ounces of Syrup of Violets, the like Quantity of Caſſia, with a little Manna; and this will both cool and purge him gently. This given in a Glyſter is very cooling to the Bowels.

All theſe cooling Things are very good for ſurfeited and over-heated *Horſes*: But firſt give the Purge of Aloes, to bring away the Greaſe.

Of the Bots, *and all manner of* Worms.

WOrms are the Product of Crude and indigeſted Humours, which, though not always attended with the Cholick; for which, however, the Remedies hereafter preſcribed againſt the Worm-Cholick are proper; yet we ſhall inſert a few Receipts here againſt them: Make a Powder of Seeds of Coriander, Lettice, Rapes and Coleworts, of each two Ounces; of Zedoary one, and four of Shavings of Harts-horn, of which give the *Horſe* two Ounces a Day, with Oats and Bran moiſtned with Wine, for twelve Days together; then let him have a proper Purge, which is ever neceſſary upon this Account.

The Steel-Medicine, which is made of an Ounce of the Filings of Steel, mix'd with Bran, is alſo a very proper Remedy for killing Worms. Let him take it daily till he has eat a whole Pound, and then purge him. Laſtly, Another effectual Remedy againſt Worms is the Powder of Earth-worms, dried in an Oven, in an Earthen-pot covered, after they have vomited up all their Fill by lying Six Hours in clean Water; of which give every Morning from one to two Ounces in a Quart of Wine. *Solleyſel.*

Our Author's ſingle Preſcription is, to take a Quart of new Milk, and as much clarified Honey as will make it very ſweet; give it him in a Horn lukewarm early in the Morning, having faſted all the Night before; then bridle him up, and let him ſtand tied to the empty Rack for about two Hours: Then take half a Pint of White-wine, and diſſolve into it a good Spoonful of Black Soap, and give it him, cauſing him to faſt about two Hours after; and this will cauſe him to void the Worms in great abundance; or take Salt and Water, and give it him in a Horn.

For the Lask, Looſeneſs, *or* Flux *in the Belly.*

IT is a Diſtemper often fatal to *Horſes*, and proceeds from ſuch a Weakneſs of the Stomach, that the Food paſſes almoſt without any Alteration thro' the Guts; or from the Corruption of the Humours that are gathered in the Stomach, or are thrown upon it from other Parts. The external Cauſes are many, as eating too much Provender, feeding upon mouldy or rotten Hay, frozen Graſs, Rye-Straw, and other unwholſome Nutriment; drinking very cold Water, immoderate Fatigue, exceſſive Fatneſs, drinking immediately after the eating of a great Quantity of Oats, and ſometimes want of Exerciſe. If you find the voided Excrements boil and ferment upon the Ground, the Diſtemper proceeds from over-heated Choler, is ſeldom dangerous, nay, ſometimes profitable. White Excrements are a Sign of Crude cold Humours. The great Weakneſs of the Stomach is denoted by the watery Excrements. Thoſe Looſeneſſes that come without a manifeſt external Cauſe are moſt to be regarded.

Our Author's general Preſcription is this: Take a Quart of Red Wine, ſet it on the Fire, put in it one Ounce and a half of Bole-armony made in fine Powder, and two Ounces and a half of Conſerve of Sloes; then ſtir and mix them well together; then take it off the Fire, and put thereto one or two Spoonfuls of the Powder of Cinnamon; mix theſe together, and give him to drink. Let him faſt two Hours after, and let him eat no waſh'd Meat. Hay is wholſome, ſo is Bread and Oats, ſo as they be well mix'd with Wheat or Beans, but not otherwiſe.

But *Solleyſel* and others more particularly inform us, that if we find the Excrements mixed with ſmall Pieces and Scrapings of the Guts, you muſt forthwith go about to prevent a fatal Ulcer in thoſe Parts, by giving him twice or thrice a Day a Pint of a cooling, ſoftning Decoction, *viz.* Of two Ounces of Barley, the ſame Quantity of Marſh-mallow-Roots, and an Ounce of the Powder of *Sal Prunellæ*, boil'd in three Quarts of Water to a Quart. If the Diſtemper ariſes from Flegm, Recourſe muſt be had to Cordial Powders or Pills, and other hot Remedies proper to ſtrengthen the Stomach and relaxated Parts.

Sometimes a Looſeneſs is good, but if it exceeds three Days Continuance, with the Loſs of Appetite, it muſt be ſeaſonably check'd; for *Horſes* are now and then founder'd by its long Continuance. The *Horſe*'s Food in this caſe may be Bran, moiſtned with Claret, or Barley parch'd on a Peel, and then ground, and the beſt Hay; but Oats are always improper. As for Remedies, you may begin with the Scouring Glyſter, conſiſting of two Handfuls of Wheat-Bran well ſifted, and as much of whole Barley, a Handful of Red Roſes, half a Dram of true Opium ſliced ſmall; let them be boiled in Whey, or Steel'd Water, for a Quarter of an Hour; then add the Leaves of Wild Succory, Agrimony, Beets, white Mullein and Mercury, of each a Handful: Diſſolve the Yolks of ſix Eggs in two Quarts of the ſtrain'd Decoction; Honey of Roſes and brown Sugar, of each four Ounces; mix and make a Glyſter: And when the ſame has operated, let him have two Ounces of Liver of Antimony, or half an Ounce of the Golden Sulphur of Antimony in moiſtned Bran. Continue this Method for a good while, and afterwards inject an aſtringent Glyſter of this Compoſition. Take an Handful of Knot-graſs or Shepherd's Purſe, and as much of white Mullein, two Handfuls of Plantane-Leaves, half a Handful of wild Pomegranates, of the Seeds of Myrtle, Lettice, Plantane, each two Ounces; beat, then boil the Seeds in three Quarts of Barley-water, with half a Dram of good Opium cut into thin Slices; then put in the Herbs, and afterwards a Handful of dried Roſes; add half a Pound of Honey of Roſes, and four Ounces of the Sugar of Roſes to the Straining, and make a good Glyſter.

But if you find the Flux does not ſtop with the Uſe of Antimony, you may continue to repeat the Glyſters, and at the ſame time give the *Horſe* the following Potion: Put eight large, or ten ſmall Nutmegs upon the Point of a Knife, and hold them over the Candle till they are burnt to a red Coal; then throw them into a Quart of Claret, breaking them with your Fingers; and after they have been infuſed all Night, ſtrain out the Wine in the Morning, and make your *Horſe* drink it Blood-warm, keeping him bridled two Hours before and after: And for a Superpurgation, Take of the Leaves of Plantane in Summer, but the Seeds in Winter, a ſufficient Quantity; and let them be boil'd in three Quarts of Beer, adding two Ounces of *Catholicum*, four Ounces of Rhubarb, and as much of ſeal'd Earth, to the Straining. Make a Glyſter, and repeat it twice or thrice. In the mean time, exhibit a Potion of two Quarts of Milk, wherein you have quenched Steel five or ſix times, mix'd with two Ounces of the Stones of roaſted Grapes, and an Ounce and a half of the Shavings of Ivory, calcined and beaten to a very fine Powder.

For Coſtiveneſs.

THIS is a Diſtemper that does ſo bind up a *Horſe*'s Belly, that he cannot dung but with much Pain and Trouble, it being a Diſeaſe very dangerous to him, and the Original of ſeveral Maladies. It may be known by ſeveral Symptoms; it proceeds ſometimes from a Glut of Provender, or over-much Feeding; at other times by eating too dry and hard Meats, which indeed ſucks and dries up the Moiſture of a *Horſe*'s Body; ſuch as Peaſe, Beans, Wheat, Tares, *&c.* Not but that theſe are very wholſome Food, and the heartieſt a *Horſe* can eat; but feeding too much upon them over-heats a *Horſe*'s Body more than any other Grain whatſoever; and this ſhuts up his Office of Nature, ſo that he cannot dung: Beſides, they are very windy Food, that cauſes many bad Humours and Obſtructions in the Body: But this Diſtemper comes ſometimes alſo from too much Faſting, in the Dieting of them for Racing or Hunting, which, like a Spunge, ſucks up the flegmatick Moiſture of the Body.

For this Diſtemper, and for Greaſe, I ſhall preſcribe only two Remedies; 1. Set a Pint of old White-wine on the Fire, and diſſolve into it a Lump of Caſtle-Soap, as big as an Hen's Egg; then take it off, and put into it two good Spoonfuls of Hempſeed beaten, an Ounce of Sugar-candy reduced to Powder, and brew them all together; then having warm'd the *Horſe* to ſtir his Greaſe, and other foul Humours, give it him to drink, walking him up and down a little after it, that the Potion may work; then ſet him up warm, and after a little Stirring him in his Stall, if he grows ſickiſh, give him Liberty to lie down. Give him a ſweet Maſh after two Hours Faſting, and feed him as at other times: But more particularly for Coſtiveneſs, take out his hard Dung, then boil an Ounce of Aniſeed, as much of Fenegreek, Linſeed, and the Powder of Peony, in a Quart of Beer, and give him a Pint of it luke-warm. 2. Take a Decoction of Mallows one Quart, half a Pint of Sallet-Oil, or half a Pound of freſh Butter, one Ounce of *Benedicta Laxativa*, and give it him Blood-warm Glyſterwiſe; then clap his Tail to his Tuel, and hold it cloſe, and make him keep the Glyſter for half an Hour at leaſt; and when it hath work'd, give him a ſweet Maſh, and ſo keep to Maſhes and white Water for two or three Days.

An excellent Scouring, *when others will do no Good.*

TAke a Quarter of a Pound of ſweet Butter, half as much Caſtle-ſoap, beat them well together; then put thereto two Spoonfuls of Hemp-ſeed bruiſed, of Aniſeeds bruiſed a Handful, one Ounce of Sugar-candy, half a Spoonful of Roſin finely bruiſed; work all theſe into a Paſte, and give it him made up in Pills after his Heat, or when you have warmed him, and ſtirred up the Greaſe and Foulneſs within him.

For the Spleen.

MAke a Plaiſter of *Oxycroceum*, ſpread it upon Sheeps Leather, which lay on, ſuffering it to lie until it come off it ſelf.

A Glyſter *to expel Wind.*

TAke Fennel-ſeeds and Aniſeeds, of each two Spoonfuls; bruiſe them; then put thereto half a Handful of Pellitory of the Wall, Camomil, Roſemary-flowers and Penny-royal.

Cholick.

CHolick proceeds either from Wind, Over-feeding, Worms, Stoppage of Urine, or a glaſſy Flegm in the Inteſtines, and is always attended with the Vives.

For the Wind-Cholick.

THE Swelling of a *Horſe*'s Belly, as if it were ready to burſt, accompanied with Toſſing and Tumbling, common to other kinds of Cholick, is the moſt peculiar Sign of the Wind-Cholick. Our Author has preſcrib'd only this ſhort Receipt, of giving him a Spoonful of Cummin-ſeeds, with a few Camomil-flowers in Poſſet-Drink. *Solleyſel* and the *Compleat Horſeman* tell us in general, that Bleeding in the Flanks, and under the Tongue, with frequent Walking, and ſometimes Trotting him, is a Cure; but that if it continues, you are to inject this Glyſter: Take two Ounces of the Droſs of Liver of Antimony in fine Powder, boil them a little, but very briſkly, in five Pints of Beer, aud with three or four Ounces of good Oil of Bay, make a Glyſter to be injected luke-warm, and repeated every two Hours.

But the moſt effectual Expeller of Wind is, three or four Ounces of the following Oil in the ordinary Glyſters: Take Rue, Calamint, wild Marjoram and Penny-royal, all dried in the Shade, of each one Handful; Seeds of Cummin, Carrots, Fennel and Bay-berries, each an Ounce; Oil-Olive two Pounds, and White-wine a Pint: Let the Herbs be pounded, and the Seeds bruiſed, and put all together into an Earthen glazed Pot, covering it with another ſomewhat leſs, and lute it with Clay or Paſte. Give them ſix Hours Boiling over a ſlow Fire, and ſtrain out the Oil when 'tis half cool'd, adding four Ounces of the Pulp of Coloquintida; then put the Oil again into the ſame Pot, covering and luting it as before. Let it be boiled for ſix or eight Hours with a gentle Heat, and afterwards briſkly for half an Hour. Uncover the Pot when 'tis half cool'd, and preſs out the Oil, which is a cheap and durable Medicine, and more effectual than any other Ingredient in Carminative Glyſters.

Cholick *from Over-feeding.*

THIS Diſtemper muſt not be cured by Vomits, which never have any good Effects on *Horſes*; but by evacuating with Carminative Glyſters, and ſtrengthening Nature with Cordials, of which Orvietan and the Eſſence of Vipres are the moſt celebrated; the firſt being prepared in this manner: Take Sage, Rue, Roſemary and Goats-Rue, a Handful of each; an Ounce of each of theſe, *viz.* of *Carduus Benedictus*, Dittany of *Creet*, Roots of Maſterwort, white *Bohemian* Angelica, Biſtort, round and long Birthwort, white Dittany, Galangal, Gentian, Coſtmary, Aromatick Reed, and Purſley-ſeed; of Bay-berries and Juniper-berries half an Ounce of each; Cinnamon, Cloves and Nutmegs, of each three Drams; an Ounce of ſeal'd Earth, prepared with Vinegar, and as much of old Treacle; four Ounces of Powder of Vipers, eight Ounces of Walnuts cleanſed and dried, with as much of Crum of White Bread dried; clarified Honey ſeven Pounds: Chop the Walnuts, beat them with the Bread, paſſing them through a Searce, turned upſide down, adding the Powder and other Ingredients, and laſt of all the Treacle and Honey. This Orvietan is an extraordinary Remedy for moſt other Diſeaſes incident to *Horſes*, but eſpecially in the Cholick, being given in Wine, and then the *Horſe* walk'd, and well cover'd.

But ſeeing all the Vertues of this rare Medicine are fully comprehended in the Eſſence of Vipers, it will not be amiſs to give the Preparation here; You muſt take a Pound of purified Nitre, as much of pure Salt of Earth, (to be had of thoſe who make Salt-petre) theſe reduce to Powder, and mix with four times as much Potter's Earth ſearced, and having let the whole continue three or four Days in an Earthen-pan, in a Cellar, till the Salts are diſſolv'd; let the whole be brought into a kind of Paſte, made into little Balls like Small-nuts; and if the Maſs be too dry, it muſt be moiſtned with ſome Drops of Water. Put the Balls, when dry, into an Earthen Retort, and having diſtill'd them after the manner of *Aqua Fortis*; there will be a *Menſtruum* in the Recipient, fit to diſſolve Vipers. The Liquor being put into a Matraſs, with a good moderate Heat, let a live Viper be thrown into it, that will ſoon die, and melt away; then pour off the clear Water, when ſettled, and reſerve it for the Eſſence of Vipers, to be mix'd with three Parts of diſtill'd Cordial Waters.

Worm-Cholick.

BRoad, thick, and ſhort Worms, or Truncheons like little Beans, of a reddiſh Colour, ſometimes cauſe violent and intolerable Cholick-pains; they gnawing the Guts, and ſometimes eating Holes thro' the Maw, which kills the *Horſe*. The voiding of red Worms along with the Excrements is a Sign of this Diſtemper, (for long white ones ſeldom gripe a *Horſe*) ſo are his biting his Flanks or Belly in the Extremity of Pain, or tearing off his Skin, and then turning his Head, and looking on his Belly. You will alſo find him ſweat all over, and frequently throw himſelf down, and ſtart up again, with other uncommon Poſtures.

Several Remedies there are for this Diſtemper, but this which follows being juſtly reputed a Specifick for the Cholicks already mentioned, as well as for the common one, it's neceſſary it ſhould be inſerted: Take a Pound of each of theſe, *viz.* Roots of Maſterwort, Leaves and Roots of Radiſhes, greater Centory and Tanſey, all dried in the Summer Sun, or the moderate Heat of an Oven in Winter; half a Pound of each of theſe, I mean, Germander, Ground-Pine, Roots of Angelica and Elicampane, all dried in the Shade; Sea-Moſs and Liver of Aloes, of each four Ounces; of Galangal, Nut-meg and *Sal Prunellæ*, two Ounces of each: They muſt be all pounded apart, then mix'd, and kept in a Leathern Bag, or Glaſs-bottle ſtopt up cloſe. The Doze, according to the Size of the *Horſe*, muſt be from an Ounce to two Ounces and an half, to be mixed with three or four Drams of old Treacle, or an Ounce of Treacle of Diateſſeron or Mithridate, and given in a Pint of White-wine; after which let the *Horſe* be walk'd in his Cloaths. If you ſuſpect Worms, an Ounce and a half of the Specifick Powder, mix'd with half an Ounce of *Mercurius dulcis*, will infallibly kill them; and therefore an Ounce of Specifick Powder may be mix'd with as much of Aloes, three Drams of Coloquintida, as much of Agarick, and half an Ounce of Turbith, giving him the whole in a Quart of White-wine, with a Quarter of a Pint of the Gall af an Ox, covering him well after it, and walking him for a Quarter of an Hour. It's true, this will at once both purge and kill the Worms, though 'tis only fit for great Eaters, and that about two or three Days after the Cholick Fit is over.

For want of the Specifick Powder ready by you, take two Ounces of common Parſley-Roots dried in the Shade, a Pound of Grains of Paradice, and as much of Rinds of Oranges, dried and reduced to Powder, and half a Pound of Pigeons Dung; of which make a coarſe Powder, which keep in a Leather-Bag, and give him an Ounce or two of it, as there is Occaſion.

If theſe, and other Medicines which might be named, have not the deſign'd Succeſs, you may then give your *Horſe* two ſtinking Pills in a Pint of Wine, and a Glyſter an Hour after, repeating the Doſe twice or thrice, if the Pain continues: But this is only proper after the Trial of other Medicaments.

Cholick *from Suppreſſion of Urine.*

WHEN a *Horſe* has the Cholick ſo upon him that he cannot ſtale, this proceeds either from Obſtructions in the Neck of the Bladder, or an Inflammation of it, or very rarely Sand and Gravel; and 'tis known by his tumbling and riſing often, offering to ſtale in vain, the Swelling of his Body ſometimes, and at other times the Sweating of his Flanks. The Cure muſt be commenced with a ſoftning Glyſter, mixed with Turpentine, diſſolv'd with the Yolks of Eggs, and the Carminative Oil before preſcrib'd for the Wind-Cholick; then boil about four Ounces of dried Pigeons Dung in Powder, in a Quart of White-wine, and ſtrain out the Liquor after two or three Walms, giving it Blood-warm to the *Horſe*, and walk him for half an Hour. But in caſe the Urinary Paſſages are obſtructed with a thick Flegm, infuſe an Ounce of Saſſafras-Wood with the Bark, cut ſmall, in a Quart of White in a large Glaſs well ſtopt, ſo that two Thirds of the Bottle may remain empty. It muſt ſtand in hot Aſhes about ſix

Hours, then ſtraining out the Wine, give it the *Horſe* in a Horn, walk him for half an Hour, and he will ſtale if it be poſſible.

Common Fret, or Cholick.

THAT Cholick which has its Origin from a ſharp glaſſy Flegm, is at once more occult, and generally more fatal than any other. It is often uſher'd in by a Looſeneſs of a Day's Standing, the *Horſe* ſweats in the Flanks and Ears, and ſtrives to dung in vain. The Excrements he voids are few, and moſtly Flegm, which without Pain cannot be ſeparated from the Guts: And though he has a little Eaſe after ſuch Evacuations, the Pains quickly return, with the Loſs of Appetite, frequent lying down, ſtarting up, and viewing his Flanks. The Receipt preſcribed for this Cure is, Two Quarts of Milk or Tripe-Broth, four or five Ounces of Oil-Olive, and as much freſh Butter, the Yolks of ſix Eggs, and two or three Ounces of Sugar; of which prepare a Glyſter, to be repeated every three Hours. Glyſters are much to be preferr'd before Purgatives, and when there is a little Alleviation of the Pain, add two Ounces of Diaphoretick Antimony, in order to melt the Humours, and to remove the Cauſes. And ſince we have touched hereupon, mix a Pound of Oil of Roſes, as much of common Oil, eight Ounces of fine Sugar, and a Pint of Roſe-water, and pour a Glaſsful down his Throat with a Horn every three Hours: 'Tis an eaſie and familiar Remedy to allay the Pain, attenuate the Humours, and qualifie their Heat and Sharpneſs.

When you find him freed from Pain, let him eat Bran only for ſeven or eight Days; then purge him with the following Oil, that excels all other Purgatives, *viz.* Take three Pounds of Oil-Olive, a Pint of Claret, five Ounces of the Pulp of Coloquintida, an Ounce and a half of Linſeed-flower, three Lilly-Roots in round Slices, an Ounce of Miſletoe of the Apple-tree, and a Handful of Camomile-flowers; all which put into a Pot, cover'd with another ſomewhat leſs, luting the Junctures of the Veſſel with Clay, temper'd with a little Hair or Wool. The Clay being dried, boil the whole gently for eight or ten Hours, ſtrain it half cold through a Linnen-cloth, and let the *Horſe* have half of it luke-warm in a Pint of Tripe or Sheepſhead Broth, not fat, adding a little more afterwards, if you find him hard to be wrought upon. This will keep ten Years without any Alteration. *Solleyſel.*

For a Horſe *that piſſeth Blood.*

TAke a Spoonful of Taragon, ſteep it in White-wine, and as much Poppy-ſeeds beaten as will lie upon a Shilling; give this in White-wine, which will effect the Cure.

The *Compleat Horſeman* preſcribes, Two Ounces of the beſt Venice-Treacle, or Diateſſaron for want of it; of common Honey and fine Sugar four Ounces each; incorporate them in a Mortar, then add Anniſeed, Coriander-ſeed, and Liquoriſh, of each two Ounces, in fine Powder. They muſt be well mix'd, and given him diſſolved in a Quart of Claret; keeping him bridled three Hours before and after. Let him Blood next Day, and the Day after inject the following Glyſter, *viz.* Boil five Pints of Whey made of Cows Milk, with two Ounces of the *Scoriæ* of Liver of Antimony, in fine Powder: Remove it from the Fire as ſoon as it begins to mount in large Bubbles; and after you have added four Ounces of Oil-Olive thereto, inject it luke-warm; but if the Diſeaſe ſhould continue, the whole Courſe is to be repeated.

For immoderate Flux *of* Urine.

SOmetimes a *Horſe* is ſeized with an exceſſive Flux of Crude and indigeſted Urine, reſembling Water, which gradually drains his Strength; and this proceeds either from a Sharpneſs in the Blood, or Inflammation in the Kidneys, which, like Cupping-Glaſſes, ſuck in the unconcocted *Serum* from the Veins. *Solleyſel* tells us, that immoderate and irregular Working of young *Horſes*, cold Rains in the beginning of Winter, Eating of Oats imported by Sea, which being ſpungy, imbibe the Saline Spirits of the Sea, are the remote Cauſes of this Evil. And for the Cure, the *Horſe* muſt be fed with Bran; give him a cooling Glyſter, and Bleed him, next Day after a Gliſter, bleed him again, not exceeding the Quantity of two Pounds of Blood at a time. This done, boil two Quarts of Water; put the ſame into a Pailful of common Water, with a large Handful of Oriental Bole, beaten to Powder. All which being well mixed, give it the *Horſe* for his ordinary Drink lukewarm, Morning and Evening, allowing him full Liberty to drink and quench his Thirſt, that in this Diſtemper is exceſſive; for the more he drinks, the ſooner will the Cure be wrought.

For a Cough.

TAke the Root of Gentian, ſlice, dry and beat it to Powder, of which give him faſting as much in half a Pint of his own Water as will lie upon a Shilling. This muſt be given him every third Day, until you ſee his Cough or Heaving to be removed; and all the time of his Cure let him ſtand in the Stable.

But ſeeing *Horſes* are frequently ſubject to Coughs, and that this Remedy will not ſerve all Turns: Take two or three very excellent ones out of *Solleyſel* and the *Compleat Horſeman* for this Evil; and, 1. Take a Pound of Butter newly churn'd, and before it is waſh'd, with as much of Honey, and two Ounces of Juniper berries, made into Pills, and roll'd up in Powder of Liquoriſh, which give, with about a Pint, or better, of White-wine, keeping the *Horſe* bridled two Hours before, and three Hours after: This repeat twice or thrice, interpoſing a Day or two between the Doſes. 2. A Pint of clear Oil of Walnuts, newly drawn, a Pound of common Honey, and thirty Grains of white Pepper beaten, being mixed together; give him the whole at once, or at leaſt twice. 3. Two or three Nutmegs grated, with half a Pint of Brandy, will cure a Cough in one Doſe, unleſs the *Horſe* be old; in which caſe repeat it, or elſe infuſe a ſmall Porringer of dry Pigeons Dung beaten, in a Quart of White-wine all Night, heat it in the Morning till it begins to boil; then ſtrain out the Liquor, adding two Ounces of Liquoriſh-Juice to it; mix and exhibit it, repeating the ſame thrice, interpoſing one Day between the Doſes. 4. But in inveterate Coughs, that would not yield to common Remedies, the following Remedies have been found to be of ſingular Uſe: Take Flower of Brimſtone four Ounces; beaten

Aniſeeds two Ounces; Liquoriſh dried in the Shade and beaten, four Ounces; as many Ounces of Bay Berries in fine Powder; brown Sugar Candy, ſix Ounces, good Treacle four Ounces, Tar two Ounces; incorporate all together in a Mortar, and with four Eggs beaten in a Diſh, make Pills weighing Ten Drams each, to be dried in the Shade, or a Hair Sieve turn'd up-ſide down: One of theſe Pills give the *Horſe* once a Day, for twenty Days together, in a Pint of Red or White Wine, the *Horſe* being kept bridled an Hour before, and two after: Let him at the ſame time have his uſual Allowance of Meat, Walking, Working or Riding him as at other times: They may alſo be beaten and mix'd with Bran.

To make a Horſe *Stale or Piſs.*

TAke the quantity of a Walnut of Caſtle-Soap, boil it a little in a Pint of ſtrong Beer, and give it him in a Horn luke-warm, and it will cauſe him to Piſs.

To cauſe a Horſe *to Vomit.*

TAke two large Roots of Polipodium of the Oak, waſh and ſcrape them very clean, and tie it to his Snaffle or Bit, then let it be ſteeped in Oil of Spike a whole Night, and in the Morning faſting put on his Bridle with the Roots tied to the Bit, and ride him ſoftly for about an Hour, with it in his Mouth, and if he be troubled with any Flegmatick, or Rheumatick Humours, or with any cold or filthy Matter that clogs or annoys his Stomach, it will cauſe him to caſt it forth at his Mouth or Noſe: It will alſo cauſe him to Sneeze and Cough much, purging forth filth and ſlimy Matter, ſo that it will ſoon cleanſe his Body, and purifie his Blood. This you may give to a *Horſe* newly taken from Graſs, or to one that has taken a Cold, or is Foggy and Purſie; this being done, give him White Wine and Honey, as alſo a Cordial.

Purging.

PUrging ſhould never be attempted without great neceſſity, becauſe *Horſes* are eaſily inflam'd, and require a great quantity of Druggs to purge them; and the Phyſick remaining uſually twenty four Hours in their Bodies, before it begins to work, muſt either over-heat or alter ſome of the Parts; there is likewiſe a great deal of danger in miſtaking the nature of the Diſeaſe, or Purging them unſeaſonably; more particularly, nothing can be more improper than to adminiſter a Purge in the heat of a Fever and Pains of the Cholick, becauſe he will by that Means ſoon cure his *Horſe* of all Diſtempers: It's certain all Purgatives have a kind of Malignity in them, and therefore for a ſmall Indiſpoſition never preſcribe a violent Remedy; if People err on either ſide, it ſhould be rather in giving too weak than too ſtrong Remedies, and if the *Horſe* does not ſufficiently Purge, there is nothing loſt, becauſe it hath diſpoſed the Humour, and by reiterating the Purgation ſome Days after, and making it a little ſtronger, you will find it ſucceed well: You ought alſo to conſider, that a Remedy given in Subſtance, ſhould be given in leſs quantity than when 'tis only infuſed in ſome Liquor, and the ſolid Subſtance thrown away. Again, you ſhould never Purge your *Horſe* in the beginning of the Diſtemper; for the Humour not giving way to the Remedy, is thereby over-heated and brought to a Fermentation, which increaſes the Diſeaſe inſtead of diminiſhing it; and more eſpecially in Fevers and other violent Diſeaſes; a Man ſhould never purge a *Horſe*, neither in the Beginning nor at the Height. Forbear likewiſe, as much as poſſible, to purge in time of exceſſive Heat or Cold; but if you are neceſſitated to do it in Winter, then you are to keep the *Horſe* well covered, in a warm Stable, from whence he muſt not ſtir during his Purgation; and if it be Summer time, then keep him in a temperate Place, and after he has begun to Purge, Walk him half an Hour, every two Hours, continuing it for half a Day, to aſſiſt him to empty: But before you purge him, he ſhould be kept four, five, or ſix Hours, without eating before he takes it, and as long after: And a Gliſter which is ſuitable to the nature of his Diſeaſe, ſhould by way of Precaution be given him the Night before. From the time he took his Purge till it hath done Working (which will be about Forty Hours) let him eat no Hay, but take him from the Rack at the end of every four Hours, giving him about half a Peck of Bran; and when he hath done Purging, if you will, to perfect the Evacuation, give him a Gliſter.

In making Pills for Purging, when you have broke and beaten your Druggs coarſly, mix the Compoſition with two pounds of freſh Lard, or for want of that with the like quantity of freſh Butter, and let them be of the bigneſs of a ſmall Tennis Ball: But the general and common Receipts for Purging are theſe, recited by our Author.

Take a Quart of ſtrong Ale-wort, a quarter of a Pint of Honey, two Ounces of London Treacle, mix and brew them altogether, and give it him luke-warm; then keep him upon the Bit about ſix Hours, warm Cloathed and Litter'd; then give him a ſweet Maſh, and White-water, Rack him with ſweet Wheat-ſtraw, Oats and Bran; this both purgeth and comforteth: And two or three Days after give him this following Drink.

Another Purge.

TAke a Pint of White-Wine, put in it one Ounce of Sena to ſteep all Night; in the Morning early ſtrain it, and put therein one Ounce of Powder of Aloes, half an Ounce of Agarick, and a Spoonful of Liquoriſh Powder; mix theſe well together, and give it him luke-warm in a Horn; then ride him gently about a quarter of an Hour after it, and ſo ſet him up warm, well Cloathed and Littered; let no Air come to him, nor ſuffer him to eat or drink for about ſix Hours: At Night give him a ſweet Maſh, and let his Meat be ſweet Wheat-ſtraw, Oats and Bran: The next Day let him Blood, and prick him in the third Furrow of his Mouth; and if his Blood be bad, take about two Quarts from him; But if good about a Quart; keep him warm, and give him ſweet Maſhes or White-water; and put into his Drink either the Powder of Brimſtone or Elecampane, Fenugreek or Turmerick, or one or more together, which being well mixt, put thereof into his Drink a Spoonful at a time. This is very good to cool and purifie the Blood, to purge Choler and other peccant Humours. This Purge is not only good for *Horſes* newly taken from *Graſs*, but for thoſe that are Sick or Surfeited.

Gliſters.

THere are no Remedies equal to Gliſters, for the preſervation of a *Horſe*'s Health, and curing of Diſeaſes; for if given in ſeaſon, it will ſave a *Horſe*'s Life: Feavers and the exceſſive Beating of the Flanks, are indeed rarely allay'd but by the reiterated uſe of Gliſters; and if at any time they make no ſenſible Alteration for the better, they do however refreſh and give eaſe: And no Gliſter adminiſtred orderly, ever did a *Horſe* an Injury. Common *Farriers* do not give above a Quart or three Pints of Decoction in a Gliſter, which has generally no great effect; but it ſhould be two or three Quarts, and if you intend to Purge him this Way, put no kind of Fat into it, becauſe Oils and Greaſe adhere to the Inteſtines, and ſo hinder the effect of the Purgatives: A Gliſter ſhould not be given till the *Horſe*'s great Gut be cleared of its Dung, which by *Farriers* is called Rakeing, and to this end, ſome Body that has a ſmall Hand ſhould anoint it with Oil or Butter, and then put it up into his Fundament, taking care not to ſcratch the Gut with his Nails, and pull out all the Dung he conveniently can, or otherwiſe thruſt up into it about half the bigneſs of a large Hen's Egg of *Caſtle Soap*, anointed with Oil to make it enter the more eaſily; an Hour after which the *Horſe* will be empty: Then place him with his Fore-parts a little lower than his Croup, and thruſting a Horn for that purpoſe into his Fundament, open at the ſmall end, pour the Gliſter gradually into it, which muſt be milk-warm, and in caſe it ſhould ſtop in the Horn, and not paſs down, you are to make the *Horſe* move his Tongue, and then ſtrike him gently, with the Palm of your Hand upon the Reins, which will make it enter. This done put him into the Stable again, tied up to the Rack, without moving him afterwards, which will be injurious to him; for thoſe that walk their *Horſes* after a Gliſter, make them render it too ſoon, and indeed if they could be made to keep it a full Hour, it would be better, and therefore a large Syringe made on purpoſe is better than a Horn, becauſe the *Horſe* receives it better without ſo much as needing to be taken out of the Stable, and being leſs moved after receiving it, he will have the leſs cauſe to render it too ſoon: You are alſo to Note that it's of no ſignification to ſtop a *Horſe*'s Fundament with Hay, or to tie down his Dock, to hinder him from rendring it, for none of theſe Methods will do if he has an Inclination to void it.

Thus far *Solleyſell*; our Author's Account of Gliſters, runs thus:

A Gliſter is a very good Preparative to a Purging Drink, cleanſing the Guts, and refreſhing the Vital Parts; ſo that before he give a Drink, whether Purging or otherwiſe, if the *Horſe* be not ſoluble in Body, after Blood-letting, the next Day let him give a Gliſter.

A Decoction is a Broth made of divers Herbs, as Mallows, Marſh-mallows, Camomile, Pellitory, and ſometimes White Lilly Roots, which boil in Water till the third part is conſumed. Sometimes inſtead of Herbs and Water, fat Beef Broth, Milk or Whey will ſerve.

The quantity of Broth, Milk or Whey, ſhould be according to the Age, Strength and Bigneſs of the *Horſe*; for if a ſtrong, large, fat and luſty *Horſe*, three Pints is uſual, otherwiſe a Quart is ſufficient: It is uſual to put in half a Pint of Oil, two or three Drams of Salt, and ſometimes Verjuice, or Honey, as occaſion requires.

The uſual Druggs are Sena, Caſſia, Anniſeeds, Agarick, alſo the Oil of Camomile, Violets, and Dill, Sugar-Candy and ſuch like. As to the quantity of Druggs, three Ounces in a Gliſter is the moſt uſed, often leſs; and put in not above four Ounces of Butter, and when you give it, let it be lukewarm.

Your *Horſe* ſhould be empty when you give it, and before you give it, Rake him, let him keep it about half an Hour, holding his Tail cloſe to his Fundament all the while.

The Length of the Gliſter-pipe ſhould be about a Foot long in the Shank, and put it home, and draw out the Pipe by degrees.

Bleeding.

BLeeding is good upon divers Accounts, and there are ſeveral Reaſons for letting a *Horſe* Blood; as, 1. Plenitude, or when there is too much of it. 2. It's exceſſive Heat, which refreſhes and cools the *Horſe*. 3. To take away corrupt Humours in the Veins, that by their Putrefaction produce bad effects, ſo that Nature the more eaſily comes to digeſt the reſt. 4. To give the Blood liberty enough to run and paſs freely thro' its Veſſels. 5. To make a Revulſion by altering its Courſe, when it carries it ſelf from one part to another with too great an Impetuoſity, and in too much Abundance. 6. To give Eaſe and Relief to any part that is over-charged with it: Bleeding alſo is neceſſary by way of Prevention.

At the ſame time we muſt own, that Bleeding, on the other hand, is attended with ſome Inconveniencies; as 1. When practis'd unſeaſonably, which cauſes a Revulſion of the Spirits, and takes away the Aliment appointed for the nouriſhment of the Parts: And therefore you muſt conſult the State and Strength of the *Horſe*. 2. 'Tis not proper at all or very rarely to bleed ſuch *Horſes* old or young, as paſs their Aliments without being Concocted and Digeſted, ſuch as whole Oats, unleſs they ſwallow them, as they frequently do without Chawing. 3. Nor cold and flegmatick *Horſes*, nor thoſe which work in an exceſſive cold Country, nor in any Country in great Heats or extraordinary Colds; their Bodies then ſtanding more in need to be ſtrengthned than weakned.

Now *Horſes* are let Blood in ſeveral Parts of the Body, according as their Ailments are; and 1. For the Farcy, Mange, Repletion and Prevention, they are Bled in the Jugular Vein. 2. For Bites or Blows in the Eyes, in the Temples, with a ſmall Lance. 3. For Head-aches, Over-heating with exceſſive Labour, Cholick, and the Vives, in the Veins under the Tongue, with a little Lance made for that purpoſe. 4. In the Griſtle of the Noſe, without any regard to the hitting of the Vein or not, for Cholick, Vives, and Over-heating. 5. In the middle of the Palate, about the fourth Bar, with a Lance or ſharp Horn, when diſguſted, dull and harraſs'd: But if a *Horſe* loſe too much Blood by ſuch a Stroke in the Palate, the beſt way to ſtanch it, is to apply the hollow Side of half a Walnut-ſhell to the Orifice of the Wound, which after you have preſs'd a little hard upon it for a quarter of an Hour, it will ſtick there of its own accord and ſtop the Blood. 6. In the Baſilick, or Fore-thigh Vein, for Strains in the Shoulder, or the Mange in thoſe Parts; but this rarely, and done with Fleems. 7. In the Paſterns, for Strains and Infirmities in the Hams and Knees. 8. In the Toes, with the Butteris, or Drawing-Iron, for beating in the Feet and Infirmities of the Legs. 9. The Veins of the Flank are opened with a ſmall Lance, for Cholicks, and ſometimes alſo for the Farcy. 10. In the flat of the Thighs with Fleems, for Blows and Strains in the Haunches. 11. With a long Lance in the Tail or Dock, for the Fever and Purſineſs.

As to the manner of Bleeding, you are to make a good large Orifice in the Vein, that the thick and terreſtrial Blood may be evacuated; let the *Horſe* reſt a Day before and after bleeding; and let him be tied up early in the Morning to the Rack, without Water or Combing; and after you have taken about three Pounds of Blood from him, leave him tied to the Rack for two Hours; then give him ſome ſcalded Bran, or a Maſh made of half a Peck of well ground Malt, put into a Pail by it ſelf; and putting a Gallon, or five Quarts of well ground Malt upon the Fire, when it has boiled a little, put as much of it to the Malt as will moiſten it, working and ſtirring them with a piece of flat Wood: After which pour in the reſt of the Water, mixing all very well together, and then cover it cloſe and let it ſtand two Hours; and when the *Horſe* is ready for it, cruſh and ſqueeze the Malt as much as you can with your Hands, and give it him to drink luke-warm.

In taking away Blood from your *Horſe*, you are to regulate the Quantity, as he is a great Feeder, and as his Veins are full and ſtretch'd, and according as it iſſues out with violence, having ſtill regard to the Quality of the Diſeaſe, his Strength, Age, and the Seaſon. But 'tis a general Maxim, that without very good and preſſing Reaſons, a Man ſhould never make a great Evacuation by Blood-letting; by reaſon of the too great diſſipating of Spirits that is made by it, as alſo Crudities form'd in the Veins, which are the Origin of ſeveral Diſeaſes.

As to the Quantity of Blood; It's near of an equal Weight with Water; and therefore having tried how many Pounds of Water a Veſſel contains, and when you know how much ſpace two Quarts of Water will take up in a Veſſel, the ſame ſpace will be fill'd with four Pounds of Blood.

Then for the Quality of the Blood, if it runs calmly and ſlowly, and cleaves alſo to your Fingers, when you touch it, 'tis a ſign that 'tis Viſcous, and apt to occaſion Obſtruction, and there in that caſe you ought to bleed him frequently. Blood that froths much when received into a Veſſel at a pretty diſtance, is a Sign of Heat, and of Agitation of the Spirits, and ſuch Horſes by way of Prevention ſhould at leaſt be let Blood twice in a Year: When Blood has a great many Fibres in it, and eaſily Coagulates, it's of a thick and terreſtrial Subſtance; but if it congeals with difficulty, it's more Subtil and Fluid: Serous Blood ſhews a Weakneſs in the Reins, or an Obſtruction in the Veins: That which is black beneath, and has a yellow Surface, has a great deal of Heat in it, and the Bile Predominates: It's a ſign that a *Horſe* is of a cold and moiſt Complexion, whoſe Blood is full of Flegm and Water, and that he ſhould be very ſeldom let Blood, except in caſe of meer neceſſity: The Plumbeous and Earthy Colour, ſhews the *Horſe* is Melancholy, and he ſhould be bled but ſeldom: Very red Blood is good: Yellow, Bilious, the pale and whitiſh is not well prepared, but charged with Flegm; the liquid and greeniſh, Melancholick and Terreſtrial.

To judge of the Quality of Blood after 'tis received into a Veſſel, ſet it in a Place where it may not be dried in the Sun, nor expoſed to Smoak, Wind nor Duſt: It's a ſign that that which will not congeal nor fix, is full of bad Humours, and ſtands in need of reiterating Bleeding; and ſhould be Purged alſo to take away thoſe corrupt Humours, which by their Putrefaction over-heat the Blood in the Veins, and thereby are the Cauſe of all Diſeaſes: This is the worſt ſort of Blood of any, and ſhould therefore be evacuated by degrees; It denotes Plenitude to find the Blood Viſcous and Thick, ſo as when 'tis broke with your Fingers, it immediately rejoins, and continues firm; and the *Horſe* ſhould be frequently bled. To make a judgment of the Blood by its Taſte; that which is ſweeteſt is the beſt and moſt natural; the Inſipid is Pituitous and Flegmatick; the bitter Bilious and Cholerick: It's a certain Sign of its being Terreſtrial and Melancholick, when it has an Acid and Stiptick taſte; and the Salteſt indicates a brackiſh Flegm.

It's beſt to begin with Bleeding, when a *Horſe* is in equal need of Bleeding and Purging; for it cools him, and may hinder the Humours to be inflamed by the Purgation: Becauſe Purging Medicaments do for the moſt part ſtir up Humours which they do not evacuate: So that if you ſhould forthwith take Blood from him, while the excited Humours are thus in Agitation, the Veins would attract that Rouſed unevacuated Humour, whereby the reſt of the good Blood might be ſpoiled. Laſtly, Letting of Blood contributes much to the true knowledge of a *Horſe*'s Conſtitution, and more than any other Evidence, whether of Mark or Colour: you may in like manner by that judge of his Health and Vigour.

For a Vein that ſwells upon letting Blood.

TAke black Pitch, white Pitch and Roſin, of each a like quantity; boil them together, and lay it on hot, with a flat ſtick; and then flock it, and this doing, once in four or five Days, it will take down the Swelling; he muſt be houſed, and kept with dry Meat for the time of his Cure; you may anoint it with Oil of *Populeon*, or with Soap and Brandy.

To ſtop Bleeding.

LEt him Blood in both the Plate-veins, then wind a Thum-band of wet Hay about his Neck, ſo long as to come from his Ears to his Breaſt, and ſo keep it wet until you find the Blood to Stanch.

Or take Betony, and ſtamp it in a Mortar with Salt, put it into his Noſe, or apply it to the Wound, and it will ſtanch it.

For the Stones drawn into the Body.

THE *Horſe*'s Stones are ſometimes, in a ſtoppage of Urine, attended with an Inflammation of the Neck of the Bladder, drawn into his Belly, by the violent Contraction occaſioned by the Pain: All Diureticks muſt be ſhunn'd in this caſe, and recourſe had to plentiful Bleeding in the Flanks, ſoftning Gliſters, and the Inunction of the Sheath and Stones (after the *Horſe* is caſt) with an Oil made of Marſhmallows, Linſeed, and Violet Leaves, boil'd in Oil of Olive, and then mix'd with Linſeed Oil; withal Fomenting the Parts with the warm Herbs: Tie the Stones about with a ſoft Leathern Thong, as ſoon as they appear; make the *Horſe* afterwards riſe, and he will both Dung and Stale: When the Caſe is deſperate, they exhibit an Ounce and a half of the Preparation of Antimony, called the Angelical Powder, with Butter and Wine made into a Ball.

A Horſe *burnt by a* Mare.

THis is known by the Mattering of his Yard within; for Cure Take a Pint of White-Wine, in which boil a quarter of a Pound of Roch-Allom, and when it is cool, ſquirt it in with a Syringe as far into his Yard as you can; and it will effect the Cure.

For the Falling of the Yard.

THIS befals a *Horſe* for want of Strength to draw up his Yard within the Sheath, but he lets it hang down between his Legs; and this is occaſion'd either through the Weakneſs of that Member, or by means of ſome Reſolutions in the Muſcles and Sinews ſerving the ſame, cauſed by ſome violent Slip, Strain, or Stroke in the Back; or elſe by ſome great Wearineſs and Tiring. The beſt Cure is, firſt to waſh all his Yard with White-wine warm'd, and anoint it with Oil of Roſes and Honey mix'd together, and ſo put it up in his Sheath, and with a little Canvas Bolſter keep it from falling down; and dreſs him thus in 24 Hours till he be recovered. Let his Back be kept as warm as poſſible, both with a Cloth and a Charge of Plaiſter, made of Bole-Armoniack, Eggs, Wheat-flour, Dragons-blood, Turpentine and Vinegar; or lay wet Hay, or a wet Sack next his Back, and a dry Cloth over it, which will do very well. But ſome, more particularly, take of the Aſhes of Aſhen Wood, the whiteſt, fineſt, and beſt burnt, and ſearce them, one Pound; half a Pound of red Clay, dried and made into fine Powder; half an Ounce of powder'd Bole-Armoniack; all which boil in as much Verjuice of the Crab as will make it liquid like Pap, and therewith anoint his Yard, Sheath and Stones Morning and Evening, and he ſhall ſoon be cured.

For the Shedding of Seed.

THIS in a *Horſe* comes ſometimes from the Abundance and Rankneſs of the Seed, ſometimes by Strains, or putting too heavy a Load upon his Back, and now and then from the Weakneſs of the Stones and Seed-Veſſels, not being able to retain the Seed till it be digeſted and thicken'd. 1. One *Recipe* for the Cure of it, is to take a Pound of the Venice-treacle, or for want of that common Turpentine, and put thereto as much of the fine Powder of Bole-Armoniack, and *Engliſh* Liquoriſh, with a little Wheat-flour as will make it up into a ſtiff Paſte; and when there is Occaſion to uſe it, let it be roll'd out between your Hands, and break ſo much of it off as contains the Bigneſs of a ſmall Waſh-ball, of which give him three Morning and Evening upon the End of a Stick, or in a Hornful of ſtrong Beer, till the Flux of Seed ſtops, which will be in a Week or a Fortnight at fartheſt. But firſt 'tis proper to purge him very well, which will not only expedite, but perfect the Cure ſo much the ſooner and better. 2. Others take brown Sugar-candy, Tanners Bark, finely powder'd and ſifted, with the Powder of the dried Leaves of Clary, which incorporate very well with ſome common Turpentine, and make them up into Balls with a little Wheat-flour, giving him two or three at a time Morning and Evening, about the Bigneſs of a Pigeon's Egg, till the Flux of the Seed ſtays, which will be in a very ſhort time.

For Provoking of Urine.

AS there is often Occaſion to do this in *Horſes*, take about four Ounces of dried Pigeon's Dung in Powder, which boil in a Quart of White-wine, and ſtrain out the Liquor after two or three Walms, and give it the *Horſe* blood-warm; then walk him for half an Hour, and he will ſtale if poſſible. 2. Another good Remedy is, to lead him into a Sheep-coat, to unbridle him there, ſuffering him to ſmell the Dung, and roll and wallow in it, and ſo he will infallibly piſs before he comes out, unleſs he is paſt Remedy. But when the Urinary Paſſages are ſtopp'd up with thick Flegm, which can ſcarce be remov'd by the fore-mention'd Remedies, 3. Take an Ounce of Saſſafras-Wood, with the Bark, that contains part of its Vertue, cut it ſmall, and infuſe it in a Quart of White-wine, in a large Glaſs-Bottle well ſtopp'd, ſo that Two Thirds of the Bottle may remain empty; let it for about ſix Hours ſtand in hot Aſhes, then ſtrain out the Wine, and give it to the *Horſe* in a Horn; and this will certainly make him ſweat or ſtale; and 'tis generally acknowledged, that the Matter of Sweat and Urine is the ſame.

For the Strangury.

THIS is when a *Horſe* is provoked to ſtale often, and voids nothing but a few Drops: It befals him divers ways, ſometimes by hard Riding, or ſore Labour, that heat, and make his Urine ſharp; ſometimes by hot Meats and Drinks, ſometimes by Ulceration of the Bladder, or by means of ſome Impoſthmme in the Liver and Kidneys, which being broken, the Matter falls down into the Bladder, and with the Sharpneſs thereof cauſes a continual Provocation to Piſſing, which will be with ſo much Pain, that he will whiſk, wry, and beat about his Tail as he is a piſſing.

The Remedy is, that ſome bathe the Loins with warm Water, then take Bread and Barberries, and tempering them with ſweet Butter, give him two or three Balls of it three Days together. Others brew new Milk and Sugar together, and give it him faſting in a Morning; but the more particular Preſcription is, to take ſome of the Powder of a Flintſtone calcin'd, with an Ounce of the Powder of Parſley-ſeed, and as much of that of Ivy-berries, and boiling them a little in a Pint of Claret, it will do.

For the Clap.

WHen it proves an inveterate Diſtemper in a *Horſe*, to cure it, cut off the Head of a Cat, and her Legs ; then rip her open at her Back, laying the Inſide with the Guts and all to the Sinew, with her Back cloſing together upon the Fore-part of the *Horſe*'s Leg : Let it be apply'd warm, and ſerve another Cat or two the ſame. Let it lie four Hours at a time ; then take an Ounce of the Oil of Turpentine, half a Gill of Brandy, as much of Soap as a Hen's Egg, which beat all together, and rub into the Sinew, drying it with a hot Iron, and it will do.

For the Swelling of the Cods *or* Stones.

THIS may proceed either from a ſerous Humour, that deſcends along the Production of the *Peritonæum*, from a Defluxion occaſion'd by the Stroke of another *Horſe*, or from a Rupture or Downfal of the Guts, occaſion'd by a Strain. If it be only a ſlight Inflammation, riding the *Horſe* into cold Water will repel it ; but if violent, this Pultis is very proper, *viz.* To boil half a Pound of yellow Wax, as much of freſh Butter and Oil-Olive, with half a Pint of ſtrong Vinegar, till almoſt conſum'd ; then taking the Veſſel off, add an Ounce of Camphire, and making a Pultis, apply it to the ſwollen Cods, and renew it after four Hours, without taking away the former, or covering the Part. It will remove Heat, Pain, and Swelling too in a ſimple Inflammation.

For an Hydrocele.

WHEN the Swelling continues in the Cods, and the Stones hang low, after the Heat and Pain are gone, 'tis a Sign of an *Hydrocele*, that is, that the Cods are filled with Water, by the Relaxation of the *Peritonæum*, which if retain'd, may corrupt the Stones, and occaſion a fatal Gangreen. In this caſe, after you have apply'd the Pultis already mention'd; you muſt make a ſort of Gruel of Barley-meal and Vinegar, and when 'tis almoſt boil'd, add half the Quantity of Chalk, with a ſufficient Quantity of the Oil of Roſes and Quinces, and two Pugils of Salt ; this apply, and bind on very carefully, as hot as you can touch it with your Hand. Or, 2. Boil inſtead of this a ſufficient Quantity of Beans in the Lees of Wine, till it grow ſoft ; then beat them to a Maſh ; to two Pounds of which add half an Ounce of Caſtor in fine Powder ; ſew all up in a Bag, large enough to cover the Stones, to be bound on as hot as it can be endured, the Cods being firſt anointed with the Ointment or Oil of Roſes : Anoint them again 24 Hours after, and heat the Bag in the ſame Lees of Wine, wherein the Beans were boil'd, continuing to renew the Application till the Swelling is abated. But if all proves ineffectual, that the Stones hang very low, and feel as if they contain'd much Water, you muſt geld your *Horſe* at the Full Moon, and if the Stones were not ulcerated, the Wound may be eaſily heal'd.

For a Rupture, Incording, *or* Burſtneſs.

THIS is when the Rim, thin Film or Caul, which holds up a *Horſe*'s Entrails, is broken, over-ſtrain'd or ſtretched, ſo that the Guts fall down either into his Cods or Flank. It comes either by ſome Stripe or Blow, by ſome Strain or Leaping over a Hedge, Ditch or Pale ; by teaching him to bound when he is too young, or by forcing him when full to run beyond his Strength ; nay, ſometimes a ſudden Stopping him upon uneven Ground tears the Rim of his Belly, by his ſtraddling and ſlipping his Hind-legs. The Signs to know it are, his forſaking his Meat, and ſtanding ſhoaring and leaning on that Side where he is hurt ; and if on that Side you ſearch with your Hands between his Stones and his Thighs, upwards to the Body, and ſomewhat above the Stones, you ſhall find the Gut it ſelf big and hard in the Feeling, whereas you ſhall meet with no ſuch thing on the other Side.

In order to cure this Rupture, you muſt endeavour to put up the fallen Gut with your Hands ; or, if it cannot otherwiſe be done, caſt the *Horſe* on his Back on ſoft Ground, and binding his two Legs on each Side together, bathe the Stones with luke-warm Water ; and when you have put the Gut up with your Hand, take of the Roots of Comfrey, the Bark of the Pomegrnaate and Oak-Trees, Cyprus-nuts, green Oak-apples, Sumach and Barberries, each four Ounces ; two of Anniſeed, and as much of Fennel ; of Flowers of Pomegranate, Camomile and Melilot, two Handfuls each ; half a Pound of the Powder of Crude Allum ; which put altogether into a Bag, large enough to cover the Stones, and ſew it after the manner of a Quilt ; this done, let the Bag be boil'd in a large Potful of Sloe-water, or of thick red Wine, for two Hours, and apply it moderately hot to the Stones, tying it on dexterouſly with a Bandage, paſſing round the Flanks, and tied on the Rump, heating the Quilt in the ſame Wine every 24 Hours, and continuing the Uſe of it for a conſiderable time. The Cods may afterwards be fomented with aſtringent Baths ; but the ſureſt Remedy of all is to geld the *Horſe* after the Guts are put up.

For bruiſed or hard Stones.

WHEN the Stone grows hard and dry, by reaſon of a Contuſion, which happens when a *Horſe* entangles himſelf among the Bars that are ſet up to ſeparate him from other *Horſes* ; or when a Defluxion falls upon the Ligaments, by which the Stone hangs, which is more Danger : If the Contuſion and Hardneſs be not very ſtubborn, the following Pultis may cure it : Melt half a Pound of Honey and a like Quantity of freſh Butter ; take a Pound of the Juice of green Coleworts, and a large Handful of the Leaves of Rue, without the Stalks ; a Quarter of a Pound of black Soap, and a Pound of Bean-flower ; ſtamp the Rue in a Marble-Mortar, then add the Honey, and afterwards the Juice of Coleworts, Butter and black Soap : Let them be well mix'd, without Heat, and with the Bean-flower make a Pultis, to be applied cold with a Hog's Bladder, and keep on the Bandage tied about the *Horſe*'s Back. Renew the Application every Day. If a great Inflammation attends the Swelling, add two Drams of Camphire, diſſolved in three Spoonfuls of Spirits of Wine to the Compoſition. But you muſt chafe the Humour oft in the Ligament with Spirit of Wine, camphorated before you apply the Cataplaſm. When Matter is generated in the Stone, *Emplaſtrum Divinum*, ſpread on very ſoft Leather, muſt be applied to the Place where the Matter ſeems to be fixed ;

fixed; and then the Pultis. The Plaiſter will draw the Matter, if there is any. The *Horſe* muſt be bled in the Beginning and End of the Cure, and his only Food muſt be two Ounces of *Sal Prunellæ*, mix'd with Bran every Day.

A Paſſage muſt be open'd with a red hot Iron at the Bottom of the Cod, without touching the Stone. When the Matter appears ſo high above the Stones, that it cannot be evacuated, then let the Cod be anointed with *Baſilicon*; and Beet-leaves, ſmear'd with Butter, be laid over it, putting a Tent anointed with *Emplaſtrum Divinum*, melted in Oil of Roſes, into the Hole, which is indeed an admirable Remedy in all Caſes where a Sore is required to be kept open. A regular Proſecution of this Method will infallibly cure the *Horſe* without *Gelding*, which ſignifies nothing when the Malady is ſeated in the Ligaments, and is always dangerous, till the Pain is aſſwaged, and the Defluxion ſtopt.

For a Botch in the Groin.

THIS proceeds from a *Horſe*'s being full of Humours, and ſuddenly laboured, which cauſes them to reſort to the weaker Part, and then gather together, and breed a Botch, eſpecially in the Hinder-part of the Thighs, not far from the Cods; the Signs being theſe; the Hind-legs will be all ſwollen, eſpecially from the Gambrels or Hoofs upwards; and if you feel with your Hand, you may find a great Knob or Swelling, and if the ſame be round and hard, it will gather to a Head. To cure the *Botch*, it muſt be firſt ripen'd with a Plaiſter made of Wheat-flour, Turpentine, and Honey, a like Quantity, which muſt be ſtirr'd together to make it ſtiff, and with a Cloth lay it on the Sore, renewing it once a Day till it break, or grow ſoft, and lance it ſo as the Matter may run downwards.. After tent it with Turpentine and Hog's Greaſe melted together, renewing it once a Day till it be perfectly whole. 2. As ſoon as you perceive the Swelling to appear, lay upon it a Plaiſter of Shoe-maker's Wax, ſpread upon Allum-Leather, and letting it lie till the Sore grows ſoft, you muſt open it with a Lancet, or let it break of it ſelf. The Filth being come out, waſh the Sore well with ſtrong Allum-Water, and then tent it with the Ointment *Ægyptiacum*, till it be well.

The Staggers.

THIS Diſeaſe proceeds from corrupt Blood, or groſs ill Humours that oppreſs the Brain, from whence proceeds a vaporous Spirit, diſſolved by a weak Heat, which afflicts the whole Head. But *Solleyſel* ſays, The Cauſes of the Staggers, or Stavers, proceed from hard Riding, or Labour in hot Weather, noiſome Smells in the Stable, long Races, with frequent Wheeling about, and quick Turns, exceſſive Eating, and above all a Redundancy of hot and ſharp Humours in the Stomach: And the Symptoms are, that a *Horſe* loſes the Uſe of his Senſes, reels and ſtaggers as if he were drunk, beats his Head with great Violence againſt the Wall and Manger, and lies down and riſes up with greater Fury than in the Cholick. The Author's Method of Cure is this: Firſt take a pretty long ſtreight Stick well ſmooth'd, about the Bigneſs of a Tobacco-pipe, and at one End cut a Notch; this Stick put up to the Top of his Head, jobbing it a little hard, and turn the Stick, which will occaſion him to bleed freely; then give him this following Drink: Take an Ounce of Anniſeeds, and as much Turmerick beaten ſmall, half a Quarter of a Pint of *Aqua vitæ*, a Pint and a half of Mild Beer, a Pint of Verjuice, or for want thereof a Quarter of a Pint of White-wine Vinegar, andput it to the Beer, and the reſt of the Ingredients, which make luke-warm, and give it him in the Morning faſting. As ſoon as he hath taken it, take a Handful of Herb-grace, beaten ſmall in a Mortar, a Pennyworth of *Aqua vitæ*, and put half the *Aqua vitæ* into one Ear, holding it upright in the Hollow of your Hand, and put half the Herb-grace in after it; then put in Wool or Tow, and tye up the Ear with a Garter, and the like do to the other Ear, and tye them both up together. After 24 Hours untye his Ears, and take out the Wool and Herb-grace. The next Day in the Morning let him Blood on both ſides of his Neck, and ſave about a Pint of the Blood, and put thereto a Handful of Salt; ſtir it well together, and give it him faſting: Four or Five Hours after give him ſweet Hay, and at Night warm Water and Bran. After you have given him the firſt Drink, tye up one of his Fore-legs, and ſtrew good ſtore of Litter under him, and ſo let him take his Reſt, and he will either recover in a Day or two, or die. The Vinegar will make him piſs, and the *Aqua vitæ* cauſe him to ſleep. If he comes not to his Stomach, then give him Honey and White-wine, and a Cordial: When you let him Blood in the Head with your Coronet-horn, let him Blood in the Third Furrow of his Mouth, and let him bleed well; alſo let him Blood in the Griſtle of his Noſe with a long Bodkin, or Shoe-maker's Awl.

But *Solleyſel*, and thoſe that follow him, order the *Horſe* to be bled in the Flanks and Plate-Veins of the Thighs, and then to have a Glyſter given him of two Quarts of Emetick Wine luke-warm, with a Quarter of a Pound of the Ointment *Populeum*, after which let him repoſe a little. When that Glyſter has been voided about an Hour, give him the following one: Boil two Ounces of the *Scoriæ* of Liver of Antimony, in fine Powder, in five Pints of Beer, and after five or ſix Walms, remove it from the Fire, and adding a Quarter of a Pound of *Unguentum Roſatum*, inject it luke-warm. Let this be frequently repeated, and his Legs be ſtrongly rubb'd with Wiſps of Straw, moiſtned in warm Water, to make a Revulſion. Let him be fed with Bran and White Bread, and let him from time to time be walked in a temperate Place.

But if, notwithſtanding the Application of theſe Remedies, the Diſeaſe ſtill continues, immediately, after you have given him an Ounce of Venice-Treacle, or Orvietan, diſſolved in a Quart of ſome Cordial-Waters, inject this Glyſter luke-warm: Take two Ounces of *Sal Polychreſt* and Venice-Treacle, and having diſſolv'd them in two Quarts of a Decoction of the ſoftning Herbs, with a Quarter of a Pound of the Oil of Rue, make a Glyſter.

For Giddineſs.

A *Horſe* is ſometimes ſeized with ſuch a Giddineſs, that he falls down when he is taken out of the Stable; but is briſk, and eats heartily when he continues in it. As this owes its Origin to a Redundancy of Blood, occaſion'd by the *Horſe*'s being kept long in the Stable without Airing, 'tis eaſily cured by a Bliſter and Bleeding, repeated after two Days. Moderate Exerciſe, and leſs Food, will prevent it.

For a broken-winded Horſe.

TAke Boar's Dung, dry it to Powder, put a Spoonful of it into a Quart of Milk newly taken from the Cow, or elſe made luke-warm, and give it him. If you ſee that this Quantity will not make him ſick the firſt time you give it him, then give two Spoonfuls more of the Powder, and this in four or five times taking will cure him. This Drink muſt be given every third Day. A Spoonful of the Powder of a Hedge-hog being given, doth much add to the Cure.

For a Shoulder-ſtrain.

FIrſt tye up his ſound Leg with a Garter or Liſt, then walk or drive him on his other three Legs, that he may lay the Weight of his Body upon the lame Leg, and ſo keep him until he begin to ſweat at the Cods and Ears with Pain. The Reaſon of this is to ſee the Plate-Vein the plainer; then let down the lame Leg, and the Vein will appear plainer; but if it doth not yet appear viſible enough, then heat a little Water, and bathe the Place grieved therewith, which will cauſe it to appear bigger; then let him blood, and when you ſee the Blood is come into the Plate-Vein, and that the Vein is plain enough to be ſeen and felt, tye up his lame Leg again, and bleed him there on that ſide the Bottom of his Cheſt his lame Leg is on. Let him bleed about a Quart or two, and the greater the Lameneſs is, the more let him bleed. After he has bled about a Quart upon the Ground, put into a Bowl a good Handful of Salt, and let him bleed about another Quart, keeping the Blood and Salt always ſtirring, to prevent Cloding; then ſtop the ſaid Plate-Vein with a Piece of Lead, to hinder more Bleeding. Then having in a Readineſs about an Ounce and an half of Oil of Turpentine, and as much ſtrong Beer, put them into a Glaſs-Vial, ſhake it well together, bathe it well in with your Hand all about his Shoulder, his Breaſt, and down to his Knee; take the Blood and Salt, and bathe that as the former; then ſet him up to his Meat, and with a Garter or Liſt tye both his Fore-legs together as cloſe as you can; the next Day untye them, take him out and walk him, and if you find he can go pretty well, ride him gently about a Mile, and ſo ſet him up again, tying his Fore-feet together, as before directed: But if he goes not well the firſt Day, do but walk him the ſecond Day; and the third Day, after his firſt Dreſſing, do not only tye his Legs, but flat a Stick on both Sides, like a Wedge, about the Bigneſs of a Six-pence. This drive between the Toes of his Shoes and the Toe of his Foot faſt, ſo that it may not come out; and always whilſt he ſtands ſtill in the Stable tye his Legs cloſe, and peg him with a Wedge; and when you take him out to walk or ride, untye his Legs, and take out the Wedge: Do this every Night and Day, until he is cured, which will be in a few Days, if it be newly taken. To let Blood once, and to anoint it once with Oil of Turpentine and Beer, and once with the Blood and Salt, with the Help of tying his Legs and wedging them, as aforeſaid, is ſufficient. Hogs-greaſe is very good for a Strain.

Solleyſel, and others, preſcribe other Receipts for Shoulder-Splaits, Sprains, Pricks, and Wrenches: And firſt of all an Ointment made of a Pound of new Wax, as much of Roſin, Pitch, and common Turpentine; of two Pounds of Oil of Olive, of five Ounces of Capon-Greaſe, as much of thoſe of Badgers, Horſes and Mules, and of the Marrow of a Stag; four Ounces of the Oil of Turpentine, of Caſtor, Worms, Camomile, St. *John*'s Wort, Linſeed, and of Foxes; laſtly, Oil of Gabian, or for want of it Oil of Peter. Put the Oil-Olive in a Baſon, over a clear Fire, with the Wax, Roſin, and Pitch beaten together, which are to be ſtirred over the Flame till diſſolved; then add the Fats and Stags Marrow, and then the Turpentine, incorporating the Whole over a gentle Fire. Pour in the Oils in the laſt place; let the whole Mixture be ſtirr'd for half a Quarter of an Hour; then taking it off the Fire, let the Stirring be continued till it be cold. In the Application, let the affected Part be rubbed with a Wiſp of Straw, or with your Hand, and being warm, chafe it with the Ointment, as hot as the *Horſe* is able to bear it, holding a Fire-Shovel hot near the Part; to make it penetrate: Let it be repeated once in two Days.

As for that which they call the red Honey Charge, 'tis generally ſo uſeful, not only for Strains and Wrenches, but for ripening Swellings, relieving decay'd and ſwell'd Legs, benefiting tired and jaded *Horſes*, &c. and known to be ſo univerſal a Remedy, that we muſt allow it Room here: Take a Pound and a half of melted Sheeps Sewet, a Pound of Capons, the ſame of Hog or Horſe-Greaſe; of the Oil drawn from the Bones of an Ox or Sheep, or if neither can be had, of Linſeed Oil, or Oil-Olive, half a Pound; Claret of a deep Body and thick Colour, two Quarts; of black Pitch and Burgundy Pitch, a Pound each; four Ounces of Oil of Bay, a Pound of common Turpentine, four Ounces of Cinnabar in Powder, a Pound and a half of common Honey, four Ounces of Powder of Cummin-ſeed, half a Pint of good Brandy, fine Oriental Bole in Powder three Pounds, and a ſufficient Quantity of Wheat-flour: To thicken the whole Mixture, firſt boil in a Kettle the Sewet, Greaſe, Oil of Sheeps Bones, and the Claret, over a gentle Fire, increaſing the Heat by degrees, and ſtirring them from time to time, till part of the Wine be waſted, that is about two Hours. Put in both ſorts of Pitch next, and the Oil of Bays after they are diſſolv'd. Let the Veſſel now be taken off the Fire, and putting in the Turpentine and Cinnabar, mix them for about a Quarter of an Hour with the reſt. Add the Honey when the Compoſition is half cold, then the Cummin-ſeed, continuing to ſtir as before: Then add the Bole in Bowder, and when the whole is almoſt cold, let the Brandy be put to it, and ſtir it till it be perfectly mixed: Next thicken it with Wheat-flour, almoſt to the Conſiſtence of an Ointment, and continue ſtirring it till it be cold. The Charge will keep a Year or two, if well prepar'd. It may be apply'd cold in Summer, but ought to be melted in the cold Weather. You muſt add Turpentine and Pitch to it, and apply it as hot as a *Horſe* can endure it, when you are minded to ripen the Swelling. But it is not proper to be done upon a diſcuſſive Indication. When you have occaſion to put it into a *Horſe*'s Hoof, it muſt be boiling hot. Another *Recipe* for Strains, *&c.* is to put a Pint of Spirit of Wine in a ſtrong Glaſs-Vial, ſo that two Parts of it remain empty; to which add half a Pound of Caſtle-Soap, ſliced ſmall, and ſtopping the Glaſs very cloſe, ſet it on hot Aſhes, that the Soap may be wholly melted, and let it be quite cold before you unſtop the Bottle. The Ointment will keep long, and is daily to be apply'd to the affected Part for ſeven or eight Days together, the Place being firſt warm'd with Rubbing.

For a Sinew-ſprung Horſe.

TAke a Pint of Linſeed Oil, boil it, then put in three Penniworth of *Aquavitæ*, ſtir them together and anoint his Legs therewith.

For a Back Sinew-ſtrain, or any Grief, Pain, Straitneſs, Shrinking, or Numneſs of Sinews, or Joynts.

TAke a fat Sucking Maſtive Whelp, Flay it and Bowel it; then ſtop its Body full of black Snails and grey Snails, Roaſt it at a reaſonable good Fire, and when it begins to warm, baſte it with ſix Ounces of Oil of Spike made yellow with Saffron, and the like Quantity of the Oil of Wax. The Dripping and Moiſture that falls from it, ſave, and keep in a Gally-pot, with which anoint the grieved place, working it in very hot, holding a hot Bar of Iron before it; And thus do every Morning and Evening until it is cured.

For the Palpitation of the Heart.

THis is a violent Motion in the *Horſe*, by which he endeavours to expel ſomething that oppreſſes him; and proceeds from hard Riding, violent Exerciſe, corrupt Water, bad Nouriſhment, and indeed whatever produces Heat or Obſtructions. Some bear it without loſs of Appetite, or any extraordinary Beating of the Flanks: But upon the whole 'tis a violent Diſtemper, tho' not Mortal, unleſs attended with a Fever: The Cure is performed by the frequent Repetition of Bleeding, Glyſters and Cordial Remedies, and other things; but a particular and eaſie Receipt, is to Take of Bugloſs, Burrage and Baum, Nine Handfuls each; to boil them in a ſufficient quantity of Water for half a quarter of an Hour, till reduc'd to a Pint: Then take it off the Fire, add to it two Handfuls of Sorrel, and let it ſtand till cold: Let an Ounce and a half of the Conſerve of Roſes, half an Ounce of the Conſerve of Hyacinth, without Amber-greaſe, or Muſk, and ten Grains of Saffron be diſtill'd in the ſtrain'd Liquor, give it your *Horſe* to drink luke-warm, and two Hours after let him have an emollient Gliſter, with *Sal Polychreſt*, repeating the ſame every ſix Hours, and the Potion once a Day; let him in the mean time be kept to a ſpare Diet of moiſtned Bran, without Oats, and often Walk him a Foot-pace: When the Palpitation is perfectly cured, 'twill be proper to give him this Purge, *viz.* An Ounce and a half of the fineſt Aloes, an Ounce of Agarick, and as much of the Roots of Florentine Orris, beaten to Powder, and given with a Quart of warm Milk from the Cow.

This is the general Method of Cure for all ſorts of Palpitations; but if it ariſes from an exceſſive Heat in the *Horſe's* Body, in Summer-time; Bleed him in the Neck-vein, and let him for an Hour ſtand in Water up to the Neck, and then give him a Draught made of the Water of Vipers-graſs, Scabious, Roſes, and bitter Succory, of each a Glaſs full, with an Ounce of Cream of Tartar, and four Ounces of Syrup of the Juice of Sorrel and of Violets: You may alſo give him in a Quart of Wine an Ounce of *Sal Polychreſt*; and after you have Walk'd him about an Hour, let him have an Emollient and Cooling Glyſter, with *Sal Polychreſt* in it.

But for a cold Palpitation in Winter, and when no exceſſive Heat can be perceived in his Body, omit letting Blood without there be a great Oppreſſion; (in which caſe, you may open the Veins of the Thighs, or Briſket) exhibit this Cordial Potion: Take a handful of Carduus Benedictus, and as much of Sage and Roſemary, which boil in a Pint and a half of Water to the Conſumption of half a Pint: Add a Pint of White-wine to the ſtrain'd Liquor, a Dram of Juniper Berries, and as much of round Birth-wort, Myrrh, and Shavings of Ivory; of Galangal, Cinnamon and Cloves, a Scruple each; and ſix Grains of Saffron in fine Powder: Let your *Horſe* drink this Potion luke-warm: And having Walk'd him half an Hour; give him two Hours after a Glyſter of three Quarts of the Emollient Decoction, with four Ounces of the Carminative Purging Oil; a quarter of a Pound of the Oil of Bays, and two Ounces of Butter: Whatever you do, be cautious of over-cooling your *Horſe*'s Body.

For the Blood-running Itch.

A Redundancy, or Ebullition of Blood generally proceeds from long Reſt, and want of Exerciſe, which hinder the diſſipation of ſuperfluous Humours; ſo that the more ſubtil Part thereof penetrating the Subſtance of the Fleſh, is the Cauſe of external Humours, frequently miſtaken for the Farſie: Tho' they are very different, or may be very plainly diſtinguiſhed from one another by the Suddenneſs of their Appearance, and eaſineſs of the Cure, together with their Looſneſs and Softneſs: To cure the *Horſe*, let him be plentifully bled once or twice in the Neck Veins; but if a Fever comes from unſeaſonable Bleeding, by repelling the Humour, it's neceſſary a Glyſter ſhould forthwith be given him; and an Ounce or two of Venice Treacle, or Diateſſaron, in Wine, an Hour after; which will drive out the Humour, and at laſt cure the *Horſe*.

When it ſo comes to paſs, that there are little Knots or Bunches, formed in ſeveral Parts of the Body, which proceed from the boiling and exceſſive Heat of the Blood; an Ounce and a half of Liver of Antimony, or three or four Doſes of Cinnabar Pills given every Day, will effectually cure him; and *Sal Prunellæ* given in his Bran, will expel the Diſtemper by expelling the Bilious Seroſities, and that perhaps by Urine.

For Swaying of the Back.

A *Horſe's* Back is ſaid to be Swayed, when the Ligaments of the Bones of the Back are ſtretched by a Fall; and if the Vein be broken within the Body, the extravaſated Blood curdles, putrifies, and produces very dangerous Diſtempers: The Method of Cure, is immediately to take two Pounds of Blood from the Vein; and having with your Hand chafed his Back, till warm, two ſcarifying Cupping-

Glaſſes muſt be applied one on each ſide, where he complains moſt of Pain, or where the extravaſated Blood is lodg'd: This done, let the *Horſe* be put into a Frame and hung up, or otherwiſe incloſe him with Grates, that ſo he ſhall not be able to move his Body, and let him ſo remain five or ſix Weeks together: Then rub an equal Quantity of Spirit of Wine and Oil of Turpentine, ſo ſhaken together in a Vial as to look White like Milk, upon his Back: And next apply the Red Honey Charge, with half an Ounce of Galls added at every Application; applying a freſh Charge every time, and without taking away the former: The Ointment of *Montpelier* for want of the Honey Charge, may be uſed for two or three Days, and then proceed to Fomentations: But if he voids Blood ſtill at the Mouth or Noſe, let him have *Sal Polychreſt*, and Juniper Berries beaten, of each an Ounce in a Pint of Red Wine every Day for eight Days together: And for the firſt four Days, let an Anodine Glyſter be daily injected after his Fundament has been firſt Raked.

If, as it often comes to paſs in very great Strains, theſe Preſcriptions will not do; let two or three Inciſions be made with a large Iron ſlice, and ſeparate the Skin from the Fleſh on the Reins, about half a Foot's breadth, on each ſide the Back-bone, till you come to the Hip-bone: Uſe ſlices of Hog's Lard half a Crown thick to ſtop the Holes, ſo as to hinder the Skin from growing to the Fleſh: Then rub the ſeparate Skin with an Ointment made of equal Parts of *Populeum*, and of the Ointment of Marſhmallows, covering all the Part with a Lamb's Skin, the Woolley-ſide inward, and over all lay a Saddle-cloth: Then having hung your *Horſe* in ſuch a poſture, as that he cannot ſtir; let him have a Glyſter of *Sal Polychreſt* every Night; and a Pound of the Powder of *Aſſafœtida*, mixt with a Pint of Wine, every Day for eight Days together; you may after eight and forty Days uncover the Sore, and if you find it much ſwollen, 'tis in order to the Cure: Let the Lard be taken out, and the reddiſh Matter preſs'd out of the Sore: Then put in freſh pieces of Lard, and let all the Part be chafed with the above-mention'd Ointment; cover it up as before, and for twelve Days let it after the ſame manner be dreſs'd once in forty eight Hours: This being done, let the Lard alone, and dreſs it with the Duke's Ointment every Day, till the Sore is heal'd: The Lamb's Skin may be taken away two and twenty Days after the Beginning of the Cure, and the *Horſe* may be allow'd to ſtir a little ten Days after that; inſtead of ſeparating the Skin, the Fire, an eaſier Remedy, may be given, piercing the Skin with a red hot Iron, and making Holes at an Inch diſtance from one another all over the ſame: Then let a good Plaiſter and two Sheets of Paper over it be applied: Hang up the *Horſe* for a Month, and when the Scales are fallen, dreſs the Sores with the Duke's Ointment, and proceed as before.

For the Falling of the Fundament.

A Violent Flux, or the Piles, obliging a *Horſe* to violent Straining, is the Cauſe of the falling out of the Fundament; and even frequently the cutting off the Tail, in which caſe, if it is accompanied with a great ſwelling, 'tis almoſt always a fatal Sign of a Gangreen, ſpreading towards the Back: It's a Malady never to be neglected, and may be attended with dangerous Conſequences; wherefore let the Place be anointed with Oil of Roſes Blood-warm, and then endeavour to put it up: But in caſe of no Succeſs this way; beat ſix Drams of the Salt of Lead in a Mortar, pouring gradually upon it a ſufficient Quantity of Goat's Milk, or Cow's Milk for want of the other, till they come to the Conſiſtence of a Liquid Ointment, with which having anointed the Part, put a Tent dipt in the ſame into the Fundament. Repeating the Application from time to time: Or another Remedy is, to take two Ounces of the PowOrder of burnt Oyſter-ſhells, four Ounces of the green middle Bark of an Aſh-tree beaten, or two Ounces of the dry Bark, for want of it; a quarter of a Pound of Honey, and half a Pound of the leaven'd Dough of a Rye Loaf, ready to be put into the Oven: Make a Pultis of the whole without heat, apply it cold to the Fundament, and every twelve Hours renew the Application.

Now if theſe Applications alſo are not attended with Succeſs; as ſoon as the great Heat and Inflammation is removed, you muſt with a ſharp Knife, red hot, to prevent a Flux of Blood, cut off the Part of the Fundament that hangs out: But if you find, when the *Horſe* reſts, that the Fundament ſhrinks into its place, and falls out again when he Trots, 'tis a Sign of a Fiſtula; and the moſt ſucceſsful way of Cure, is to tie a piece of ſtrong Packthread about it, and to cut it quite off with a red hot Knife, anointing the Wound afterwards every Day, with *Album Rhaſis*, and then rubbing the Fleſh with *Siccativum Rubrum*.

For the Anticor.

THis is a dangerous Sickneſs proceeding from the Redundancy, or Inflammation of the Blood, occaſion'd either by high Feeding, without Exerciſe (as in the Ebullition of Blood before treated of) or hard Riding. The corrupt and inflam'd Blood Rendevouzes about the Heart in this Diſtemper; and gathering into a viſible Swelling in the middle of the Breaſt, juſt oppoſite to the Heart, from thence has it's Name. The *Horſe* will groan, when he lies down, and hang down his Head, and refuſe to eat, before his ſwelling appears: If it aſcends to the Throat, 'tis preſent Death: To prevent this Evil, the *Horſe* ſhould be bled before he is turn'd to Graſs, or put to feed in the Stable; and alſo two or three Months after; eſpecially if he has black and thick Blood: And as for the Cure, upon the firſt Appearance of the ſwelling, you are forthwith to draw a large Quantity of Blood from the Plate-veins, or if you cannot find them, from both ſides of the Neck, after which give him a Drink of Diapente with Ale, adding an Ounce of brown Sugar Candy, and half an Ounce of London-Treacle: This done, let the ſwelling be daily rubb'd with an equal Quantity of Hog's-greaſe, Boar's-greaſe and *Baſilicon* incorporated together, till it grows ſoft: Then open the Sore, and let it be waſh'd with Copperas-Water made of two Quarts of Water, half a pound of green Copperas, a Handful of Salt, a Spoonful of Honey, and a Roſemary-branch all boil'd together, till half the Liquor be conſum'd, the Quantity of a Walnut of Allom being added, before 'tis taken off the Fire: After the Sore has been waſh'd, apply an Ointment made of Roſin and Bran, the Quantity of a Walnut of each, melted together, half a pound of clean Hog's-greaſe, a ſpoonful of Honey, a pound of Turpentine,

pentine, and an Ounce of Verdigreaſe in fine Powder; ſome there are, who chooſe to ſtrike the Swelling in divers places with a Fleam, to let out the corrupt Matter, and then anoint it with warm Hog's-greaſe.

For the Hide-bound.

IT's a Diſtemper in *Horſes*, when the Skin ſticks ſo faſt to their Backs and Ribs, that you cannot pull it from the Fleſh with your Hands, and proceeds ſometimes from Poverty, at other times from want of good Ordering; ſometimes from Over-heating him with hard Riding, and careleſly letting him ſtand in the Wet and Rain; and ſometimes from corrupt and filthy Blood, exſicating the Fleſh, which wanting it's natural Courſe, cauſes this ſhrinking of the Skin together, that makes him ill diſpos'd, and to have a Gaunt, a ſhrivell'd and ſhrunk up Belly to his Flanks, making his Hair to ſtare, and his Legs to ſwell, with many other Symptoms.

There are many things preſcribed for this Diſtemper, both inwardly and outwardly, but the particular Receipts are, 1. After he is bled, give him three or four Mornings together a Quart of new Milk, with two Spoonfuls of Honey, and an Ounce of London Treacle; and let his Food be warm Grains and Salt, ſodden Barley or ſweet Maſhes. 2. Bleed him in the Neck-vein, then take two Handfuls of Celandine; if in Summer the Leaves and Stalks will ſerve; but if in Winter, take Leaves, Stalks, Roots and all, which chop ſmall; then chop in like manner, a Handful of Worm-wood, and the ſame of Rue, putting all into three Quarts of Ale or Beer, to be boiled to a Quart; then ſtrain and ſqueeze the Leaves, and diſſolve three Ounces of Treacle into it; give it him luke-warm, and for a Week together once a Day rub his Body over with Oil and Beer, or Butter and Beer; cut the Hair and feed him with warm Maſhes of Malt and Water; and for his Provender, let him have Barley ſodden till it begins to break, but let it not be ſoure. 3. Others take Aniſeed, Liquoriſh, Fennel-ſeed, Bay-berries, Elicampane dried, Fenugreek, Turmerick, of each a like quantity, made into fine Powder, of which give him two Spoonfuls mix'd in Ale, or Beer, one Quart, with two Spoonfuls of Sallet-Oil, four Mornings together; but in the firſt you are to give him two Spoonfuls of the Powder, and in the other three but one; keep him warm and he will do well.

For the Low-Worm.

IT's a Diſeaſe hardly known from *St. Anthony*'s Fire, or the Shingles; having much the ſame Symptoms: 'Tis a Worm bred in the Back of a *Horſe*, between the Skin and the Bone, that runs along the Neck to the Brain, and when it comes to touch the Tunicle thereof, makes him ſtark Mad; the Signs are, that after a long and weariſome Journey, he will be Sick, and fall from his Meat, and ſtretch out himſelf at length with his Feet; bending his Back and ſtraining to Piſs, but cannot: If he does Stale, 'tis but little, and that in his Sheath, which, in time, will make him ſo Mad that he will gnaw the Manger, or any thing within his reach.

For his Cure you are to take ſix Heads of Garlick clean pilled, a quarter of a Pound of Acrement; of Rue and Tormentille, that bears a yellow Flower, each a Pound, and put ſo much White-wine to them, that after they are ſtrain'd, there may remain two parts of the Juice and Wine: Then after you have Blooded him in the Tail pretty well, divide your Liquor into ſix parts, giving him one part of them every Morning, till he has taken them all; and this will perfectly Cure him.

Of the Hungry Evil.

WHen you find a Horſe very greedily ſnatch at his Food, as if he would eat up a piece of the Manger, give him Milk mix'd with Wheat-meal to Drink, and no more than a Quart at a time, and let him be fed gradually with Provender, laying but a ſmall Quantity at one time before him.

For Gaunt-Belly'd, or Light-Belly'd Horſes.

YOU may conclude, when a *Horſe*'s Belly is ſhrunk up towards his Flanks, that he is very Coſtive, and afflicted with unnatural Heats, and will always be very reſty, tender and very unhealthy after hard Labour; that you may the readier work a Cure, you are given to underſtand that all *Horſes* have two ſmall Strings, extending from the Cods to the bottom of the Belly, one on each ſide; theſe you muſt break with your Fingers; and then anoint the place every Day with freſh Butter and the Ointment *Populeon*, mix'd in equal quantities.

For the Hip-ſhot.

THis is when the Hip-bone of a *Horſe* is removed from its right place; and comes many ways, ſometimes by a Wrench, or Stroke of a *Horſe*, ſometimes by a ſlip, ſtrain, ſliding or falling: And the Signs to know it are, he will halt and go ſideling in his going, and the ſore Hip will fall lower than the other, and the Fleſh in Proceſs of time will conſume away: If you ſuffer him to run too long, it will never be reſtor'd to its Priſtine State; and indeed the Cure of it, at leaſt, is ſo uncertain, that there is no very good Preſcription can be ſet down for it.

For the ſtraining of the Hurle-bone.

THis Bone is about the midſt of the Buttocks, and very apt with a Slip or Strain to go out of the Socket: To Cure which, take an equal quantity of the Oil of Turpentine and ſtrong Beer; ſhake them very well in a Glaſs Vial, and anoint the grieved part therewith; as alſo the Brawn and Inſide of his Thigh down to his Gambrels, and heat it in very well, by holding a hot Fire-ſhovel before it, while you are doing it; and work at the ſame time the Bone in gently with your Hand, to bring it to its right place again: After you have anointed him, let him be tied up to the Rack-ſtaves for about half an Hour, to prevent his biting it with his Teeth; and while he ſtands in the Stable, put a Wedge of Wood, about the breadth of Six-pence, between his Toe and his Shoe: But when you ride him, it muſt be taken out, and put in again when you come back; or after you have once anointed him with Oil of Turpentine and Beer, and put his Bone into his right place, a Charge made of *Oxycrocium* and

Paracelſus may be clapt to it, which will ſo very much ſtrengthen it, that it will keep it from ſliping out of its place again: But after all, the moſt ſpeedy, beſt and certain Cure is, tho' it a little disfigures the *Horſe*, to pin him, which every Smith either does, or ought to know.

For a Fiſtula.

THis in *Horſes* is a deep, hollow, crooked Ulcer, for the moſt part ſpringing from malignant Humours, ingender'd in ſome Wound, Sore or Canker, not well cur'd: But ſometimes it proceeds from a Bruiſe that hath feſter'd inwardly; that either burſt forth of its ſelf, or was open'd by the *Farrier*: Sometimes from a Co-wrench, or prick of a Collar in Drawing, or by being wrung with the Tree of the Saddle; the Symptoms whereof are, the Hollowneſs of it deſcending downward from the Orifice.

The Method of Cure is, 1. To ſearch it to the bottom with a Leaden Probe, or ſomewhat that will bend where-ever the Concavity of the Sorrance leads it: Open it downwards if it can be done; that the Corruption may iſſue out, and Tent it two or three Days with Hog's-greaſe, to make the Hole the wider, and then inject this Water: Take Sublimate and Precipitate of each as much as will lie upon a Three-pence, three Ounces of Allom, and as much of white Copperas; burn all in an Earthen Pot, whoſe bottom has been firſt rubb'd with a little Oil, to keep it from burning; then take two Quarts of fair Water, boil it firſt by it ſelf, ſcum it in the boiling; take it off the Fire, and put as much of this Powder in it, as will lie upon a Shilling at twice; but if you would have it ſtronger, take fair Water, and Smith's Water, of each alike, and of White-wine Vinegar a third part, and with Aſh-tree Aſhes make Lye in the former Ingredients as before, and inject it with a Syringe into the Sorrance. 2. Others take a Pint of the beſt Honey, and an Ounce of Verdigreaſe beaten into Powder, and having for three quarters of an Hour boiled them together, ſtrain them into a Gally-pot, and keep them for their uſe. 3. Some take Roch-Allom and Bay-Salt burnt, of each half an Ounce, and ſome Leaves of Bay-wood and Elder-tops; which being bruis'd and well mix'd together, with a Handful or two of grey Snails ſhells and all; they ſtop the Hole full therewith, having firſt cleanſed it well with a Syringe.

For the Dropſie.

HOrſes, as well as Men are liable to this Diſeaſe, which cauſes an univerſal Swelling in the Body, thro' a great quantity of Water that lies between the Skin and the Fleſh, occaſioned by Melancholy Blood, Water and Wind, which will make his Belly and Legs to ſwell: But his Back, Buttocks and Flanks will be dried and ſhrunk to the very Bones; and if a Man's Finger be thruſt hard upon the ſwollen places, the Impreſſion of it will be left behind; for the Fleſh wanting natural heat, will not return again to its place; beſide which you will find him evil Colour'd, Heavy, Dull and of no Face, Strength nor Spirit: And therefore it proceeds principally from want of good Nouriſhment and Digeſtion, which turns into Melancholy: It proceeds alſo from the Spleen, Liver, or both; the Blood being turn'd into a thin Water; and ſometimes from want of Exerciſe, and over-much Reſt. Moreover the *Horſe* will be ſhort-breath'd, loſe his Stomach, and be very dry; and tho' you bring him to the Water, he will drink but little, and only pudder long with his Noſe in it. In ſhort, he will be as if he had a general Conſumption over his whole Body, and his Hair will peel off with the leaſt rubbing. 'Tis proper to let the *Horſe* Blood in this Diſtemper, and many other things are good for him; but more particularly, take a Gallon of Ale, ſet it on the Fire and ſcum off the Froth as it riſes; then put into it ſome Worm-wood and Rue, the tender Tops and Leaves, with Stalks very well pick'd, of each a Handful, and boil it to a Quart, then ſtrain it: Let three Ounces of London-Treacle be diſſolv'd thereinto, and put into it of Long-pepper and Grains, made into fine Powder, each an Ounce; and having brew'd the ſame well together, give it blood-warm, and Bath and Anoint his Legs that are ſwell'd with Train-Oil twice a Day, till the ſwelling is gone, then give him Maſhes, or White-water; Feed him with ſuch Meat as he will eat beſt; and if the Weather be ſeaſonable, turn him to Graſs, and he will do well.

For Greaſe fallen into the Legs.

TAke of Nerve-Oil, Train-Oil, and Oil of Bays, of each half a Pint, with the bigneſs of an Egg of Allom, boil theſe well together; then having cleanſed the Sores and opened the Pultis, if there be any, with Salve anoint the place grieved.

For the Scratches.

THE Scratches in *Horſes*, reſemble the Corns in Men's Feet; and to cure the ſame, the ſwollen Leg muſt be daily rubbed with Duke's Ointment; and then bring out the Corruption or Rotten bit of Fleſh with this Remedy; take four Ounces of freſh Butter, and as many of Oil Olive, which after you have beaten it with a Pint of common Water, and thickned with two Ounces of Linſeed Flower, boil it as if you were going to make Gruel; adding, a little before you take the Skillet off the Fire, two Ounces of Pigeon's Dung in Powder: And having firſt clipped off the Hair, charge the Sore warm. Upon failure of a Cure hereby, apply hot to it the Leaves of Colts-foot, long Sorrel and Mallows, of each a Handful, baked under the Embers, and beaten and incorporated together with Salt Butter. But if this will not do neither; bake four Lilly Roots under the Aſhes, and having beat them with three Ounces of Hens-greaſe, two of Linſeed Oil, and the Yolks of two hard Eggs, let them be all incorporated in a Mortar; applying ſome of it with Flax to the Scratches and lay a cover over it.

Keep the Sinew Leg always charged, if ſwollen, and as ſoon as the corrupt Fleſh comes out, let the Leg be waſh'd with warm Wine and Butter, and the Hole be fill'd with a Tent of fine Flax, moiſtned with *Baſilicum*, to ripen the reſt of the rotten Fleſh, or if the Fleſh be Sore and Frothy, with *Egyptiacum*: When the Wound is very large by the coming away of the rotten Fleſh, the Mundificative of Smallage is a proper thing to cleanſe it with; and the Ointment made of Honey, Verdigreaſe, Spirit of Wine and Flour, to dry it. On the other hand; when the Fleſh looks fair and clean, the beſt Application and that which dries moſt powerfully, is the Juice of great Celandine, Binding on Charcoal-duſt, ſearced Aſhes, or burnt Copperas. *Solleyſel.*

For Kibed Heels.

THis is a Scab breeding behind in *Horſes*, ſomewhat about the Nether-joint, growing overthwart the Fetlocks, proceeding ſometimes from being bred in cold Grounds, ſometimes from want of good Dreſſing, after he hath been rid or laboured in foul Ways; which Dirt ſticking to his Legs, frets his Skin, and makes ſcabby Rerfs, which are very painful to the *Horſe*, cauſing his Legs to ſwell, eſpecially in the Winter and the Spring, and then he goes very ſhifty. Having deſcribed this Evil, and finding the ſame Cure proper for it as for the Scratches, I need not repeat them.

For the Rat-Tails.

THis is a moſt venemous Diſeaſe in *Horſes*, and not much unlike the Scratches, proceeding ſometimes from too much Reſt, and the Keeper's Negligence in not dreſſing him well. To cure him, let him be rid till he is warm, which will make the Veins to ſwell, and the better appear; then bleed him well in the Fetlock-veins on both Sides, and next Day waſh the Sores with warm Water; then clip away all the Hairs from about the Sores, and anoint the grieved Place with an Ointment made of green Copperas and Verdigreaſe, of each two Ounces, and four of common Honey; beat the Copperas and Verdigreaſe very ſmall, and ſo work them with the Honey to an Ointment, and daily uſe it to the Sore, till well.

A Purgation for a Horſe *that is ſick of his Greaſe, or any Coſtiveneſs.*

TAke a Pint of good old White-wine, ſet it on the Fire, and diſſolve in it a Lump of Caſtle-Soap, as big as a large Pigeon's Egg; then ſtrain them well together on the Fire, then take it off, and put into it two good Handfuls of Hemp-ſeed finely beaten, with an Ounce and half of good Sugar-candy, beaten to fine Powder; mix all theſe well together: Then having warm'd the *Horſe*, to ſtir up his Greaſe, and other foul Humours, give him this to drink, and walk him for a little time after it, to make the Potion work; then ſet him up warm, and, after a little ſtirring him in the Stable; if he grows ſickiſh, let him lie down; then, after two or three Hours Faſting, give him a ſweet Maſh, and ſo feed him as at other times.

For the Malenders and Selenders.

THeſe Evils being before deſcrib'd, it's improper to dry up the Sore for the Cure, but qualifie the Sharpneſs of the acid Humour, by ſcouring off the Corruption ſticking on the Hair or Skin with black Soap, and rubbing the Malenders with it. In the next place, waſh the Part with Urine, good Lye, or Oil of Nutmegs ſhaken in Water; tho' the ſureſt way is once a Day to anoint the Sores with an equal Mixture of Linſeed Oil and Brandy, and ſhaken till white; but if there be a hard Swelling cauſed by the Selenders, ſo as to hinder the Motion of the Hoof, the Fire may be given to it with good Succeſs.

For Wind-galls and Cords.

THere is a certain Oily Beetle, or black May-Worm, which in *April* or *May* may be found in tilled Ground or Corn-fields between the Hours of Ten and Two in the Afternoon, and has the Reſemblance of a Head, at the End of its true Head, and a ſort of Wings, like two Targets, faſtned to its Body, though it does not fly. The Back is ſcaly, and its Tail very fat, and as it were welted. It has ſix Feet, and creeps ſlowly; the ſmalleſt is about an Inch long. This Inſect is cold to the Touch, and commonly, if placed on your Hand, will void a very ſtinking Oil. Take 300 of theſe Beetles, ſtamp them with a Pound of the Oil of Bay; melt and ſtrain this Stuff thro' a Linnen-cloth, after it has ſtood three Months, throw away the groſs Subſtance, and the remaining Ointment is of ſovereign Uſe for theſe Diſtempers, the ſame producing the Effect of a Retoire, by drawing out the Corruption, and raiſing Bliſters full of red Water, and ſucceeded by Scabs, that dry away of themſelves. The Hair muſt be firſt ſhaved off cloſe, and hold a hot Bar of Iron near the Part, when 'tis apply'd, and that muſt be done cold. It diſſipates the Wind-gall in nine Days, and the Swelling it occaſions muſt be allay'd by Brandy.

For Splents.

HAving already deſcrib'd them, note, in the firſt place, that violent Cauſticks, which often ſcale the Bone, and dry up the Sinews, are very pernicious, ſince they weaken the Leg extreamly: And therefore the better way is to ſhave the Hair off, to ſoften the Swelling with the Handle of a Shoeing-Hammer, and then to chafe the Splent with the Juice that ſweats out of both Ends of three or four Hazel-ſticks, burnt while the full Sap is in them, applying it as hot as you can without Burning. This done, let the Swelling be rubb'd or bruiſed with one of the Sticks, continuing to apply the hot Juice, and to rub it till it is ſoft. Double a Linnen-cloth five or ſix times, and apply it, after it has been dipt in the hot Hazle-juice, ſuffering it to remain 24 Hours. The Splent at the End of nine Days will be diſſolv'd, if you keep your *Horſe* in the Stable, and the Hair will grow; but if the Splent be not quite remov'd, renew the Operation.

Another Remedy is, that in *April* or *May* you will find a little, black, longiſh Inſect, about the Foot of the Stalk of the bulbous Crow-foot. It's no bigger than a ſmall Bean, without Wings, but has Legs; and you can ſcarce bruiſe it between your Fingers, 'tis ſo hard. Mix 3 or 400 of them with old Hogs Greaſe in a Pot, which cover very cloſe till they are quite dead, and with the Greaſe ſtamp them to an Ointment, which will be the better, the longer 'tis kept. Now the Splents having been ſoftned and prick'd after the uſual manner, apply the Ointment to the Thickneſs of a *French* Penny, with a red hot Fire-Shovel holden over it, to make it ſink in. It will draw out red Water, that after nine Days time will turn to a Scurf or Scab, which will afterwards fall off. But before the Applying of this Ointment, or indeed that of Beetles, to Wind-galls and hard Swellings, you muſt ſoften it firſt with a Pultis, made of two Ounces of Lilly-Roots, as much of Marſhmallows, of Leaves of Mallows and Violets two Handfuls each, one Handful of Dill, of wild Marjoram, and of wild Penny-royal, or Corn-mint. Let the Roots be boiled in Water for about an Hour, and mix the Water with about three Parts Oil; then put the Herbs to it, and when well boil'd, ſtamp all to a Maſh; ſhave off the Hair, and apply it warm to the Part you intend to ſoften.

For ſwell'd and gourded Paſtern-Joints.

WHen the Paſtern-joint ſwells after Travelling, you muſt chafe it Morning and Evening with a Mixture of two Parts of Brandy, and one of Oil of Nuts, well ſhaken together: But in a large Swelling the Red Honey-Charge muſt be applied, with a convenient Bath; and if it ſtill continues, apply the Remedy for hard Swellings occaſion'd by a Blow, before mention'd. A Pultis of Rue, boil'd in thick Wine, is proper, if the Swelling be hard: But the Joints ought to be bathed hard with a Lye, made of two Parts of Aſhes of Vine-twigs, and one Third of Aſhes of Tartar, if they are gourded for want of Exerciſe. And as a Swelling ariſes ſometimes on the Bone of the Paſtern-joint, a little towards one Side, about half the bigneſs of a Pigeon's Egg, which, if neglected, grows bigger, but is not very hard, nor does it make the *Horſe* to halt, apply to it a Reſolving Plaiſter of Gum-Armoniack, diſſolved in Vinegar, and boil'd to a due Conſiſtency.

For Cold, and all Swellings.

AS for thoſe Swellings that lie at a great Diſtance from the Center of natural Heat, Take green Walnuts, and ſo ſmall, that when they are cut they are equally ſoft; let them be maſh'd in a Marble-Mortar, and waſh'd thro' a Sieve with the Bottom turn'd up, beating what remains till the whole is gone through: Of this Pulp let there be two Pounds put into a glazed Earthen-pot, with a Pound of Salt well dried, and a Pound and a half of common Turpentine. Set the Mixture to ferment in a Cellar for fifteen Days; then put it on a gentle Fire to evaporate the Moiſture, ſtirring it all the while till reduced to a Plaiſter-Conſiſtence, which cannot ſo eaſily be done, and put it up cloſe cover'd in a Pot for Uſe. *Solleyſel.*

For a Spavin, Splint, Curb, or Ring-bone.

FIrſt clip away the Hair all about the Excretion, next take a Piece of Allum'd Leather, juſt as big as the Place where the Hair is cut away; then ſpread the ſaid Leather round the Edge with a little Shoe-maker's Wax; take the Herb *Sparagus*, (which hath the Vertue to raiſe Bliſters) bruiſe it in a Mortar, and lay it on the Leather, in the middle, where the Wax is not, which ought to be the Bigneſs of the Knot or Excretion, and bind it faſt thereon, and ſo let it lie (if in the Spring or Summer, when the *Sparagus* is in its Vertue) two or three Hours; but if in Winter, when it has not that Vertue, then add to it a Drop or two of *Origanum*, and let it lie on a Day; and be ſure tye up the *Horſe*'s Head for about two Hours, leſt he bites it away. When you have taken off the Plaiſter, anoint the Place with Train-Oil luke-warm, and you ſhall find no Knot. The Author having furniſh'd us with one general Receipt only for the Splint, (of which before) Spavin, Curb and Ring-bone, as above, others give more uſeful Particulars.

For the Bone, or Dry Spavin.

THis is a hard Diſtemper to cure; however, the following Remedies may be tried: Take equal Quantities of white *Sublimate* and *Unguentum Apoſtolorum*, and apply it upon a Pledgit to the Spavin, having firſt caſt the *Horſe*, and open'd and ſcal'd the Spavin with a ſharp Inſtrument; defend the adjacent Parts, eſpecially the Maſter-vein, from the Corroſive, by applying dry Lint, and when the Vein is to be laid open, great Care muſt be had that the Maſter-vein be not touched. Round about the Hoof apply a Plaiſter of Pitch, Turpentine, Hogs Greaſe and Roſin above the Corroſive. Let it be open'd after 24 Hours time, and apply a freſh Corroſive, if the former has not ſufficiently conſumed it; then dreſs the Wound with a warm Salve of Deer-Sewet, Wax and Turpentine. To prevent a Swelling from running into a Spavin, ſhave the Hair about it, and let it be anointed with a natural Balſom for two or three Days: Afterwards make a Charge of an Ounce of Bole-Armoniack, half an Ounce of Wheat-flour, three of the Oil of Roſes, and the White of an Egg, and apply it.

For the Blood-Spavin.

THE Blood or Wet Spavin is a Swelling in the Hoof, ſupply'd continually with Blood from the Maſter-vein. The Cure of it is eaſier than that of the Bone Spavin: Firſt ſhave off the Hair, and having taken up the Vein, let it bleed as long as it will; apply a Cataplaſm of Cows-Dung, and bruiſed Linſeed, as hot as it can be endured, twice a Day, with which having ripen'd the Spavin, break it, and apply a Plaiſter of Pitch, which muſt not be remov'd till it falls off of it ſelf.

For the Curb.

THE Curb is cured by applying whatever is good for the Spavin, or elſe let the Hoof be ſtrait bound with a broad Incle a little above the Curb; then rub and heat the Curb with a ſmooth Hazle-ſtick, afterwards thruſt out the Corruption, and put two Barley-corns of white Mercury for 24 Hours into the Hole, and anoint it with melted Butter once a Day.

For the Ring-bone.

IF you find a hard callous Swelling growing on one of the Tendons, between the Coronet and Paſtern-joint, and ſticking very faſt to the Paſtern; and if upon handling the ſame the *Horſe* does not complain much, 'tis the Ring-bone, whoſe preſſing Bulk, when near the Coronet, intercepting the Nouriſhment, makes the Foot ſhrink, and the Hoof wither, and at length lames the *Horſe*; ſo that its Deſcending lower on the Coronet is a Sign of Danger. A Strain cauſed by Curvetings, Boundings, Turns and Races, is the uſual Sign, tho' it be ſometimes hereditary. At other times it has its Riſe from Backing a young *Horſe* before his Joints are well knit. An incurable Lameneſs will enſue from it, unleſs timely Care be taken of it. Its firſt Appearance is ſometimes no bigger than a Bean, but in time mounts to half the Size of a ſmall Apple, appearing on both ſides the Paſtern, with a little Riſing between them.

In order to the Cure of the Ring-bone, let the Hair be clipped off, the Sole taken out, ſome Oil of Bay, with Flax, a Cover and Bandage apply'd to the Ring-bone. In two Days after let the Scurfs raiſed by the Oil be ſeparated, and the Application renew'd with the ſame Flax. The Fruſh muſt be cleared when the Sole is taken out, and when the Dreſſing with the Splents is fitted to the Sole. Rowlers muſt be thruſt into the Clefts to keep it open, and one Bandage will ſerve both for the Ring-bone and Fruſh.

But when this Evil increaſes to any conſiderable Bigneſs, Fire is the common and moſt certain Cure; but the Sole muſt be taken out firſt, and ſix Days after, when the ſecond Dreſſing is removed, make Inciſions with your Fleem, beginning above, and reaching downwards about a Finger's Breadth from each other. The Skin muſt be cut to the *Callus* that cauſes the Ring-bone, through the whole Extent of the Swelling, but without injuring the Coronet. The great Flux of Blood muſt be ſtopp'd with the Application of Turpentine, Flax and a Bandage, letting it remain untouch'd for 48 Hours: Then remove the Dreſſing, and with Dexterity burn the whole *Callus* with a red hot, but not blazing Knife, and do not preſs too hard upon the Part. The whole Tumour muſt be carefully penetrated thro', ſince if any Part thereof is left, your Labour is loſt. This done, a Mixture of Turpentine, Tar and Honey, or otherwiſe an Ointment of Hogs-lard and Verdigreaſe is to be apply'd, with Flax, and a Cloth wrapt over it, till the Scabs fall off. Afterwards let the Sore be dreſt with *Ægyptiacum*, or *Schmit's* Ointment, or the Ointment *Apoſtolorum*, till it has done running. In the Interim, the Sore ſhould be always kept covered, as well to hinder the Growth of proud Fleſh, as the *Horſe* from reaching it with his Teeth: Beſides, let not the Bandage be tied too hard, leſt it may cauſe an exceſſive Tumour. The beſt way is to renew the Dreſſing daily, or at leaſt every other Day.

For preventing the Swelling of the Legs after a Journey.

SEeing 'tis common for the Legs of a *Horſe* to ſwell after a great Journey, or long Galloping, as ſoon as he is put into the Stable you muſt charge the Parts with Cows Dung, mixed with Vinegar, which will alſo cure, as well as prevent. The following ſimple Charge is alſo very good for it, as well as for Blows, Strokes, Bruiſes and Hurts in any Part of the Body. Having mix'd a Pound of Wheat-flour with White-wine, to the Conſiſtence of Gruel, boil'd over a gentle Fire, and continually ſtirr'd till the whole be united, let a Pound of *Burgundy* Pitch be melted in a Skillet, and a Pound and a half of Honey, with a Pound of common Turpentine, be added and mixed with the Gruel, moderately hot: Add likewiſe two Pounds of Oriental Bole, in Powder, to it, after the Veſſel is taken off the Fire; make a Charge, apply it hot, and let it be repeated till the Swelling is aſſwaged.

For Broken Legs.

THough the Cure of a broken Leg, or Thigh-bone in a *Horſe* be very difficult, yet it has been done after the common Method of Splints and Bandages in Men, the Wound being dreſt daily, and the Beaſt turn'd looſe: For a *Horſe* can reſt on three Legs, though probably it would be better if he were hung in a Stable.

For ſtiff and decay'd Legs.

THE Red Honey-Charge is very good; otherwiſe mix a Quart of Spirit of Wine, half a Pint of the Oil of Nutmegs, and half a Pound of Butter, in a glaz'd Earthen-pot, cover'd with a ſmaller, exactly fitted to it. Let the Junctures be carefully luted with Clay, mix'd with Hair and *Horſes* Dung; and when the Cement is dry, ſet the Pot on a very gentle Fire, and let the Ingredients be kept boiling very ſoftly for eight or ten Hours; then ſet it to cool, and after you have firſt rubb'd the Maſter-Sinew with your Hand to heat it, chafe it with this Compoſition, and repeat it every Day.

Others preſcribe a ſufficient Quantity of Worms to be waſh'd, and put into clean Water for ſix Hours, in order to caſt all their Filth, and then put them into an Earthen-pot, with ſo much Oil-Olive as may riſe the Breadth of two Fingers above them. Let the Pot be covered, and the Junctures luted with Clay, mix'd with Hair, or Saddle-ſtuffings; then bury it in warm Horſe-Dung, and take it out after three Days, and as many Nights ſtanding there: Let it be uncover'd as ſoon as 'tis cold, taking care to avoid the noiſome Smell: Then ſtraining out the Oil, daily anoint the *Horſe*'s Legs therewith for twelve Days together, eſpecially the Sinews; but you muſt heat them firſt with the Rubbing of your Hand. This done, let each Leg, in order to make the Oil ſink in, be fomented with a Quarter of a Pint of Brandy; but in caſe the Oil does not ſufficiently operate, 'tis proper to add an Ounce and a half of the Oil of Caſtor, as much of thoſe of Foxes, Camomil, and Lilies to a Pound of it, as alſo two Ounces of Marſhmallows, and of *Populeum*. The whole being mixed over the Fire with Bees-wax make an Ointment of them, and uſe as much as a Walnut of it daily for each Leg, in the ſame manner as the Oil. The Ointment will make the Hair fall, but it will grow again, without leaving any Mark.

For tired Legs.

TAke a Gooſe moderately fat, and being made ready as for the Spit, let her Belly be ſtuff'd with the Leaves of Mallows, Sage, Roſemary, Thyme, Hyſſop, Lavender, Mugwort, and other convenient Herbs, with a large Quantity of green Juniper-berries beaten. This done, let the Skin be ſew'd up, and in a glazed Earthen-pan bake her in an Oven, that you may not loſe the Fat or Greaſe, with which anoint the Legs of a tired *Horſe* every Evening for ſeven or eight Days together, and chafe them with Brandy above the Greaſe next Morning. Let a tired *Horſe*, in Summer eſpecially, ſtand every Day two full Hours up to the Hams in Water; and in *May* make him lie abroad in the Dew, or lead him every

Morning out into a Mead, bathing and rubbing his Legs with the Dew, gather'd with a Spunge.

For hard Swellings, occaſion'd by a Blow.

REduce to a thick Froth the Whites of ſix Eggs, beaten with a large Piece of Allum, for half a Quarter of an Hour; to which add a Glaſs of true Spirit of Wine, and incorporate them by Shaking. Mix the whole with half a Pound of Honey, and charge the *Horſe*'s Legs three or four times, ſcouring of the Charge in Diſh-water. When there is occaſion, let the Charge be repeated; 'tis an excellent Remedy both for Fore and Hind-legs.

Another eaſie Remedy for this Evil, is to rub the Part hard with ſtrong Brandy, and then to charge the whole Leg with common Honey, renewing the Application once a Day for ſix or ſeven Days. You ſhould then waſh your *Horſe* in a Pond or River twice every Day.

For old Swellings, following an ill cured Sinew-Sprain.

THough the Lameneſs is gone, yet the undiſſolv'd Humours ſometimes gather into very hard Swellings, upon an ill-cured Sinew-Sprain; and in that caſe, take a large Pint of Linſeed-flour, as much of Bean-flour, and a Pint and a half of the ſtrongeſt Brandy; ſtir them continually as they boil over a ſmall Fire, till they come to the Conſiſtence of Gruel; then adding a Pound of Honey, let them be ſtirred and boiled till the whole incorporate; then taking it off the Fire, mix it with half a Pound of Mule or Hogs Greaſe; ſhave the Part, chafe it very hard with cold Spirit of Wine, charge the Part with the Compoſition, and let it be cover'd with Flax, wrapping about it a piece of Linnen-cloth to be ſew'd on; and two Days after take off the Dreſſing, bathe the Part with Spirit of Wine. Repeat daily the Application, and the Swelling in five or ſix times dreſſing, may be aſſwaged with little Charge or Trouble.

For hard Swellings incurable by the common Remedies.

AS it frequently comes to paſs, that the Swelling is grown ſo hard and inveterate, that it will not yield to any Application, the Fire muſt then be given along the Swelling, beginning at the Top, and drawing the Lines or Strokes downwards, at the Diſtance of half a Finger's Breadth from one another, or if you pleaſe croſs-ways. At the ſame time you muſt take heed not to pierce the Skin, and above all to draw a Line on each Side of the Leg, between the Sinew and the Bone, deſcending as far as the Paſtern. If the Strokes be only made of a Cherry-colour, there will be no Need of Plaiſters; only the ſeared Part ſhould be waſhed with Honey and Brandy till the Scab falls off, and the Sores bathe with Spirit of Wine. Conſume any over-grown Fleſh that may be with Allum, and, upon a Failure of that, with the Powder of Copperas. In caſe you give the Fire croſs-ways, round the Hinder-leg, let the Lines meet on the middle of the Back-Sinew; but there is no need of drawing the Strokes over the Bone in the Fore-part of the Leg. Note, that the Fire muſt be given in the Wain of the Moon, and the *Horſe* muſt reſt Nine Days for the Augmentation, Nine for the ſettled State, and Nine for the Abatement, enſuing upon the Operation.

For ſwell'd gourdy Legs.

IF a Swelling upon the Legs be occaſion'd by a ſlight Accident, it may be removed by applying cold Lees of Wine, mix'd with a fourth part of Vinegar, to it once a Day; but if that fails, boil a Gallon of the Lees of Red Wine ſoftly over a calm Fire, and ſtir them continually till they begin to thicken; then add to them two Pounds of fine Wheat-flour, and as much Honey, with a Pound of Black Soap; and having boiled and ſtirred them, till the whole is reduced to the Conſiſtence of a Charge, apply it every Day.

For hard Swellings or Tumours in the Legs.

WHen the Tumours are hard, and of long Continuance, take a Pint of the *Horſe*'s own Urine, or for want of that of Cows Urine, half an Ounce of Flour of Brimſtone, and a Dram of Allum, and having boil'd it away to half a Pint, let the hard Swelling be chaf'd therewith every Morning and Evening, and wrap an old Rag, dipp'd in the ſame, about the Part. Others, to remove hard Tumours in the Leg or Thigh, either in the *Spring*, or *Advent* before *Chriſtmas*, take ten Pounds of green Mallow-Roots, (at other times ſix Pounds of the dry Roots) beat them to Maſh, boil them gently with ten Quarts of Water in a Kettle for two Hours; then pour in as much hot Water as was boil'd away, adding three Handfuls of Sage-Leaves; and continue to boil an Hour and a half, or two Hours longer: Then taking the Kettle off, incorporate the whole with two Pounds of Honey, and one of Black Soap. Let it cool till you can even endure to thruſt the End of your Finger into it, and then add a Quart of ſtrong Brandy to it. Foment the Swelling daily with this Bath, then chafe it with a Handful of the Dregs of it, and walk the *Horſe* for half an Hour. If you perceive it tends to a Suppuration, omit both, and apply Baſilicon. *Solleyſel.*

For Caſting the Hoof.

THis is when the Coffin falls clean away from the *Horſe*'s Foot, and comes by means of ſome Foundring, Prick, or Slap, which breaks on the Top round about the Coronet, that in time cauſes it to fall off. The Cure is, 1. To take the ſtrongeſt *Aqua fortis* that can be got, and firſt with a Rake, or Drawing-Iron, file or draw away the old Hoof ſomewhat near; and being ſo prepared, touch it with your *Aqua fortis* three or four ſeveral Dreſſings, and no more, and ſo anoint the Foot with an Ointment made of Hogs Greaſe two Pounds, Potch-Greaſe two, Venice-Turpentine one, new Wax half a Pound, and Sallet-Oil as much, which melt, and mix all upon the Fire, and anoint the Coffin of the Foot up to the Top, and this will bring a new Hoof. 2. Others take half a Pound of Turpentine, as much new Wax, and half a Pint of Sallet-Oil, all, except the Turpentine, melted together, till they be well mixed. Add the Turpentine a little before 'tis taken off the Fire, and ſtir it till it be cold. But before-hand make a Leather-Buſkin, with a thick Sole, fit for his Hoof, but wide enough to be tied about his Paſtern; and dreſs his Hoof with this Medicine, laying Tow or Hurds thereon, and ſo put on the Buſkin, faſtening it to the Paſtern-joint, or a little above, but ſo as not to trouble the Foot. Renew the Medicine as there is Occaſion, and as the Hoof begins to come; and as the Hoof grows harder and thicker in one Place than another, or crubbles, or grows out of Faſhion, take the Rape, and file it into good Faſhion again; and when you find him ſo well, that you may turn him out, put him into ſome moiſt Paſture or Meadow, which will cauſe the Hoof to become tough.

For a looſen'd Hoof.

THis is a Diſſolution or Dividing the Horn or Coffin of a *Horſe*'s Hoof from the Fleſh, at the Setting on of the Coronet. Now, if the Paring be round about the Coronet, it comes by means of Foundring; if in part, then by ſome Prick of ſome Channel-nail, Quitter-bone, Retreat, Gravelling, Cloying, or the like. The Signs are theſe: When the Hoof is looſen'd by Foundring, it will break firſt in the Fore-part of the Coronet, right againſt the Toes, becauſe the Humour does always covet to deſcend towards the Toe: But if it proceeds from Pricking, Gravelling, and ſuch like canker'd Things, then the Hoof will looſen round about equally even at firſt; but if it proceeds from a Quitter-bone, or Hurt upon the Coronet, then will it break right above the griev'd Place, and is very rarely ſeen to go any farther.

There are ſeveral Sorts of Cures preſcribed for it: 1. If the Hoof be looſe, you are to open it in the Sole of the Foot, ſo as that the Humour may have free Paſſage downwards, put a Reſtrictive Charge about it, and then heal it up with Turpentine and Hogs Greaſe melted together. 2. Some take two Spoonfuls of Tar, a Quarter of a Pound of Roſin, half a Handful of Tanſie, the ſame Quantity of Rue and red Mint, and equally of Southern-wood, bray'd all together in a Mortar; to which add half a Pound of Butter, and a Penny-worth of Virgin-Wax; melt them on the Fire till they come to be a thick Salve, which ſpread upon a Cloth, and apply it for ſeven Days together. 3. Others anoint it with *Burgundy* Pitch, or boil Betony, Roſemary, Rue, Bole-Armoniack and Frankincenſe together, and lay it over it. 4. Tar, Brimſtone in fine Powder, Wheat-Bran, and the Urine of a Man-Child, boil'd all to a Pultis, and apply'd hot to the Hoof, will faſten it: So will the Brains of a Pig, or Flax dipp'd in the Whites of Eggs, or waſh'd with Vinegar, if ſtopp'd therewith, and fill'd with Tartar and Salt, then anointed with *Olibanum*, Maſtick, Pitch, or Greaſe, of each alike, with a little Dragon's-Blood, new Wax and Sheeps Sewet melted together; and if the new Hoof comes, cut away the old one.

For the Malt-Long, or Malt-Worm.

THis is a Cancerous Sorrance about the Hoof of a *Horſe*, juſt upon the Coronet, which will break out into Knobs and Branches, that will run with Wateriſh ſharp Lye, or Humour, which will Poiſon the whole Feet, that are ſigns enough to know them: To cure theſe; if in Summer-time, beat black Snails and Burdock Roots well together, and lay them upon the Sore, renewing them once in twenty-four Hours; but if in Winter, take the ſcraping of a Pan or Caldron, and put into it a Handful of the inner Rind of the Elder-tree, and having beaten them well together in a Mortar, lay it to the Sore and renew it once a Day: Or you may take a like quantity of Pepper, Garlick and Honey, ſtamp'd together, and lay it on.

For the Hoof-bound, or Waſted and Shrunk-Feet.

THE conveying of Nutriment to the Feet, being frequently interrupted by Diſorders in the Legs and adjacent Parts, the Feet dwindle and the Hoof ſounds hollow; to cure this Evil, take a red hot Knife, with which Rake the whole Foot, as deep as a Crown piece, avoiding the Coronet; then apply this Pultis, and charge the whole Foot with the following Remolade: Boil two parts of Sheeps-dung, and one of Hens-dung, in a ſufficient quantity of Water and Salt, to the conſiſtence of Paſte; boil in another Veſſel a convenient quantity of Mallows to a Maſh, adding a convenient quantity of Linſeed in Powder, and let it boil a little longer: Beat them in a Mortar with an eighth part of raw Garlick to a ſoft Paſte; incorporate it with the former, adding a little Oil of Lillies; this Pultis muſt be applied very hot, and cover'd with Splents, and the Application muſt be renew'd five or ſix times once a Day; always minding to heat the Old Pultis, and mix only a little freſh with it. The Remolade conſiſts of a Pound of Burgundy Pitch; four Ounces of common Turpentine, and two of Oil Olive, which being thickned with a ſufficient quantity of fine Flower, after applying the Pultis, charge the whole Foot with it luke-warm.

In caſe one of the quarters of the Hoof, as it frequently happens, is ſhrunk and dried up, while all the Nouriſhment falls on the other, eſpecially near the Heels of the Fore-feet, and inſide of the Hoof; let ſeven or eight Lines be drawn upon the ſhrunk Quarter, from the Coronet to the Shoe, with a red hot Iron, without touching the Hair; and then apply the Pultis and Remolade as before; but upon failure of this, the Sole muſt be taken out, and the Fruſh cleft with a Fleam in the middle, piercing to the Paſtern, and fill the Clift with a great number of Bolſters, beſmear'd with a mixture of equal Parts of Tar, Honey and Turpentine boiled together.

To make the Hoofs grow quickly, and to be tough and ſtrong.

TAke ſeven Ounces of Juice of Garlick, two Pound of old Hogs-greaſe, and one handful of Aſſes, or Cows-Dung, mix them and boil them all well together, and with this both ſtop his Feet and anoint the Cronets of his Hoofs.

For any Founder, Surbait, or the like in the Feet.

A *Horſe*'s Hoof is ſaid to be Surbated, when the Sole is worn, bruis'd or ſpoil'd by Travelling without Shoes, or in hot Sandy Ground, or with a Shoe that hurts the Sole: Our Author's Preſcription is:

Firſt, Pare thin, open his Heels wide, and take a good quantity of the Blood from the Toes, then tack on a Shoe ſomewhat hollow; next take Frankincenſe, and rouling it in a little fine Cotton-Wooll or

Bombaſt, with an hot Iron melt it into the Foot betwixt the Shoe and the Toe, until the Orifice where the Blood was taken away is filled up; Then take half a Pound of Hogs-greaſe, melt it on the Fire, and mix it with Wheat-Bran to make it thick like a Pultis; then ſtop up his Foot therewith as hot as he can endure it, covering it with a piece of an old Shoe, and ſplint it up, cauſing him to ſtand ſtill for three or four Days; and if occaſion requires, renew it till the Cure is perfected.

The *Compleat Horſeman* adviſes, if the Shoe bear harder upon one part of the Foot than the reſt, to pare the whole Foot a little, and where it appears red and bruis'd, to thruſt in the Buttris deeper, paring the Sole to the Quick: Then apply the Ointment for Pricks hereafter mentioned; tack on the Shoe with four Nails, and renew the Application, till the *Horſe* ceaſes to Halt: You are to take the Shoe off from that Foot that is heated by riding in hot and ſandy Ground, to pick the Foot, to ſtop it with melted Tar, and anoint it with the Ointment of the Hoof: If theſe Remedies prove ineffectual, you muſt at laſt take out the Sole; for which End, the Uſe of the ſame Remedies is very effectual, becauſe they moiſten and ſoften the Foot, and prepare the Sole for being taken out with leſs difficulty and Pain.

A general Salve for any Sore ſwelling.

TAke Turpentine, Black Soap, Hogs-greaſe and Pitch, of each a like quantity; mix and boil them well together, and apply it warm to the Grief.

The Farcy.

TAke a handful of Rice and ten Cloves of Garlick, beat them together; then take a Pennyworth of *Aqua vitæ*, and ſtrain them through a Cloth; then take a little Black Wooll to drink up the Moiſture, and put into each Ear half the Wooll, and ſew up the Ears together; then cut his Forehead and put into the Hole the inner Rind of an Elder-ſtick about an Inch long, and keep him in the Houſe that no Wet fall into his Ears the firſt Day and Night.

The Farcy (ſays *The Compleat Horſeman*) is a Swelling that frequently appears with an Ulcer ſpreading almoſt all over the whole Body, ariſing from a certain malignity of Humours, and corruption of the Blood: Some Affinity it has with the *French* Pox in Men, and by removing the Cauſe, which is Purging and ſweetning the Blood, is Cur'd like it; therefore let the *Horſe* be fed with moiſtned Bran, Bled, and two Days after kept Bridled for ſix Hours, or till Morning, when you are to give him Saſſafras-Wood, Sarſaparilla and Guaiacum in groſs Powder, of each three Ounces in a Quart of White Wine: And when you have rinſed the Pot and Horn with half a Pint of the ſame Wine, let him drink that alſo and be kept Bridled ſix Hours; after which let him eat moiſtned Bran and Hay for two Hours together; ſtand Bridled all Night, and have the ſame Doſe next Morning, and continue this Method, if it be neceſſary for ſix Days; open the Knots, if they break not of their own accord, when they are ripe, and after all the Matter is got out, let them be daily dreſt with Ointment of *Portugal*.

When it happens that the *Horſe*'s Liver and Lungs, thro' the long continuance of the Diſtemper, comes to be waſted and corrupted, and that the Diſtemper be attended with a running at the Noſe, or ſeizes on the Kernels, or that the Knots void great pieces of Fleſh like Muſhrooms, if the preceding Remedies will not do, he is incurable: However, if the Lungs are only dried, and but ſlightly Ulcerated, his Champing upon two Ounces of Aſſa Fœtida for twenty-four Hours together without eating, will make him evacuate a prodigious quantity of filthy Humours; and having after twelve Hours reiterated the ſame, if the *Horſe* be Fleſhy and full of Raw, Tough and Viſcous Humours, make an Infuſion four Hours together, on hot Aſhes of ten Ounces of the Shavings of Guaiacum-wood, or of Box-wood for want of it, in nine Pints of Water, which boil to the conſumption of the third part of it with a gentle heat in a covered Veſſel; let the *Horſe* for eight Days together, have a quarter of it ſtrained every Day, and be kept Bridled three Hours before and after, and laſtly Purged.

But in caſe the *Horſe* is Lean, Dry and Cholerick; after you have infus'd, for fifteen Hours together, four Ounces of China Roots cut very ſmall, into a large Glaſs-bottle well ſtopp'd; boil them gently in a cover'd Veſſel till half is conſumed: You muſt give him a third part of the ſtrain'd Liquor lukewarm every Morning, and he muſt be kept Bridled two Hours before and after: You muſt prepare freſh every three Days, and Purge him after eight Doſes: Give the Decoction of Sarſaparilla prepared like that of China, only a third part more of Sarſaparilla, to prepare thicker Humours in order to Purging, to a *Horſe* of a middle Stature, it will have the better Succeſs. The Decoctions are to be repeated to dry the Habit of the Body after Purgation; this is alſo a good Method to be taken for Coach *Horſes*, that have filthy Sores and Pains in their Legs: But in lieu of the Decoction, two Ounces of the Powder of the reſpective Ingredients may be exhibited in a Quart of White Wine: Tho' not quite ſo good, eſpecially the China, for Lean, Dry and Cholerick *Horſes*.

For any Mange, Scab or Leproſie.

LET Blood; then take a Quart of Wine, or Vinegar, put therein a quarter of a Pound of good Tobacco; then ſet it on an Ember-fire to ſimper, and not boil, for a whole Night; then ſtrain it, and with this Water waſh the infected place, as often as occaſion requires, until it is cured.

This general and ſingle Receipt of our Author, appearing not comprehenſive enough for the Diſtempers, it's preſcribed for, the Appendix to the Abridgment of *Solleyſell* furniſhes us with another Remedy called *Neat-Herd*'s Ointment, prepared with two Ounces each of burnt Allom and Borax in fine Powder, and four Ounces each of White Vitriol and Verdegreaſe in fine Powder alſo; put 'em with two Pounds of Honey into a very clean Pot, and over a clear Fire let 'em be boil'd and ſtirr'd together till well incorporated; two Ounces of ſtrong *Aqua Fortis* is to be added to it, when cold, let it be well covered for uſe, and for the firſt ſix Days ſtir it once a Day: Two Applications at moſt will do; but the *Horſe* muſt be kept from reaching it with his Teeth; and the place muſt be firſt ſcraped, if his Tail be Mangy.

It's no matter that this Ointment ſometimes makes the Skin fall off like Scales, but if it be anointed with Tallow, all will be well; it's alſo good for moſt ſorts of Sores, Wounds and Ulcers; but not to be applied when the Legs are ſwollen and gourdy; but the Humour ought firſt to be evacuated by the white Honey Charge or the like; and then dried up with this Ointment: The ſame Remedy cures the Sores in the Urinary Paſſages of Oxen, which proceed from their being naſtily kept.

There are other particular Receipts ſet down in *The Compleat Horſeman*, as 1. Let the Mangy part be waſhed with the Infuſion of two Handfuls of Staveſacre-Seed in a Quart of ſtrong Vinegar, and hot Aſhes. It will cure them with twice Bathing. 2. Rub the Parts once or twice at moſt, for fear of Ulcerating with a large Handful of Louſe-wort, or Baſtard Hellebor. 3. Others take green Copperas and burnt Allom, four Ounces of each, which they boil with two Handfuls of Arſmart, in two Quarts of Vinegar till half is waſted, and having firſt rubb'd the *Horſe*'s Legs with a Wiſp, waſh them with this Liquor; remembring always that the Cure of this Diſtemper muſt be begun with Bleeding.

For the Fruſh or Scabby Heels.

AN Itching and Eating Scab ſometimes waſts the Fruſh, and makes a *Horſe* halt; and the ſame is troubleſome and painful, tho' not dangerous: you'll know it by it's ſtinking like old rotten Cheeſe, and his beating the Ground with his Feet, by reaſon of the Itching. The Fruſh muſt be pared very cloſe with a Buttris, and having quenched unſlacked Lime in Vinegar, throw the ſtrained Liquor boiling hot upon the Fruſh; then apply a reſtringent Charge of unſlack'd Lime, and the ſecond Water, or the black Reſtringent of Soot, Vinegar and the Whites of Eggs: If after cleanſing the Sores, it does return, Bleeding frequently in the Toe and applying of *Neats-herd* Ointment will ſerve for a Palliative; tho' the internal Cauſe can hardly be removed. For Preſervation; let the Heel be often pared, and the place rubb'd once or twice with the ſecond Water, and when the Scabs are thus dried up, bathe cold every Day the Part, with half a Pound of Allom, and as much of White Vitriol, boiled in a Gallon of Water, till reduc'd to two Quarts; and more eſpecially when the Itching is gone, melt Tar or black Pitch upon the Scabs, and keep the Feet well pick'd and free from Duſt and Dirt.

For the Crown-Scab.

THE two ſorts of Crown-Scabs having been deſcribed before, the Cure is to infuſe two Ounces of Braſil Tobacco, cut ſmall and purg'd of the Stalks, for twelve Hours, in half a Pint of ſtrong Spirit of Wine, ſtirring them every Hour to promote the better Extraction of the Tincture: Let the Scabs be rubb'd hard once a Day with an handful of this Tobacco; the Part being firſt chafed without taking off the Skin: This indeed and all other drying Remedies are only Palliative: For the Scab frequently breaks out again after a ſeeming Cure; and then with a Wiſp of Hay rub the Part, till it grows hot, without drawing Blood or taking the Skin off, and touch it gently, once or twice at moſt, with ſome Cotton dipt in the Spirit of Vitriol, or dreſs the Sores with *Neats-herd*'s Ointment: Great Caution muſt be had that you do not apply too much or too ſtrong Spirit of Vitriol at firſt: Some are of Opinion that the Spirit of Salt being a more powerful Cleanſer, it's to be preferr'd before that of Vitriol in a Crown-Scab, tho' in inveterate Caſes, neither of them is infallible: Sometimes the Scab may be cured by bathing with Spirit of Wine, impregnated with as much Sal Armoniack as it will diſſolve.

To help a Horſe *that Galls between the Legs, through Heat or ill Dreſſing.*

TAke a raw Egg, cruſh it between his Legs, rubbing the gall'd place very well therewith after the Sores are made dry.

For a Canker in a Horſe's *Mouth.*

TAke half a Pint of the beſt White Wine Vinegar, half a Pound of Roach Allom, and a handful of Sage; boil theſe together, and therewith waſh his Mouth and Tongue. Thus far our Author; but others are more particular and copious concerning the Diſeaſes of the Mouth, as follows.

Of the Diſeaſes of the Mouth, and Loathing of Food.

BUT when a *Horſe* has a fleſhy Lump in the Roof of his Mouth, which you may perceive to riſe more, or leſs, above the Teeth, and is called the *Lampas*, and is common among young *Horſes*, paining them ſo as that they can ſcarce Feed; it muſt be taken away with a red hot Iron Inſtrument, at one Stroak, for fear of burning the Bone. *Barbs* are inconſiderable little Lumps of Fleſh under the Tongue, viſible when you put it aſide, which hinder the *Horſe* to drink; they are eaſily cured by cutting them off cloſe with a pair of Sciſſars, and rubbing the place over with Salt. Over-grown Grinders, whoſe Points are higher than the reſt, and prick the Tongue and Fleſh in Feeding, are called Wolfs-Teeth, and hinder the *Horſe* to Feed: Now if you feel the Points of his Grinders thro' his Lips, let his Mouth be opened with an Iron upſet, and upon ſeeing the Points, break them off with a Googe; or inſtead of that make the *Horſe* champ a great File uſed by Lock-ſmiths, a quarter of an Hour, on both ſides, till the over-grown Points are broke off.

A *Horſe*'s Mouth is liable to receive ſeveral ſorts of Wounds; as from the Bit, which if it has once hurt the Tongue, let it be ſhifted for a ſingle Canon-Bit; but if the Nether-Jaw be Ulcerated, and you feel a Prick upon the Sore with your Finger, it's a ſign the Bone is broke, and therefore put the Spirit of Vitriol, or Salt, with Cotton, and not by drops, into the Hole: Then rub the Sore daily with Spirit of Roſes, till the Scab falls off, and the Bone ſcales; after which waſh it with Brandy, and put Sugar into it, till it heals; but if you find it to be an Ulcer only with ſtinking Corruption, without Points or Scales, it will ſoon be heal'd with filling it three or four times a Day with Sugar beaten ſmall. If the Bone ſhould be ſplit quite downwards under the Fleſh of the Jaw, and produces a Tumour; ſound the depth of the Hole with a Probe, make an Inciſion with a red hot Knife, reaching downwards, and dividing

viding the Skin to the very Bone, touch the Bone ſeveral times with the hot Iron, conducting it thither with the Probe, till all the corrupt Part is thoroughly burnt; and to haſten the Scales to fall off, all the burnt Part ought to be anointed with Oil of Bays, every ſixth Hour, for two Days; and the Proud-fleſh which is apt to grow in the Hole, in the Beard, muſt be taken off, with a hot Iron or Sublimate.

A *Horſe* ſometimes cannot eat, by reaſon of ſome little Worms within his Lips above and below, that cauſe an Itching, and make him rub his Lips continually againſt the Manger: Theſe Worms, which look like little Puſhes, are diſlodg'd by cutting the uppermoſt Skin with a ſharp Knife or Lance, and rubbing the Inciſion with Salt and Vinegar: But when he wants an Appetite, proceeding from any other Cauſe, bleed him in the Morning in the middle of the Roof of his Mouth, between the two Crocks, but a Mare at the third or fourth Furrow, with a ſharp pointed piece of a Hart or Bucks-Horn. Give him two Pecks of moiſtned Bran to ſtop the Bleeding, and if that will not do, draw up his Head with a Halter, as if you were to Drench him; but the beſt way is to preſs an empty Nut-ſhell ſomewhat hard upon the Place, till it ſticks there. If the Diſtemper does not yield to Bleeding, give him good innocent Glyſters: There are many Remedies prepared for to recover a *Horſe*'s loſt Appetite, but the ſureſt is to give him an Ounce of Liver of Antimony, in fine Powder, with moiſtned Bran, which ſhould be repeated twice a Day for ſeveral Days, unleſs he inclines to void the Strangles. Champing upon a branch of Lawrel or Fig-tree, rubbed over after 'tis a little champed with common Honey or Honey of Roſes, is likewiſe proper.

Now to prevent a total Loſs of Appetite, the following Arman is of wonderful Efficacy, if the *Horſe* be not Feveriſh: Take a Diſh full of the Heart of a White Loaf, crumbled ſmall, moiſtned with Verjuice or Vinegar; put to it a ſufficient quantity of Salt and Honey of Roſes, or common Honey; put the thin Paſte into a Pot, and let it boil gently over a Fire about a quarter of an Hour, till the ſuperfluous moiſture be waſted; then add two Drams of Cinnamon in Powder, a dozen and an half of Cloves, a Nutmeg grated,and half a Pound of Powdred Sugar: Theſe boil again over a ſlow Fire for half a quarter of an Hour, that the Ingredients may be thoroughly mix'd, and the Spices incorporated with the Bread: But the Fire muſt be very ſmall, leaſt the vertue of the Aromatick Ingredients ſhould exhale; take an Oxe's Pizzle, let the great End of it ſoak in Water four or five Hours, till it be ſoftned; then make the *Horſe* chew it between his Grinders, to flatten it a little; or you may otherwiſe beat it with a Hammer; after which put the quantity of a Nut of the Arman upon it, open the *Horſe*'s Mouth,making him put out his Tongue on the one ſide, that he may not be able to ſtir it, and gently thruſt in the Pizzle with the Medicine as far as you can: Then letting his Tongue go, after he has champed a while, put more of the Arman on the Pizzle, thruſt it again into his Mouth, repeating the ſame five or ſix times every three Hours. It's a nouriſhing Medicine and infallibly retrieves the Appetite, clearing the *Horſe*'s Throat, in caſe any thing ſticks in it, and brings up a great deal of Bitter Cholerick Flegm which makes him loath his Food: Only care muſt be taken, that the Pizzle be well ſoften'd; and rather let him ſuck it in, than thruſt it violently forwards: Some there are who prepare chewing Pills, and others again Stomachick ones for the retrieving a *Horſe*'s Appetite; but the other being as it were a Catholick Medicine in that Caſe, we ſhall only add, that when a *Horſe* thro' Sickneſs has loſt his Appetite, he muſt not be forced to exceſſive Eating; and the beſt thing you can give him, is Broth made of a Pound of Barley-flour, well purg'd of the Bran, and boiled in two Pints of Water, to a ſufficient Conſiſtence, adding thereto a quarter of a Pound of Sugar, and giving it with a Horn once in four and twenty Hours.

For the Camery or Frounce.

THeſe are ſmall Warts or Pimples, in the midſt of the Palate of a *Horſe*'s Mouth, which are very Soft and Sore, and are bred ſometimes in his Lips and Tongue. It's occaſioned many ways, ſometimes by eating of wet Hay, on which Rats and other Vermine had piſs'd: Sometimes by drawing frozen Duſt amongſt the Graſs into his Mouth; and ſometimes by licking up of Venom. The Signs are the appearing of theſe Pimples and Whelks, and Soreneſs of them, with the Unſavorineſs of his Food, that he hath eaten before, and his falling from his Meat: They are cured by letting him Blood in the two greateſt Veins under his Tongue, and waſhing the Sore with Vinegar and Salt, or burning the Pimples, on the Head, and waſhing them with Ale and Salt till they Bleed.

Vives and Hemorrhagy, or Bleeding.

VIVES are Glands near the Throat of a *Horſe*, that ſometimes ſwell, and by their Preſſure upon the Throat, do ſo cramp Reſpiration, that he is in danger of being ſtifled. He frequently lies down and ſtarts up again, and tumbles about ſtrangely. It ariſes from Drinking, or being expoſed to Cold after a violent Heat, in which Caſe the Humours being melted down, fall too plentifully upon the Kernels; or Eating too large a quantity of Barley, Oats, Wheat or Rye, and ſeveral other Cauſes owing to the Indiſcretion of the Rider or Groom.

As to the Remedy, unleſs the *Vives* be very large, do not open but rot them away, by taking hold of the Kernels with a pair of Pincers or Plyers, and gently beating the Swelling with the handle of a Shoeing-hammer. or bruiſing the Humours with your Hand, till they are ſufficiently ſoftned: But this muſt not be done till the Swelling is ripe, which is known by the eaſie Separation of the Hair from the Skin. Now when you have rotted, or, in caſe of neceſſity, opened the *Vives*; let the *Horſe* be bled under the Tongue, and afterwards in the Flanks, and his Mouth waſhed with Salt and Vinegar: Squeeſe and rub his Ears hard to make the Vinegar you blow into them penetrate; for this very much allays the Pain communicated to the Jawes: And the next thing you have to do is to make him drink a Quart of Wine, with two handfuls of Hempſeed beaten, two Nutmegs grated, and the yolks of ſix Eggs, Walking him gently half an Hour after.

About half an Hour after he has had this Draught, which is a good and ſure Remedy, give him this Glyſter: Boil five Pints of Beer (or of Wine and Water) with an Ounce and an half of *Sal Polychreſt*

chreſt in fine Powder; remove it from the Fire, add thereto two Ounces of the Oil of Bays, and inject it blood-warm. But not to multiply Receipts; you will rarely meet with an Inſtance of the Vives, but this Medicine will Remove and Cure: Let him only drink an Ounce of Venice Treacle in a Quart of red Wine, or in caſe the Diſtemper be violent, in a Pint of Brandy; then having prepared a Glyſter of the ſoftning Herbs, Mallows, Violets, Herb Mercury and Pellitory of the Wall, of each an handful, with an Ounce and a half of Liver of Antimony in Powder, boil them in three Quarts of Water for a quarter of an Hour; ſtrain the Liquor, and add two Ounces of Venice Treacle with a quarter of a Pound of freſh Butter to it.

Having done with the Vives, we come to the Hemorrhagy or Flux of Blood at the Noſe or Mouth, occaſioned by unuſual Fatigues in hot Weather, which mingles a Salt or Spirituous Juice with the Blood, that makes it ferment and boil in the Veſſels; or by over Feeding, which cauſes too much Blood, or violent Exerciſe, that makes it boil up, and open the Mouths of the Veins: Now to ſtop this Flux or Bleeding, whether at the Noſe or Mouth, he muſt be let Blood immediately in the Flanks, or Plate-Veins of the Thighs, or rather Neck, if you take Blood enough in the other Parts: Then beat a large quantity of Knot-graſs, or Nettles, to a Maſh; with which having filled the *Horſe*'s Noſtrils, let ſome of it likewiſe be bound to his Temples, Reins, and even to his Stones, if he be not Gelt: Let him in Summer-time ſtand two Hours in Water up to his Flanks; or for want of that let his Head and Back be covered with a Cloth, dipped in Water and Vinegar, and doubled ſeven or eight times. He muſt not be ſuffered to lie down in the Stable, but muſt have his Head kept upright, and at times throw Water on his Sheath and Stones; Bleed him again next Day, and inject the following cooling Glyſter: Take Mallows and Marſh-mallows, of each an handful; two handfuls of Plantane; Succory, Lettice and Purſlane, of each an handful: Let them be boiled, with an Ounce and an half of *Sal Polychreſt* in Powder, in five Pints of Water: Add a quarter of a Pound of the Ointment *Populeum*, not adulterated with Verdigreaſe, or of the true *Unguentum Romanum*, to the ſtrained Liquor; and after you have raked the *Horſe*, make a Glyſter to be injected.

But if notwithſtanding the Precautions already given, the Bleeding ſhould continue, put into his Noſtrils ſome Plantane Leaves, beat and mix'd with Male Frankinſenſe, Aloes or Myrrh: Hold up his Noſe, and covering him with a Cloth dipt in Oxycrate, throw cold Water frequently on his Sheath and Stones: If the Blood ſtreams very much, blow ſome Powder of a Stone-Aſs's Dung plentifully into the *Horſe*'s Noſe, thro' a Glaſs Pipe, or Lead; which is an excellent Snuff; but for thoſe that look upon it as too Fœtid, let them in the Month of *March* kill and flea a Hare, and having prepared her for the Spit without Larding, inſtead of putting her on, dry her ſo in an Oven, that all the Fleſh may be reduced to Powder, which, if blown up the *Horſe*'s Noſe, will effectually ſtop the Blood.

The Strangles.

THE Strangles are a Collection of foul Humours form'd in the Body of a young Colt, which are voided by the Noſtrils, or a Suppuration of ſome Glands or Knots, that lie between the Bones of the lower Jaw, and are crowded with Impurities. The falſe ones happen in old *Horſes*, that have not well caſt the Strangles. Now if Nature has thrown out this Diſtemper, by a Swelling under the Throat, the Cure is, To mingle cold an equal Quantity of Oil of Bays and freſh Butter, but a double of the Ointment of Marſhmalows, with which anoint the Kernels under the Throat, and the Parts adjacent to the Jaws, every Day, in order to ripen them, keeping the Throat always warm with a Lamb or Sheep-Skin's Woolly Side next it: But if it does not ſuppurate with this, to each Swelling apply a red hot Iron, of a crooked Form, for fear of injuring the neighbouring Gullet; and when the Eſcar falls off, fill the Hole with a Tent, cover'd with the Ointment *Baſilicon*, adding Verdigris, or white Vitriol, or the Ointment *Ægyptiacum*, in caſe the Fleſh about the Sore is over-grown, bloody or foamy.

When the Humour is ſufficiently voided by the Noſe, keep the *Horſe* warm, and walk him Morning and Evening; when there is hard dry Matter in his Noſtrils, that hinders Evacuation, inject into them equal Parts of Brandy and Oil of Olive, warm, with a ſmall Syringe; but when Nature is too weak to throw out the Matter, ply him with Cordial Medicines, but above all with an Electuary made of the red Powder that falls from the Kermes-berries when ripe, of which, when it turns into little red Worms, you are to prepare Troches, with the Juice of Lemons, rectified to the Conſumption of a Fourth part. To four Ounces of theſe Troches add half a Pound of ripe and dry Juniper-Berries, Cubebs and Bay-berries, of each ſix Ounces; Roots of *Spaniſh* Vipers Graſs, Maſterwort, Zedoary, Florentine-Orris, and Shavings of Harts-horn and Ivory, of each four Ounces and an half; Elecampane-Roots, Orange and Citron-Peel, dried in the Shade, of each four Ounces; Cinnamon half an Ounce, Cloves and Nutmegs, of each two Drams. Make the whole into a fine Powder, ſearce it, and pour it by degrees to eleven Pounds of clarified Honey, after it has boil'd to half the Thickneſs of a Syrup. Let all ferment two Months in a Pot, then infuſe a Quarter of a Pound of this Electuary in a Quart of White-wine over Night, and give it the *Horſe* next Morning, keeping him bridled two Hours before and after. This is an excellent Medicine, and good alſo for Defluxions, Colds, Palpitation of the Heart, *&c.* And if the Troches cannot be had, their Place muſt be ſupplied with a Pound of the freſheſt and faireſt dry Kermes-berries: But this is not ſo good as the other, as being nothing but a Bark; but the Troches are the true Pith. Laſt of all, to promote the Evacuation of the Matter by the Noſe, when 'tis imperfect, Melt or fry a Piece of freſh Butter, as big as an Egg, till it grows black; add half a Glaſs of ſtrong Vinegar, and as much of Oil-Olive to it, and twice as much Pepper as you can mix with the Ends of your Fingers: Mix all, and pour it warm, one Half into each Noſtril, covering him immediately with a Cloth, and walking him half an Hour in your Hand. You need not be concern'd that this will make him heave, and beat in the Flanks for an Hour or two; for when he is put into the Stable, he will certainly void the Humour plentifully.

For Bangle-Ears.

YOU are to take the *Horſe*'s Ears, and to place them ſo as you would have them ſtand; and then with two little Boards, or Pieces of Trenchars, three Fingers broad, having two long Strings knit unto them, bind the Ears ſo faſt in the Places where they ſtand, that they cannot ſtir; then behind the Ear and the Root of the Ear you will ſee a great deal of empty wrinkled Skin, which you ſhall pull up with your Finger and Thumb, and clip away with a ſharp Pair of Sciſſars all the empty Skin cloſe by the Head; then with a Needle and red Silk ſtitch the two Sides of the Skin together, and with your green Ointment heal up the Sore; which done, take away your Splints that held up the Ears, and in a ſhort time you will find them keep in the ſame Poſition wherein you ſet them.

For the Crick in the Neck.

CRick in the Neck is when a *Horſe* cannot turn his Neck any manner of ways, but holds it forth-right, inſomuch that he cannot take his Meat from the Ground but with great Trouble and Pain. The Cure is, to thruſt a ſharp hot Iron through the Fleſh of the Neck in three ſeveral Places, at three Inches Diſtance, and have a care that no Sinew be touched, and rowel all of them with Horſe-Hair, Flax, or Hemp, for fifteen Days. Let the Rowels be anointed with Hogs Greaſe, the Neck will be ſoon reſtored; or elſe bathe his Neck with the Oil of Pepper, or the Oil of Spike, very hot, and then rowl it up in wet Hay, or rotten Litter; and keeping him very warm, without uſing any Burning, Wounding, or other Violence, he will do well. The Leaves alſo, or Roots of Down or Cotton-Thiſtle, Eringo or Sea-Holly, or Vinegar and Patch-Greaſe, melted together, and cloſed in very hot againſt the Hair, bathing it afterwards with Soap and Vinegar mixed together, is very good.

For a Quinſey.

THis is a Diſtemper incident to *Horſes*, as well as other Animals, being nothing but a ſore Throat, which, if not taken in time, will quickly put a Period to his Life. *Horſes* ſometimes catch it by the ſettling of cold and flegmatick Humours there, or for want of Bleeding when they are over-run therewith. 1. For the Cure, it's neceſſary he ſhould be bled under the Tongue; and if the Throat is ſo ſwell'd, that you can hardly get any thing down it, lay a Pultis under his Cawl, that will open the Paſſage; then take a Bull's Pizle or Whale-bone, about which tye a Linnen-Rag, and dip it into Milk, where Allum and the Powder of Dog's-Turd has been diſſolv'd; thruſt it up and down his Throat, and put a Handful of it down after it. If he is ſo bad, that he can eat nothing but what is given him with a Horn, which muſt be comfortable and cordial Things, let the Hornful of Milk, where Allum and Dog's-Turd has been diſſolved, be the laſt Thing given, otherwiſe it will do him no Good; and tye him up to the Rack half an Hour after it. This uſe twice or thrice a Day, or oftner, if there is Occaſion; four Ounces of the Juice of Cinque-foil, given down at a time for certain Days together, cures him; ſo does the Juice of Cotton-weed, taken in Wine and Milk. 2. Others having bleeded him under the Tongue, boil ſome Leaves of common Mallows in his own Piſs, and apply it like a Pultis, as hot to his Throat as he can endure it; then repeat it as there is Occaſion, and apply alſo the inward Medicine as the Receipt above directs.

For the Ambury.

THis is a great Spongy Wart, full of Blood, with a Root like a Cock-Stone, happening for the moſt part about the Eye-brows, Noſtrils, or privy Parts. In this caſe tye a *Horſe*'s Hair (which is much better than Thread) hard about the Wart, and in ſeven or eight Days it will fall off; but if the Wart happens to be ſo flat, that you can tye nothing about it, cut it round about with a ſharp hot Iron, and ſo deep as to leave none of the Root behind; and then dry it up with the Powder of Verdigreaſe: But where the Iron is improper, eſpeciall in ſinewy Parts, eat out the Core with white Sublimate; then having dipp'd Flax in the White of an Egg for a Day or two, ſtop the Hole therewith, and dry it up at laſt with unſlack'd Lime and Honey.

For the Head-Ach.

HOrſes are ſometimes ſubject to Pains in the Head, ariſing from extream Heat or Cold, Blows, or noiſome Smells. You may diſcover it by his hanging down his Head, dropping of his Urine, Dimneſs of Sight, ſwollen and wateriſh Eyes. Make him ſneeze by Fumigation, in order to a Cure; then bleed him in the Palate, keeping him faſting fourteen Hours after. In the next place, ſpurt Wine, wherein Euphorbium and Frankincenſe have been boiled, into his Noſtrils. Though others preſcribe to bleed him three Mornings together, then to walk him, a while afterwards to cloath him, and to cover his Temples with a Plaſter of Pitch. Let him eat but little, and ſtand in a dark Stable.

Poll-Evil.

THis Diſtemper is thus denominated from its Breeding in the Poll, behind the Ears, and is a great Swelling or Inflammation, cauſed by a Bruiſe or Blow, or the Horſe's ſtruggling with a new Hempen-Halter. There are ſome Poll-Evils in the Head, and ſome in the Neck, and the general Cure is to ſhave the Hair off, and to apply a Plaiſter of black Shoe-maker's Wax, ſpread upon white Allum'd Leather, till the Impoſthume breaks; then apply a hot Pultis of White-wine, boiling hot, mixed with the Loam of a Mud-Wall, Straws and all, renewing it once a Day, till the Impoſthume is well.

For the Falling of the Creſt, Mangineſs in the Mane, or the Shedding of Hair.

THey are Diſeaſes that proceed from Over-riding, or Poverty. The Creſt will certainly be raiſed by Blood-letting and good Keeping. The Mangy Mane is cured by anointing it with Butter and Brimſtone; and the Application of Southernwood-Aſhes, mix'd with common Oil, will make the Hair ſmooth, thick and fair.

For an Apoplexy, or Palſey.

A *Horſe* will be ſometimes ſo taken, either in his Neck, that he cannot put his Head down to the Ground, or in his After-parts, that he cannot riſe, the Sinews of the Flanks being palpably hard. He is cured by anointing his Neck with the Oil of Peter, drying the ſame in with a hot Iron; and then wind a Thumb-band, of the longeſt and hotteſt Dunghil-Litter, a little looſely about his Neck, from his Shoulders to his Ears: But if the Malady lies in the After-parts, lay him upon the Litter of a hot reeking Muck-hill, after the Parts are anointed, and lay a Cloth over that to keep it on, renewing it four times a Day.

For the Stag-Evil, or Palſey in the Jaws.

A *Horſe* is ſometimes taken with ſuch a Stiffneſs in the Neck and Jaws, that he cannot move them, but turns up the Whites of his Eyes, and is ſeized with a Palpitation of the Heart, and Beating of the Flanks at uncertain Intervals; and this Diſeaſe commonly proves mortal, if ſpread all over the Body. It has its Riſe moſtly from a *Horſe*, after a great Heat, being expoſed to Cold. The Preſcription to cure him are ſoftning Glyſters Morning and Evening, and Blood-letting once in two Days, till there are ſome Signs of Amendment. Put a little Bran, and ſo large a Quantity of Water before him, that it may be as thin as Broth. In the next place, chafe the Neck and Jaws very hard with equal Quantities of Spirit of Turpentine and *Aqua vitæ*, united by ſhaking them together. Let the ſame Parts, two Hours after, be rubb'd very hard with the Ointment of Marſhmallows; then continue to apply *Aqua vitæ* in the Evening, and the Marſhmallow Ointment in the Morning: But in caſe the whole Body is affected with the Diſeaſe, adminiſter three or four ſoftning Glyſters every Day; rub the Veins of the *Horſe* with Ointment of Marſhmallows and Spirit of Wine, and cover him with a Cloth, dipp'd in Lees of Wine heated, under his uſual Cloaths.

For the Seymes, or falſe Quarters.

A Falſe Quarter is a Cleft, moſtly on the Inſide of the Hoof, attended with a violent Pain, and ſometimes bleeding and opening as the *Horſe* ſets his Foot to the Ground. It proceeds from narrow Heels, and a dry and brittle Hoof. In order to the Cure of it, let the old corrupt Hoof be firſt cut away, then take the Whites of nine Eggs, the Powder of Incenſe, unſlack'd Lime, Maſtick, Verdigreaſe and Salt, of each three Ounces. Let them be mix'd together, and as much Hurds then dipt in as will cover the Fore-hoof; lay it on, and Swines Greaſe an Inch thick or more, all about it. This do alſo below it, and let it be ſo tied on, that it may not be ſtirr'd for a whole Fortnight at leaſt; then apply freſh, and that will perfect the Cure. As it is a Sign that Corruption is gather'd within the falſe Quarter, if the *Horſe* ſtarts or ſhrinks when you lay your Finger upon it, open it with a Drawing-knife, to let out the Corruption, and lay on a Plaiſter of Horſe-Dung, Salt and Vinegar.

Others there are who chuſe to draw the falſe Quarter with a Drawing-Iron, ſo near to the Quick, that a dewy Moiſture will flow out; and then putting twice about the Coronet a Wooden-Hoop, an Inch broad, and very thin; 'tis faſtned with a Piece of Filleting on both Sides: Having firſt anointed the Place, as well as the Hurds, with the Ointment, ſlice ſmall half a Pound of the Roots of Harts-horn, and as much of Comfrey and Mallows, boil them till they become ſoft in two Quarts of *Alicant*, and ſtraining them through a fine Searcer, add half a Pound of Venice-Turpentine, as much of new Wax, and of Burgundy Pitch, four Ounces of black Pitch, and a Quart of the oldeſt Oil-Olive; all which, bating the Turpentine, melt and boil till they are well incorporated; then taking them off the Fire, put in the Turpentine, and ſtir it till it be cold.

For the Jardon.

As for the Jardon, which is a callous Humour upon the Hoof, and has been before deſcrib'd; the Cure, tho' it be for the moſt part an hereditary Diſtemper, is to apply a Reſolvent Plaiſter, made of *Diachylum cum Gummis*, *Cinnabar*, *Bdellium*, *Opopanax* and *Ammoniacum*, mix'd with Oil of Spike, Turpentine and new Wax; and when this Plaiſter has been uſed ſeven or eight Days, give the Fire.

For Bleymes.

This is an Inflammation between the Sole and the Bone of the Foot towards the Heel, of which there are three Sorts; the firſt, generated in ſpoil'd wrinkled Feet, with narrow Heels, are commonly ſeated in the inward or weakeſt Quarter. In this caſe, the Hoofs are to be pared betimes, and the Matter, which is almoſt always of a brown Colour, being let out, pour in the Oil of Merveille, and charge the Hoof with a Remolade of Soot and Turpentine. This ſort of Bleymes may be prevented by keeping the Feet clean and moiſt, and making the *Horſe* ſtand in his own Dung, moiſten'd with Water, five or ſix Hours every Day. The Heel alſo, when he is ſhod, ought to be knock'd down, that the Sinew may be extended, and the Sinking of the Inſide of the Hoof prevented, which is generally the Cauſe of this Diſtemper. 2. The Griſtle, beſides the common Symptoms of the firſt ſort, is infected in the ſecond, and, as in the Cure of a Quitter-bone, muſt be extirpated. You muſt feed the *Horſe* daily with moiſtned Bran, and two Ounces of the Liver of Antimony put to it, to purifie the Blood, and turn the Courſe of the Humours. 3. Small Stones and Gravel between the Sole and the Shoe are the Cauſes of the third; in which caſe the Foot ſhould be pared, to let out the Matter, if any, and the Sore dreſt like the Prick of a Nail; but if there is no Matter, the bruiſed Sole muſt be taken out.

For the Hough-Bonny.

This is a round Swelling, ariſing from a Bruiſe by beating againſt a Poſt, or otherwiſe, upon the Elbow of the Hoof, and muſt be cured by pulling the Sore a little from the Sinew; and having a red hot Iron, ſharp like a big Bodkin at the End, and bending a little at the Point, pierce it to the Bottom, thruſt out all the Jelly, tent the Hole with Flax dipt in Turpentine and Hogs Greaſe, melted together, and take warm Hogs Greaſe to anoint the

Outſide of it. Do thus, and leſſen the Tent gradually till the Sore is cured. But there are others who propoſe this as the beſt Remedy, *viz.* To apply Hay, boil'd in old Urine, to the Swelling, and to lance it with a thin hot Iron in the loweſt Part, if it comes to ſuppurate; to tent it, when the Matter is out, with Deer-Sewet, Wax, and Salve of Turpentine, and to lay a Plaiſter of the ſame Ingredients above it.

For the Stifflings.

A *Horſe* is ſaid to be ſtiffled when the Stiffling-Bone is out of it's Place, ſo that it ſticks more out on the one Side than on the other, and the *Horſe* only dares to touch the Ground with his Toe. To cure him, let a Patton Shoe be put on his ſound Foot, and turn him to Graſs. This will compel him to tread upon his lame Foot, and the Straining will bring the Stiffling-bone to its Place. Though Swimming be not proper for other Strains, yet in this, if you do it in a Mill-pool or Pond, till he ſweats behind the Ears, it will perfect the Cure: This done, lead him home cloathed, and peg the oppoſite Foot as long as he ſtands in the Houſe; and though the Rubbing in of an Ounce of the Oil of Turpentine, ſhaken in a Glaſs with as much ſtrong Beer, will for the preſent make it ſwell a little, yet it proves an effectual and ſpeedy Cure.

For the Crepances.

THeſe being Ulcers in the Fore-part of the Foot, about an Inch above the Coronet, cauſed by a Hurt received in leaping over a Bar, or the like, let them be waſh'd with Urine and warm Wine; but if a Swelling or Inflammation attend them, apply the white Honey Charge. Black Soap, with Spirit of Wine, is alſo a very good Remedy.

For the Over-ſtretching, or Relaxation of a Sinew.

YOU muſt let the *Horſe* Blood in the Shackle-vein in the Paſtern, and then fleaing a very fat Puppy-dog, of two Months old, preſently after he is killed, let his Fleſh and Bones be bruiſed together, laid on a Cloth, and bound cloſe to the Sinew-ſtrain, as warm as may be; but it muſt be firſt bathed with Brandy, and care taken that the Dog's Guts be thrown away. Some prefer a fat Cat before a Puppy, and the Preparation is the ſame.

For molten Greaſe.

THis is a Diſtemper fat *Horſes* are moſt ſubject to; for their tough ſlimy Humours (miſtaken for melted Fat) are, by virtue of an Agitation and provident Struggle of Nature, thrown into the Guts, in order to Evacuation; and the way to know the Caſe is to put one's Hand into the *Horſe*'s Fundament; for if the Greaſe is molten, the Excrements drawn out will be cover'd with a white Film. Upon the leaſt Suſpicion of this Diſtemper, after you have carefully raked the *Horſe*'s Fundament with your Hand and Arm, anointed with freſh Butter, let him Blood in the Neck; and in half an Hour after inject a Glyſter, of two Ounces of *Benedictum Laxativum*, one Ounce of *Sal Gemmæ*, (or *Sal Polychreſt*) or the *Scoriæ* of Liver of Antimony, and a Quarter of a Pound of Honey of Violets, all diſſolved in two Quarts of the common Decoction, adding a Pint of Emetick Wine, and as much of the Urine of a ſound Man. This done, let the *Horſe* be walk'd gently for half an Hour, to make the Glyſter work; next give him about half a Pint of the Juice of Houſleek, mix'd with a Pint of White-wine, walking him gently for half an Hour; for that Juice cleanſes, cools and heals. The Glyſter then is to be repeated, and all means are to be uſed to retrieve his Appetite.

When you find this Diſeaſe has been of longer Continuance, half an Hour after Bleeding let him have two ſtinking Pills, in a Pint of Wine or Beer, if in Summer, and repeat the ſame Doſe an Hour after, and again after a ſmall Interval. Half an Hour after the laſt Doſe inject the following Glyſter: Boil two Ounces of the *Scoriæ* of Liver of Antimony, reduced to fine Powder, in five Pints of Beer or Whey; remove the Veſſel, after two or three briſk Waums, from the Fire, and adding a Quarter of a Pound of freſh Butter, inject the Glyſter Blood-warm. A piece of Soap thruſt into the Fundament will do, for want of a Glyſter. If the Diſtemper is extreamly violent, that the *Horſe* is very reſtleſs, and troubled with a furious Palpitation of the Heart; and if a great deal of Slime is drawn out of his Fundament, let him every two Hours have a Glyſter of warm Sheeps-Blood; and if the Violence of the Diſeaſe continues, three Doſes of the Pills, 2 or 3 Hours after the laſt of the former Doſes, will be proper for him. This Method will always ſucceed, if ſeaſonably begun; but 'tis a Sign of Death when the Diſtemper is attended with the Running of much Matter at the Noſe, eſpecially if the Humours are frothy; and if it proceeds from Over-heating, or violent Exerciſe, it will be a very hard Matter to cure it.

For a Horſe *that has got an Over-reach, or Tread of the Heel.*

FIrſt, ſearch it well to the bottom, take out all the Gravel and waſh it with Piſs; then take a good handful of Nettles, and a good handful of Salt, put them in a Cloth and bind them to the Sore; this do two or three Mornings together, then ſet on the Shoe with a Leather under it; which done, pour in ſome Hog's Greaſe ſcalding hot, then ſome Rozin alſo ſcalding hot, and then after that put in ſome Wheat-Bran.

Thus far our Author only about an Over-reach; *Solleyſell* joins an Attaint and Over-reach together, ſaying, the firſt proceeds either from a Blow with another *Horſe*'s Foot, that takes off the piece above the Coronet, or from an Over-reach in Froſty Weather, when a *Horſe* being Rough ſhod, or having Shoes with long Caulks, ſtrikes his Hind againſt his Fore-feet: And the ſame is known by the Wound, Flux of Blood, or Halting of the *Horſe*; Firſt waſh away the filth, with Vinegar and Salt, cutting off the pieces of looſe Fleſh you meet with there; then tye a hot Egg hard boiled, cut thro' the middle and ſprinkled with Pepper, to the Part, and for want of Cure, repeat the Application next Day. Then in an Over-reach, if it proceeds from the Shoes Caulk, beat and temper Gun-powder with Spittle, fill the hole with it, then ſet Fire to it, repeating the ſame next Day: Be careful to have the Foot and Wound kept from moiſture, and waſh them at times with Brandy: Upon the failure of theſe fill the hole with Cotton dipt in *Emplaſtrum Divinum*, melted in a Spoon with Oil of Roſes, and put over it a Plaiſter of the ſame: And dreſs it thus Daily.

But if your *Horſe* after all this, ſtill Halts, has a deep hole, and that there is a ſwelling in the Part above the Attaint, with the Hoof ſhrunk, and the Foot contracted beneath; Probe the hole to ſee if it reaches the Tendon, in which caſe you muſt *give the Fire*: If a neglected Attaint comes to reach the Hoof, having apply'd the Honey Charge once or twice, give the Fire and dreſs it as a Quitter-Bone: The Sore ſhould be always covered with Remedies, otherwiſe it will never heal ſo long as the *Horſe* licks it: Laſtly, tho' the bottom of the hole does not reach the Griſtle, yet if it be foul, waſh it frequently with warm Wine, and fill it with *Schmit*'s Ointment.

To draw out a Nail or Thorn in any place.

TAke Houſe-Snails and ſeeth them in Butter, and apply it for uſe.

For a Stub, or other Hurt in or about the Foot.

TAke Bees-wax, Pitch, Hogs-greaſe and Turpentine, boil them together in an Earthen Pipkin; but put in the Turpentine a little before you take it off the Fire, ſtirring it well together; then make the Wound clean, and pour it in ſcalding hot; then dip Tow in it, and ſtuff the Sore place full of it, and it will heal in a ſhort time.

To kill Lice.

TAke the Juice of Beets and Staveſacre beaten together, and therewith anoint his Body all over, and it will kill them.

Alſo to anoint him with Hogs-greaſe under the Mane, and upon the Ridge-bone of the Back, will deſtroy them.

For a prick in the Foot.

A Prick with a Nail in Shoeing, or in the Street, (ſays *Solleyſell* and others) feſters ſo ſometimes, as to put the *Horſe* in danger of loſing his Foot: To prevent which, when a *Farrier* in Shoeing finds he complains, or ſhrinks at every blow upon the Nail, it muſt be pull'd out forthwith. It's a ſign, if he preſently Halts, after he is ſhod, that the Nail is either preſs'd with ſome Vein, or touches him to the Quick: This is found out by lifting up the ſound Foot, and knocking gently with a Shoeing Hammer upon the top of the Clenches of the Lame Foot, for he will ſhrink, when the Nail is touch'd that pricks him: The uſual place of pricking is at the Heel in the Fore, and the Toe in the Hind-foot: When the Nails are drawn out, you muſt obſerve if they are bowed, for then they have certainly preſs'd the Vein, or if there are any Flakes; and the Cure will never be performed if they remain in the Foot: If Blood or Matter iſſue from the Hole, you muſt ſearch it with the Renette, reaching to the End where the Nail was rivetted on the Hoof; and if upon Examination it be found not to reach to the Quick, try with a Nail pointed to that ſide of the hole, where the Vein lies, whether the *Horſe* complains, and if not at all he is not prick'd. Our Author's Receipt is this: Firſt,

Take off the Shoe, and pare his Hoof to find out the bottom of the Wound; then take Turpentine, freſh Butter, and a little black Pitch boiled together, and pour it into the Wound ſcalding hot; then dip ſome Tow in the ſame, and ſtuff it well between the Shoe and the Foot, ſplintering and binding it about with Sticks and Leather to keep it on; but if it be a long Nail that ſtruck into his Foot on the Road in a Journey, then pluck out the Nail, heat it red hot, and put it into the hole as far as it went in; and having thus ſeared it with the Nail, to keep it from feſtring, melt freſh Butter and Turpentine with a little black Pitch, and pour into the hole as aforeſaid; then clap on the Shoe, and ſtuff the Foot with Tow, as before directed.

Others preſcribe, that if the place be impoſtumated, after the Evacuation of the Matter, to inject boiling Oil with a little Sugar, and to ſtop the hole with Cotton; then to tack on the Shoe with three or four Nails, and to ſtop the Foot every Day with Remolades, applying about the Foot at the ſame time a reſtringent Charge, and keep it from wet. If the place is not impoſtumated, let Spirit of Vitriol be put into the Hole, and ſtop it with Cotton. Put on the Shoe, but if he grows Lame again, take it off, and dreſs his Foot with Spirit of Vitriol, as before.

A general Remedy for a prick with a Nail, is to open the Sore, and daily to inject cold Vulnerary Waters into it; or dreſs it with *Pompholygos*'s Ointment, ſtopping the hole with Cotton; but for want of theſe, let very hot Vinegar be poured into the hole, wherein you have boiled beaten Milfoil (or Savory, Vervain, Birthwort, Speedwell, Agrimony, Zedoary, Adders Tongue, *&c.*) and laying the boiled Herbs upon it, repeat the Application till the Cure be effected. But in ſhort, the moſt effectual Remedy of all for a Prick in a *Horſe's* Foot, is reputed to be the Oil of Mervil, prepared thus; take four Ounces of the Oil of Turpentine, and as much of St. John's-wort; two Ounces of the true Oil of Peter: Theſe mix in a Glaſs-bottle over hot Embers, adding the weight of a Golden Crown of Alkanet, hung by a thread in the Bottle; take out the Alkanet, after it has ſtood a quarter of an Hour on the Aſhes, and preſerve the Oil for uſe: It's penetrating Vertue will be impair'd, if you thicken it with Wax; every Day inject it warm into the open Sore, the hole being afterwards ſtopt with Cotton to keep it open, and cover it with Blane Splents.

For hard and brittle Feet.

SUCH ſort of Feet being apt to break near the Holes made by the Nails of their Shoes, the beſt way is to Shoe ſuch *Horſes* after the full Moon, and never during the Increaſe, and let their Feet be daily anointed with this Ointment; Care being firſt had that the Pot be dry and cleaned from Duſt and Dirt: Put altogether into a Baſon and melt a Pound of freſh Butter, and as much of Sheep Suet, melted and freed from its Membranes, with four Ounces of white Wax cut into ſmall pieces, as much of common Turpentine, and ſix Ounces of Oil Olive: To theſe put a Pint of Plantane Juice, and take the Veſſel off the Fire as ſoon as it begins to boil: Then ſet it on again, and continue to take off and ſet it on for eight or ten Hours together in that manner, till the Juice be quite conſumed without boiling, take off the Veſſel then, and as the matter begins to thicken, add an Ounce of Powder of Olibanum, ſtirring it without intermiſſion, till it be quite cold.

To make the Hoof grow and render it ſoft and tough; take new Wax, Goats-greaſe, or Sheeps Suet, and the Fat of Bacon, cut into ſmall pieces, and ſtew'd in Water 24 Hours together, till it grow: The Water being changed every three Hours, of each a Pound: After melting them together, add a large handful of thoſe, and Bark of Elder, and if in the Spring, two handfuls of Elder buds; theſe boil for a quarter of an Hour, and ſtir from time to time over a gentle Fire: Squeeze the Matter thro' a coarſe Cloth, and put the ſtraining into the ſmall Veſſel, with two Ounces of Oil Olive, four of Turpentine, and nine of Honey: Take off then the Veſſel, and ſtir the Ointment till cold: Anoint the Hoof once a Day for the breadth of an Inch round the Hair; and if the Hoof be too much worn, ſpread it on Flax round the Hoof, and renew the Application twice a Week.

A green Ointment to heal a Wound.

TAke Water-betony, Comfry, Red Sage, Jeruſalem Sage, Mugwort, Rue, Southern-wood and Roſemary, of each a handful; boil them in a Pint of May Butter, with as much Mutton-Suet, and when it hath boiled a while, take it off the Fire, ſtrain it through a Cloth, and ſo put it into a Pot for your uſe. But before you lay on the Ointment waſh the Wound with this following Water.

Take half a Pound of Bole-Armoniack, a quarter of a Pound of White Copperas, and two Ounces of Roach-Allom; beat the Copperas and Allom, and put them into a Pipkin to melt on the Fire; when it is cold, put it with the Bole-Armoniack into a Mortar, and beat them together to a Powder; then take two Quarts of Spring Water, ſet it over the Fire cloſe covered till it be ſcalding hot; then put it into a clean Earthen Pitcher, to which put two Spoonfuls of the ſaid Powder, and ſtir it well together before you let it ſettle; then when it hath ſtood two or three days ſettling, take off the uppermoſt Froth, and gently pour out the Water into another Pitcher clean from the Dregs. And ſo it is fit for uſe, always uſing it as warm as can be endured; and when you waſh the Wound, let the Cloth lie on a while, then wet a double Cloth in the ſaid Water, and lay it on the Sore, renewing it two or three times a Day, and after it is waſh'd, lay on the aforeſaid Ointment. This Water is very good for any Wound old or new.

For a Sore-Back, or Navell-Gall.

TAke a Quarter of a Pint of Train-Oil, and boil in it as much beaten Verdigreaſe as the quantity of a Nutmeg, put it into a Pot, and keep it for uſe.

For a new Wound made by a Stake, or Stub.

WAſh the Wound well with Vinegar and Butter melted together, then take a Clout tyed to the end of a Stick, which dip in ſome Linſeed-Oil, and run it to the bottom of the Wouud, anointing it well; and in a ſhort time it will be Cured; And if the Air gets into the Wound, and cauſeth it to ſwell, then anoint it with Oil of *Populeon* round about the Swelling.

Train-Oil and Verdigreaſe, melted together, will Heal and Skin any Wound in a ſhort time.

Thus far our Author about Wounds; but *Solleyſell* and others preſcribe theſe Rules for the Cure of them. In order to obtain a regular Method for the Cure of Wounds in *Horſes*, you are to obſerve, Firſt, that ſince a *Horſe*'s Fleſh is very apt to corrupt upon the leaſt Contuſion, and that the leaſt Corruption retards the Cure, the Wound muſt be very gently Probed, and as ſeldom as poſſible, with Probes of Juniper, or ſome well dryed Aromatick Wood: Tho' Silver ones are beſt for deep Wounds, and Leaden ones may be uſed inſtead of Strings in Seatons. Secondly, That the Proud Fleſh be kept down with Bandages, or otherwiſe conſumed, or, which is beſt, cut off, or thoroughly burnt, having a Care that the Sinew or Tendon be not cut, and being very Cautious in Wounds near a Bone. Thirdly, That the Humours ſhould be let to cool and diverted from the Wounded Part by *Bleeding*, in all great Wounds: And this is the beſt Remedy when ſeaſonably applied; being to be repeated two or three times in the beginning, but not oftner. A fat *Horſe* muſt be ſtinted in his Provender, eſpecially in caſe of a large Wound: For then a little moiſtned Bran with either Oats or Hay is enough. Fourthly, That the Wound ſhould never be waſh'd with pure Water, which will retard the Cure: But upon occaſion, it may be waſh'd with warm Wine, or Urine, or the Water of a Smith's Forge luke-warm, and after the Wound is cleanſed with the ſecond Water in order to allay the Itching and Heat, and to dry the Fleſh. Fifthly, That the *Horſe* muſt not be ſuffered to lick the Wound, or rub it againſt any hard thing; ſince the former Poiſons the Wound, and that the latter bruiſes the Fleſh, which muſt be ſeparated before the Wound can be healed. Sixthly, That all Means ſhould be uſed to expel or diſſolve the Humours, eſpecially in Parts full of Sinews and Ligaments, or near the Bone: The Repelling Remedies are otherwiſe call'd Aſtringents, which yet are not proper in critical Humours. Seventhly, That when there are Wounds attended with a great Contuſion, the bruiſed Fleſh muſt Putrifie, and the ſeparation haſtned with Inſtruments which are preferable to Cauſticks. Eighthly, That Round or Circular Wounds ought to be cut into a long Figure to facilitate the Cure. Ninthly, That the Wound ſhould be carefully covered with a Lamb's Skin from the Air, and when not ſo conveniently to be applied with Tow, it muſt be cut and beaten, that it may ſtick the faſter. Tenthly, That as ſoon as the Cure of a Wound is attempted; the Hair about two Finger's breadth round the Place, is to be cloſe ſhaved, and always kept neat, clean and ſupple, that the Skin may be eaſily ſtretch'd to join the Lips of the Wound: The callous part of which muſt be conſumed, with the Golden Ointment mix'd with unwaſh'd Butter of Antimony; or otherwiſe lance and gaſh them with a Fleam or red hot Knife, which will haſten the Forming of a Cicatrice. *Solleyſell, &c.*

For a Gangrene.

THE Wounds incident to *Horſes* are very numerous, and therefore not to be particularly ſpecified : But for the more general and common One's, ſome Remedies are very neceſſary to be inſerted : A Wound tending to a Mortification is called a Gangrene, as a confirm'd Mortification is ſtiled a *Sphacelus* : The Symptoms are an Inſenſibility, Lividneſs, and afterwards Blackneſs of the Part, a ſudden and unwonted ſoftneſs, and a Smell reſembling that of a Dead Carcaſs : A young Gangrene is Cured by an early Scarification of the Part to the Quick, with a Fleam, and waſhing it twice a Day with Salt Water, covering the whole Wound with Flax ſteep'd in the ſtrongeſt Lime-Water, or otherwiſe in the following Detergent ; compounded of true Allom, a Pound, half a Pound of German Copperas in coarſe Powder, and three Ounces of fine Powder of Verdigreaſe, all which boil in a Gallon of ſtrong Vinegar, till half is conſumed : Keep the unſtrain'd Liquor in a Glaſs Vial, which ſhake as often as you apply it, and in caſe it proves not ſtrong enough, add two Ounces of *Aqua Fortis* to every Quart.

For a Gall'd-Back.

WHen a *Horſe*'s Back is Gall'd upon a Journey, take out a little of the Stuffing of the Pannel, over the Swelling ; and having ſewed a piece of white and very ſoft Leather on the inſide of the Pannel ; anoint it with Salt Butter, and wipe it clean every Evening, rubbing it till it grows ſoft, and anoint it again with Butter or Greaſe : Let the Swelling, or Hurt, be waſh'd every Evening with cold Water and Soap, and ſtrew it with Salt till the *Horſe* be Saddled in the Morning ; Above all, a large quantity of Sea-ruſh, uſually wrap'd about Venice-Glaſſes, and thruſt into that Part of the Pannel that touches the Sore, is of admirable uſe for Saddle-Galls.

For Harneſs-Galls.

WHen you find the Breaſt of the Coach *Horſe* gall'd by their Harneſs, or riſe in hard Bunches, eſpecially in Rainy Weather ; the Hair ſhould be ſhaved off very cloſe about the Sore, and the whole Breaſt rubb'd with a Lather of Water and black Soap ; afterwards let that Part of the Breaſt, which is uſually covered with the Petrel, be waſhed with Salt Water, and ſuffered to dry up of it ſelf : Or if the Galling is occaſioned by any part of the hardneſs of the Harneſs, let it be removed, or covered with little Bolſters.

For a Saddle-Gall.

THat which is of no conſiderable depth, is cured by waſhing with Urine, or warm Wine, and ſometimes when the Wound is large, with the ſecond Water, ſtrewing the Wound with the Powder of an old Rope or Flax, and conſuming the Proud Fleſh with *Colcothar* of Vitriol.

For a Sit-faſt.

A Saddle-Gall degenerates ſometimes into a hard Knot, called a Sit-faſt, which is eaſily and ſpeedily cured, by letting the melted Tallow of a lighted Candle drop upon the Knob, and when 'tis ſeparated, waſh the Sore with warm Wine, and the ſecond Water or Urine : Then let it be ſlightly anointed with old Salt Butter, ſtrewing the Powder of old Ropes upon it : But ſeeing a neglected Sit-faſt frequently turns to an incurable Gangreen, the Cure ſhould therefore be haſtned, and the ſureſt way is to rub it with the Ointment of Beetles, or ſome good *Retoire*, holding a hot Bar of Iron near the Part, as ſoon as the Ointment is laid on, renew the Application thrice in three ſucceſſive Days, or rub it once with a Cauſtick Ointment.

For ſmall and great Hurts in the Withers.

WHen a Hurt in the Withers, occaſioned by the largeneſs of the Saddle Bans is not very great : If you rub the Swelling with the Whites of ſix Eggs, beat a piece of Allom, almoſt as big as an Egg, for a quarter of an Hour together, till the whole be reduced to a very thick Scum or Froth, and afterwards cover it with the reſt of the Froth ; ſuffering it to dry on the Part, repeating the Application every Tenth or Twelfth Day ; notwithſtanding the Heat and Swelling remains, it will be a certain Cure.

But in caſe of great Hurts, the Humours are to be diverted by Bleeding at firſt in the Neck, and repeating it after two Days : If a Tumour and Inflammation follows a Contuſion, occaſioned by the Saddle Bows ; it muſt be anointed with the Duke's Ointment thrice a Day, and the Withers covered with a Lamb's Skin, with the Woolly ſide next the Part, after you have bathed them with Lime-water prepared without Sublimate ; for that Remedy is very efficacious to allay the Inflammation ; and Defenſives in this caſe are of no uſe : If the Tumour inclines to Suppurate, the Ointment muſt be waſh'd off with luke-warm *Oxycrate* mixt with a handful of Salt, and chafe the Part, when dry, gently four times a Day, with an Ointment of half a Pound of *Populeum* ; of Honey and Black Soap, a quarter each ; mixed and diluted with a large Glaſs of the Spirit of Wine : Then cover the Sore with a Lamb's Skin : But for want of this Ointment, to promote the Suppuration, an equal quantity of the Powder of Cummin and Linſeed, boil'd in Cows-Milk, with a large quantity of the Powder of Pigeon's Dung will do : And for a Ripening Pultis to be applied warm ; after you have well boiled four Ounces of the Roots of Marſh-mallows, and a Handful of the Leaves of Mallows, and of Brank-Urſin in Water ; beat them to a Maſh, adding of Oil Olive and Butter two Ounces each, with Flower of Fenugreek-ſeed.

While the outward Cure of Hurts in the Withers is performing, The *Horſe* ought to have a Doſe of Cinnabar Pills for two Days together, keeping him Bridled for two Hours before and after the taking of them : The ſame courſe is to be repeated after an Interval of two Days.

For Ripe Swellings in the Withers.

WHen the Swelling is ripe, a Hole or more is to be made in the lower part of it with a red hot Iron about the bigneſs of your Fingers end, and having preſs'd out the Matter, the Holes muſt be dreſs'd with ſoft Tents, beſmear'd with the Duke's Ointment, and put in Tents of Hog's Lard reaching from one Hole to another: Having taken care for the Evacuation of the whole Matter, the Skin at the end of any hollow Place, ſhould be pierced with a red hot Iron, putting in Tents with the Duke's Ointment, from one hole to another, keeping the Sore moiſt, with ſome Ointment to allay the Inflammation: And if there be a large Hollow with great Putrefaction, inject the yellow Water. This is better than Inciſion; but in caſe the Bone is foul, cut off all that is corrupt, even to the very Mane, if there is occaſion; but do not touch the Nerves that run above it: The Sore, when once diſcovered to the Bottom, and pierced to the Quick, muſt be cut ſloaping, without high or ſwelling Lips, and the corrupt Fleſh carefully ſeparated from the Neck Sinew; ſtrew the Sore, thus freed from its corruption, with red hot Aſhes, till the Blood is ſtopp'd; waſh it next Day with the Water of a Smith's Forge luke-warm, or with warm Wine, Urine, or the ſecond Water: Let the ſtirring of the hot Aſhes be repeated twice or thrice in twenty four Hours; but in an Army where Aſhes are not ſo eaſily Comeatable, the Sore, after the Inciſion, may be bathed with Water fully laden with diſſolv'd Spirit of Vitriol, or the German green Copperas, binding on Flax dipt in the ſame Water. If you perceive, when after twelve Hours, you have taken off the Dreſſing, that any Inflammation remains, apply the Flax as before, till 'tis over, then waſh the Sore with Smith's Forge Water luke-warm; after with the ſecond Water, or Lime-water, beſmear it with Ox-Gall, covering it ſoftly with Flax; waſh it again, and go on thus till its healed: Corrupt or bruiſed Fleſh muſt be burnt; and Proud Fleſh conſumed with the Powder of White Vitriol: Swellings or Wounds on the Reins or Back, are cured in the ſame manner with thoſe on the Withers.

For a Horſe's *Yard that's foul and furr'd without, that he piſſeth in the Cod.*

TAke freſh Butter and White-wine-vinegar, melt them; then pull out his Yard, taking off the Filth, and waſh it with the Butter and Vinegar until it be clean, and inject ſome of it with a Syringe up into his Yard.

A Help for a tyr'd Horſe.

IF your *Horſe* is tired in your Journey, or in a Hunting Match, give him warm Urine to Drink, and let him Blood in the Mouth, ſuffering him to ſwallow it; and if you come where Nettles are, rub his Mouth, and Sheath well therewith, and ride him gently; and when you come to your Inn or Journey's end, let him be ſet up warm, and before your going to Bed give him about ſix Spoonfuls of *Aqua vitæ*, and as much Provender as he will eat; the next Morning rub his Legs with Sheeps-feet Oil, and he will be recover'd of his Tiredneſs.

For the Glanders.

GLanders is a thick ſlimy Humour of a phlegmatick, tough, white, red, yellowiſh or greeniſh Colour, proceeding from a Defect in the Lungs, and voided by the Noſtrils, having one or more Kernels faſten'd to the Bone between the two Jaw-bones. *Solleyſel*, and others after him, adviſes you in the Beginning to endeavour to reſolve the Kernel before it comes to an extream Hardneſs, by applying this Pultis to it: Take half a Pound of Linſeed-Oil reduced to fine Flour, mix it with a Quart of ſtrong Vinegar, and boil it over a very clear, but gentle Fire, conſtantly ſtirring it: Add ſix Ounces of the Oil of Olives to it when it begins to thicken. Apply theſe well mix'd together to the Kernel, cover it with a Lamb's Skin, and renew the Pultis every Day. Thoſe who are for cutting out the Kernel will not always find it a certain Cure.

Some try the following Method in a leſs malignant Glanders, *viz.* They cut an Ounce of *Braſil* Tobacco ſmall, and having infuſed it for ſix Hours in a Quart of Brandy, they gently ſtrain the Liquor, and inject half a Glaſs of it into his Noſtrils, having firſt taken up his two Neck-veins two Fingers Breadth beneath the uſual Place of Bleeding. They muſt keep him bridled four Hours before, and two Hours after the Injection, and let him be walked a Quarter of an Hour in one's Hand as ſoon as he has taken it. You may repeat this Remedy every Morning, or every ſecond, third, or fourth Morning, in larger or ſmaller Doſes, according to the Quantity of the Evacuation, the Loſs of Appetite, and Beating in the Flanks, which require greater Intervals, and a ſmaller Quantity. In caſe you find this works too great a Commotion in his Body, let two Ounces of Tobacco be infuſed in a Quart of Oil-Olive, letting it ſtand on hot Aſhes all Night, and in the Morning inject half a Glaſsful of the ſtrained Liquor luke-warm into each Noſtril. You muſt in all Remedies not forget to promote the Evacuation of the Noſtrils, during the Wane of the Moon, and to fortifie Nature with Cordials during the Increaſe of it. The *Horſe* muſt be kept to moiſtning Diets during the Application of evacuating Remedies. Perfumes at the Noſtrils, though frequently uſed by Farriers, never do them any Good.

Many other Remedies there are for the Glanders, which, if curable, the following one will do the Buſineſs; but if incurable, and the Lungs quite corrupted, it will kill the *Horſe*: Take an Ounce of Oriental Caſtor, groſly beaten, Gentian beaten, and Savin ſliced ſmall, of each an Ounce and a half. Let them be boiled in five Quarts of ſtrong Vinegar to three. When the *Horſe* has ſtood bridled three Hours, covering him up in the Stable, and not hindering him to lie down, give him a Quart of it, and two Hours after walk him for half an Hour. When he recovers his Appetite, which he will do in two or three Days, give him another Quart in like manner, and then another when his Appetite returns. This will occaſion a great Commotion in his Belly; but if he does not cough up part of his Lungs, and that an unbloody, and not greeniſh Matter runs at his Noſtrils, you need not deſpair. Emetick Wine is alſo very good for this, and other Diſtempers.

But theſe being the Preſcriptions of *Solleyſel*, and others, we'll conclude this Head with the Author's own Remedies, thus: Take a Quart of red Vinegar, but not wine Vinegar; ſet it over the Fire, and put therein two Spoonfuls of *Engliſh* Honey, and as much Elecampane, beaten to Powder, finely ſearſed, and as much Roch-Allum as the Bigneſs of an Egg, alſo beaten to fine Powder; and when all theſe are well boiled, put in half a Pint of Sallet-Oil; then take it off, and let it ſtand until it is luke-warm; and of this give your *Horſe* ſix Spoonfuls in each Noſtril with a little Horn; then ride him out two or three Turns, and tye his Head down to his Foot for about four Hours, and let him faſt as long. You muſt give this Drink at nine ſeveral times, being three Days betwixt every Drink. Every ſecond Day after he hath had his Drink, give him Chickens Guts warm, roll'd in beaten Bay-Salt, and put them down his Throat, giving him warm Water and wet Hay all the time you give him this Drink, and this will amend the Glanders, and the Mourning in the Chine.

For a Cold, that is not the Glanders.

TAke two Spoonfuls of Pepper, well beaten, the like Quantity of Muſtard, four Spoonfuls of Sallet-Oil, four Onions roaſted very ſoft, and cut ſmall; then take two Spoonfuls of Elecampane, beaten into fine Powder; mix all theſe together, and make them into Balls with freſh Butter, and give him them three at a time; and nine Balls ſo given him at three times will cure him, ſo that you may travel him upon it.

Another for a Cold.

TAke new Butter unwaſh'd, without Salt mix'd in it, with brown Sugar-candy, Anniſeeds and Liquorice; but if the *Horſe* rattles in the Head, put in two Cloves of Garlick made into Balls, and this give him for three Mornings together.

Balls for the Glanders, that cure alſo a Cold, prevent heavy Sickneſs, purge away all molten Greaſe, recover a looſe Stomach, keep the Heart from fainting with Exerciſe, and make a lean Horſe *ſoon fat.*

TAke Anniſeeds, Cumminſeeds, Fenugreek-ſeeds, Elecampane-roots, of each two Ounces, finely beaten and ſearſed; then add to them two Ounces of brown Sugar-candy finely beaten, and the like Quantity of the Flour of Brimſtone; then take an Ounce of the Juice of Liquorice, and diſſolve it on the Fire in half a Pint of White-wine; then take an Ounce of the beſt Chymical Oil of Anniſeeds, and three Ounces of the Syrup of Colts-Foot: Which done, take half a Pint of Sallet-Oil, the like Quantity of pure Honey and Syrup of Moloſſes: Mix all this with the former Powders, and with as much fine Wheat-flour as will bind them together, to work into a ſtiff Paſte; and ſo keep them for Uſe in a cloſe Gally-pot; and when you have occaſion for any, take ſome of the Paſte, and make it into Balls about the Bigneſs of a ſmall Egg.

For the Uſe of theſe Balls, they are excellent for ſeveral Occaſions. If you uſe them to cure the Glanders, or a Cold, take one of theſe Balls, anoint it all over with ſweet Butter, and ſo give it your *Horſe* in the Morning faſting; then ride him a little after, and feed and water him as you are accuſtom'd to do; and this obſerve for a Week together. If you uſe theſe Balls to prevent Sickneſs, uſe them in the ſame manner for three or four Days. If you uſe them to fatten your *Horſes*, then give them for about a Fortnight together. But if you uſe them in the Nature of a Scouring, to take away Greaſe or Foulneſs, then after his Heat, and in his Heat, you muſt uſe them. Alſo if you diſſolve the Ball in his uſual Water made luke-warm, it worketh the like Effect, and fattens very much. If you give your *Horſe* one of theſe Balls before a Journey, it prevents Tiring. To give it in the Height of Travel doth refreſh Wearineſs, and to give it after Travel prevents Surfeits and inward Sickneſs.

Diſeaſes of the Eyes.

THE Diſeaſes of the Eyes proceed either from a Defluxion of ſharp biting Humours, inflaming the Eye, or ſome external Hurt. In the former Caſe the Eyes are watery, hot and ſwollen, and the Defluxion gradually advances. In the latter, the Malady comes quickly to a Height, and the Skin is peel'd off on the Outſide of the Eye. If the Diſtemper ariſes from a Rheum, or Defluxion, it muſt be conſider'd then, whether the Rheum proceeds immediately from the Eye, or ſome other diſaffected Part, the Redreſſing of which Part will ſet the Eye free; but as to the former, the *Horſe*'s Blood muſt be cool'd with an Ounce of *Sal Prunellæ*, mix'd daily with his Bran; and when it leſſens his Appetite, let it be ſifted with Liver of Antimony till he obtains his Stomach again.

But if you find the Eye ſwollen, hot, cloſed up, and red or blood-ſhotten, an immediate Application of this Remedy is uſeful: Take common Bole-Armoniack in Powder, mix it with Vinegar and the Whites of two Eggs, till reduced to a kind of Paſte, and let it be applied about the Eye Morning and Evening, for half a Foot round, bathing the Eye five or ſix times a Day with a little fine Spunge ſoak'd in Brandy. Another Remedy is, a new-laid Egg boil'd hard, and cut when the Shell is taken off, through the Middle, and in the place of the Yolk, taken out, put a piece of white Vitriol, about the Bigneſs of a Nut; then join the two Halves of the Egg together, and wrapping the ſame in a piece of clean and fine Linnen, infuſe it for the ſpace of ſix Hours in half a Glaſs of Roſe-water; then throwing away the ſoak'd Egg, put eight or ten Drops of the Water with a Feather into the *Horſe*'s Eyes Morning and Evening. For a preſent and good Remedy, they beat with a Stick the White of a new-laid Egg, an equal Quantity of Roſe-water, and white Vitriol, to the Bigneſs of a Small-nut, into Powder, ſome of which being put into the Eye, it allays the Heat, and repels the Rheum. *Solleyſel.*

Our Author's Water, and the only Remedy he preſcribes for ſore Eyes is this:

A Wa-

A Water for Sore Eyes.

TAke a Pint of Snow-water, and diſſolve in it three or four Drams of white Vitriol, and waſh his Eyes therewith, until cured.

Solleyſel, and others, preſcribe theſe: Take four Handfuls of true Ground-Ivy, and when you have beaten it with the Whites of ſix Eggs in a Marble-Mortar, add half a Pint of very clear White-wine, a Quarter of a Pint of Roſe-water, an Ounce and a half of Sugar-candy, and as much white Vitriol; which beat well together with a Peſtle, ſtrewing an Ounce of white Salt upon them: Then cover the Mortar, and place it in a Cellar, and, after five or ſix Hours ſtanding there, pour the whole Compoſition into a Hippocras-Bag of clean white Serge, and ſet a Veſſel under it to receive the Water that drops through, which muſt be preſerv'd in a Glaſs-Bottle, and ſome of it every Morning and Evening put into the *Horſe*'s Eye.

Thoſe that are for cheap Medicines, let them take a Piece of Blue, or Cypreſs-Copperas, infuſed in Plantane, Fennel, Eye-bright, Rue, Celandine, Roſe, Chervil, or for want of theſe, in common Water; ſome of which blewiſh Infuſion pour into the Eye, and at the ſame time incorporate very well together an Ointment called *Album Rhaſis*, one Pound; Salt of Lead extracted in preparing the Oil, or, if that cannot be had, common Salt of Lead in fine Powder, half an Ounce; with which anoint the Parts about the Eyes half a Foot round, Morning and Evening for a conſiderable time.

Inflammations of the Eyes.

THere can be nothing better for Pains and Inflammations of the Eyes, than a Charge of rotten Apples, or freſh ones roaſted under the Aſhes, the Seeds being taken out, beaten in a Marble-Mortar, and ſprinkled with Roſe-water, applying it with ſoft Flax to the Eye. A Pultis of the Cruſt of a white Loaf, hot from the Oven, and ſoak'd in Cows-Milk or Brandy, will do: But in all Remedies for the Eyes, you muſt avoid fat and oily Ingredients, which ſtick to the Part, and inflame the Heat. Naturally tender weeping Eyes are cured by bathing with Brandy.

For a Pin, Pearl, Web, or any Film in the Eye.

TAke a new-laid Egg, roaſt it very hard, cleave it in ſunder long-ways, and take out the Yolk; then fill the empty Holes with white Vitriol finely beaten, and ſo cloſe the Egg again; then roaſt it the ſecond time until the Vitriol is melted; laſtly, beat the Egg-ſhell and all in a Diſh; ſtrain it, and with the Moiſture that comes from it dreſs the Eye.

Sore Eyes from external Hurts.

THE ſame cooling and aſtringent Medicines, already mention'd, are proper alſo here; but that which may ſerve inſtead of all others, is the Solution of *Lapis mirabilis*, the Vertue of which is anſwerable to its Title; and the Compoſition thus: Take two Pounds of white Vitriol, three of Roch-Allum, half a Pound of fine Bole-Armoniack, two Ounces of Litharge of Gold and Silver; all which reduce to Powder, and, with three Quarts of Water, put them in a new glazed Earthen-pot; let them be very gently boiled over a ſmall Fire without Smoke; ſet the Pot equally round, till the Water is quite waſted, and the Matter at the Bottom of the Pot perfectly dry: Let it then cool, and it will grow harder by long Keeping. Now to make an Infuſion of this Stone, you muſt put half an Ounce of it to four Ounces of Water, in a Glaſs-Bottle, and in a Quarter of an Hour it will diſſolve, and in ſhaking the Bottle make the Water as white as Milk. Shake the Bottle, and waſh the ſore Eye Morning and Evening with this Liquor, which will keep good twenty Days. This may ſerve inſtead of all other Medicines for Rheums, Blows, Moon-Eyes, &c. And 'tis the Opinion of the moſt Experienced this Way, that this by Way of Solution or Infuſion is much ſafer, than by way of Powder blown into the Eye. *Solleyſel.*

For a Bite, or Stroak in the Eye.

TAke a little Honey, with a little grated Ginger, mix them together, and put it into his Eye with a Feather: Do this three Mornings together.

To take a Film off the Eye.

SOmetimes after the Abatement of the Heat, and ſtopping of the Rheum in the *Horſe*'s Eyes, there remains a white Film upon it; you muſt remove it by lifting up the Eye-lids, after the Eye has been waſhed with Wine, and ſtroaking it gently with your Thumb, cover'd with Wheat-flour; this Stroaking being a better Way than blowing Powders into the Eyes with a Leaden-pipe. Common Salt, or Salt of Lead beaten fine, and put into the Eye, are in like manner proper to conſume a Film: But above all there is nothing ſo effectual as *Sal Armoniack*, (ſays the *Compleat Horſeman*) beaten and put into the Eye; however, we muſt not omit to take our Author's Receipt alſo: Take as much *Dialthæa* as the Bigneſs of a Walnut, and put thereto the Powder of Verdigreaſe, as much as a Hazle-nut; mix them well together, and every Day put into his Eye as much of it as the Bigneſs of a Pea, and this will take off the Film.

For a Canker in the Tongue.

TAke as much Roch-Allum as the Quantity of an Egg, boil it in three or four Spoonfuls of White-wine-Vinegar, with a Spoonful of Honey, and an Handful of Columbine-leaves cut ſmall; with this waſh his Tongue once a Day until it be cured, which will be in a few Days. For the Waſhing his Mouth tye a Rag about a Stick.

For Hurts in the Tongue.

THeſe befal a *Horſe* by Accident, or with a Bit, Halter, or the like; and to cure the ſame ſome boil in Water Wood-bind, Prim-roſe and Blackberry-Leaves, with Knot-graſs, ſome Honey, and a little Allum put to it; and waſh it twice or thrice a Day with a Clout tied upon a Stick, being luke-warm: Or take *Mel Roſatum*, and anoint it therewith; and whenever you dreſs either Tongue or Mouth, be ſure to tye the *Horſe* up to the Rack an Hour after it. Others take red Honey, the Marrow of powder'd Pork, Quick Lime and Pepper, made into fine Powder, of each alike, and having boil'd them together to the Conſiſtence of an Ointment, anoint it twice a Day: But the moſt particular Receipt is, to make half an Ounce of Arman red-hot in the Fire, and to beat it into a very fine Powder; to take a Saucerful of live Honey and a Pint of White-wine, which being mix'd, and ſteep'd with the Powder, boil it over the Fire, keeping it ſtirring; then take it off to cool, and ſo waſh the Tongue Morning and Evening till it be well.

For the Biting of mad Dogs and venemous Beaſts.

THE beſt Remedy yet found, if we give Credit to the Pamphleteer, of *Poictiers*, for the Madneſs occaſion'd by the Biting of a mad Dog, is to cleanſe the Wound very carefully, if there be any, and to ſcrape it with an Iron Inſtrument, without cutting away any part of it, unleſs ſo torn, that it cannot be united to the Member; then let it be bath'd with Wine and Water, ſomewhat warm, mix'd with a Pugil of Salt: And the Wound being thus cleanſed, chop very ſmall a Pugil of Rue, both Leaves and Flowers, and as much of Sage and Field-Daiſies, with a convenient Quantity of the Roots of Eglantine and Sweet-Briar and of *Spaniſh Scorzonera*, and five or ſix Heads of Garlick, each of the Bigneſs of a Small-nut. The Eglantine-Roots, with the Sage, muſt be beat in a Mortar, and the other Ingredients with a Pugil of Bay-Salt added, beating them together in the ſame Mortar to a Maſh; a part of which apply to the Part, and ſome of the Juice of the ſame muſt be poured into a deep Wound: The Remainder of the Maſh you are to incorporate with a Glaſs of Wine in a Mortar, and to ſqueeze through a Linnen-cloth. Give the ſtrain'd Liquor to be drunk faſting: Let the Mouth afterwards be waſhed with Wine and Water, and the Beaſt faſt for three Hours after. It's enough to ſcrape and waſh the Wound the firſt Day; but the Pultis and Potion muſt be repeated nine Days after.

For the Halter-caſt.

THis happens when a *Horſe* endeavouring to ſcrub the itching Part of his Body, near the Head or Neck, one of his Hinder-feet entangles in the Halter, which by the violent Struggling of the *Horſe* to diſengage himſelf, receives ſometimes very dangerous Hurts in the Hollow of his Paſterns; for the Cure of which, take Linſeed-Oil and Brandy, of each an equal Quantity; ſhake them together in a Glaſs, till they are well mixed, and anoint the Part Morning and Evening, having firſt clipt away the Hair, and take care to keep the Foot very clean. 2. Another eaſie Remedy is, Oil and Wine a like Quantity, which boil together till the Wine evaporates, and applying the remaining part of the Oil once a Day to the Hurt, it will be quickly healed.

For fatning Horſes.

THE eaſieſt, cheap and moſt effectual Method to fatten a *Horſe*, is, after you have bled him, to give him for his ordinary and only Drink, a Pailful of Water, after half a Buſhel of Barley-meal has been ſtirr'd in it for a conſiderable time, and then ſuffer'd to fall to the Bottom, the Water being pour'd off into another Pail. Make him eat the Meal remaining at the Bottom Morning, Noon and Night, adding a little Bran or Oats thereto. If he refuſes to eat it, afterwards gradually leſſen the Quantity of Bran or Oats, till you bring him to eat the Meal alone. The Barley muſt be ground every Day, for it quickly grows ſoure. This Diet muſt be continued twenty Days, and take the *Horſe* off from it gradually, when he grows luſty, giving him at firſt Oats once a Day, and the Meal twice; and afterwards the Meal but once, and the Oats twice, and ſo on. In the Interim, he may eat Hay and good Straw. He muſt not be rid, but walked ſoftly in the Middle of the Day for about half an Hour.

When the *Horſe* has eaten Barley-Meal for eight Days, if you find he ſtands in need of Purging, take an Ounce and half of the fineſt Aloes; of Agarick and Roots, of Florentine-Orris, each an Ounce; beat them all to Powder, and give them with a Quart of Milk warm from the Cow, keeping him bridled ſix Hours before, and four after, without diſcontinuing his uſual Diet. But if the *Horſe* loſe his Appetite when he begins to eat the Meal, tye a Chewing-Ball to his Bit, renewing it often; for it not only reſtores the Appetite, but contributes to the Fattening of the *Horſe*.

The Manner of Curtailing a Horſe.

THis is practiſed in no Nation ſo much as in *England*, and the manner of doing it is, firſt with your Finger or Thumb to grope till you have found out the third Joint from the Setting-on of the *Horſe*'s Tail, and having found it, raiſe up all the Hair, and turn it backwards; then taking a very ſmall Cord, wrap it about that Joint, pulling it both with your own and another Man's Strength, ſo ſtrait as poſſibly you can; then wrap it about again, and draw it as ſtreight or ſtreighter than before. In ſhort, having brought it as ſtreight as poſſibly you can, make faſt the Ends of the Cord; then take a piece of Wood with a ſmooth and even End, of a juſt Height with the Strunt of a *Horſe*'s Tail, and ſetting it between the *Horſe*'s Hind-legs, after you have tramell'd all his four Legs, ſo as he can no way ſtir, lay his Tail upon it, and taking a main ſharp, ſtrong Knife, made for that purpoſe, ſet the Edge thereof as near as you can gueſs, between the fourth and fifth Joint, and then with a great Smith's Hammer ſtriking on the Back of the Knife, cut the Tail off. If you ſee any Blood to iſſue, you may know that the Cord is not ſtrait enough, and therefore ſhould be drawn ſtreighter. This done, take a red-hot burning Iron, made of a round Form, of the full Compaſs of the Fleſh of the *Horſe*'s Tail, that the Bone thereof may not go through the Hole, with which you ſhall ſear the Fleſh till the ſame be mortified, and in the Searing you will clearly ſee the Ends of the Veins ſtart out like Pop-heads; but ſtill continue Searing till all is ſmooth, plain and hard; ſo that the Blood cannot break through the Burning: Then unlooſe the Cord, and after two or three Days, when you find the Sore begin to rot, fail not to anoint it with freſh Butter, or with Hogs-greaſe and Turpentine till well.

The Method of Gelding a Horſe *or* Colt.

IF it be a *Colt*, he may be gelded at Nine or Fifteen Days old, if his Stones are come down; for the ſooner the better he will be for Growth, Age and Courage: But a Farrier may geld a *Horſe* at any Age whatſoever, if he is careful in the Cure. It ſhould be done between *April* and *May*, or in the Beginning of *June* at fartheſt, or about the latter end of *September*; and the fitteſt Time of the Moon is ever when 'tis in the Wain. The Manner of Gelding is to caſt him on ſome ſoft Place, to take the Stones between your foremoſt and great Finger, then to ſlit the Cod, and preſs out the Stones; and after that with a Pair of very ſmooth Nippers lay faſt hold of the Strings of the Stones, near to the Setting-on of the Stones, and preſs them ſo hard, that there may be no Flux of Blood; then with a thin, drawing Cauterizing-Iron ſear away the Stone: This done, take a hard Plaiſter, made of Roſin, Wax, and waſh'd Turpentine, well melted together, and with your hot Iron melt it upon the Head of the Strings, then ſear them; and after melt more of the Salve, till ſuch time as you have made a good thick Lay of it upon the Strings; then looſe the Nippers, and do ſo to the other Stone; and fill the two Slits of the Cod with white Salt, anointing all the Outſide with Hogs-greaſe, and ſo let him riſe, and keep him in a warm Stable looſe, that he may walk up and down, ſeeing there is nothing better than moderate Exerciſe for him: But if you perceive that he ſwells very much in the Cod and Sheath, chaſe him up and down, and make him trot an Hour in a Day: It will ſoon recover him, and make him ſound.

There being ſome Ointments, Balls, &c. mention'd among the Preſcriptions, the Manner of preparing which, by reaſon of the Length of them, is omitted there, we have thought fit to add it here as follows:

The way of preparing Schmit's *Ointment.*

MElt half a Pound of Roſin, and a Pound of Oil Olive in a Copper Baſon Tinn'd, and after the removal of the Veſſel from the Fire, a quarter of an Hour after, add the Powder of Maſtick and Olibanum of each an Ounce and a half; let the Ingredients be ſtirr'd together about half a quarter of an Hour, and then add half a Pound of common Turpentine, and in order to incorporate the whole, continue to ſtir it a little longer: At the ſame time take half a Pound of Honey, and half a Pint of *Aqua vitæ*, let them be gently boiled till they begin to ſmoak, not forgetting to ſtir them; then add Verdigreaſe and Copperas in very fine Powder, three Ounces of each, ſtirring and boiling them till all the Subſtances are united; pour the mixture, as ſoon as half cold, into the Baſon where the Oil is, which ought to be half cold alſo; theſe mix together immediately adding two Ounces of burnt Allum in fine Powder, one of Orpiment, ſtirring and mixing them with the reſt; and add three Ounces of Linſeed, and as much of Fenugreek, as ſoon as they are all incorporated, ſtirring the Maſh till it is almoſt cold. At laſt add two Ounces of Aloes in fine Powder, ſtirring it till it be incorporated with the reſt of the Ointment, which will by that time be fully prepared, and muſt be kept in a Pot: Its colour being not much different from that of *Egyptiacum*.

The nature of this Ointment is to Cleanſe, reſiſt Corruption, heal and make a fine Scar, and may ſerve alone to cleanſe the greater Wounds; to ſeparate a Selender, or any other Extraneous Body, and draw them out of the Sore, mix an equal quantity of Sugar with the Ointment, and with a Bolſter of Flax apply it cold; and the ſame Application is proper, when one of the Quarters of the Hoof is cut away; It's uſeful alſo for the Wounds of the Withers: Gentlemen, and others, that carry Trains of *Horſes* into the Army, or Travel with a great number of *Horſes*, ought always to make proviſion of a ſufficient quantity of this Ointment, and if *Farriers* had it in their Shops, they would daily make new Diſcoveries of its Vertues, and lay aſide the uſe of *Unguentum Apoſtolorum*, and all drying Powders: This Ointment may be called an excellent Kind of *Egyptiacum*, and very effectually reſtores and ſtrengthens the Soles, when the ſuperfluous moiſture of the Fleſh hinders their growth.

The Ointment Egyptiacum.

IT'S compoſition is a Pound of common Honey, and a Pint of Brandy, boiled over a gentle Fire, in a glaz'd Pot or Baſon; ſtirring them frequently with a Wooden-ſlice, till they be compleatly united, and that the Brandy diſappears; then add two Ounces of burnt Allum, beaten ſmall, and four Ounces of the Powder of Verdigreaſe ſearſed, ſtirring and incorporating them with the other Ingredients: At laſt put an Ounce of Sublimate in fine Powder, and ſtir and boil them in the ſame manner as before, till the whole be reduced to a Conſiſtence: Then remove the Pot from the Fire, and continue ſtirring till the Ointment be cold, which muſt be kept in a Pot for uſe. When there are Signs of Putrefaction in the Part 'tis to be apply'd to, two Ounces of *Aqua Fortis* ſhould be mix'd with it.

Crocus Metallorum.

TO prepare the *Crocus Metallorum*, take equal quantities of the Crude Antimony, that is fulleſt of Points and Nitre, let them be ſeparately pounded and mixed in a Crucible; ſet them on Fire with a Match or live Coal; and when the Flame is extinguiſh'd, ſeparate the Liver from the *Scoriæ*, under which you will find it; reduce it to a very fine Powder, then throw it into Water, and beat again in the ſame Mortar, that which the Water cannot diſſolve, continuing after the ſame manner till the whole Matter be reduced to an impalpable Powder: After the Water has ſettled for ſome time, you will find a Liver-colour'd Powder at the bottom, which you muſt continue to waſh, by pouring on freſh Water, till the Salt of *Nitre*, that is not conſumed by the Flame, be wholly ſeparated from the Powder.

Liver of Antimony.

BUT this *Crocus* being uſually given to Men, and not ſo proper for *Horſes*; Liver of Antimony is prepar'd inſtead of it, after this manner; Take ſix Pounds of choice Crude Antimony groſly beaten, four Pounds and a half of Salt Petre of the ſecond Solution, the Whiteſt, (the Refin'd being too violent) let the Nitre be beaten very ſmall, and mixed with the Antimony in an Iron Pot or Braſs Mortar, ſo that two thirds remain empty; then kindle the Matter as above; ſtanding at a convenient diſtance to ſhun the Fumes of the Antimony: When the whole Subſtance is cold turn up the Mortar, for the Liver lies under the *Scoriæ* at the bottom, and ſhines like Glaſs if right prepared, and has a very dark brown Colour: This Liver muſt not be waſh'd, for that takes away its Vertues.

Emetick Wine.

LET two Ounces of Liver of Antimony in fine Powder, ſtand twenty four Hours in a cold Infuſion in three Pints of White Wine; of which pour a Quart then off, and adding another in its place, repeat the Abſtraction of the old, and the Addition of the freſh Wine five or ſix times.

Sal Polychreſt.

SINCE all Fuſible Medicines exert their Vertue more actively, than indiſſolvable Lumps; it muſt needs be of great uſe to render Sulphur or its Flowers Fuſible, they being juſtly reckon'd the Balſom of the Lungs: For this End you are to put an Iron Pot, or Crucible, in the midſt of a heap of live Coals, till it be all over red hot even at the bottom, then with a Spoon caſt into it a mixture of Sulphur and fine Nitre, half an Ounce of each, both in Powder: 'Twill break out into a Flame, which when it diſappears, ſtir the Matter with ſome Iron Inſtrument at the bottom, to make the Fire more effectually penetrate it; and caſt in more of the ſame Mixture by Spoonfuls, ſtirring the Matter as before, after the diſappearance of the Flame, between every Spoonful; continuing after the ſame manner till all the mixture is caſt in: Then let the Crucible be covered, and lay Coals on the top, and every where round the ſides, ſuffering it to cool of it ſelf; beat the Matter into Powder, when 'tis cold, which, if rightly prepared, will be of a pale Roſe Colour; or elſe white when the Nitre is not very pure; if greeniſh, 'tis naught. Four Pounds of the mixture will yield a Pound and a half of Salt, which will diſſolve in Water, and grow red in the Fire, without waſhing. 'Tis ſo very cooling, that it muſt not be given alone, but corrected with half an Ounce of Juniper-berries, to an Ounce of Salt.

Golden Sulphur of Antimony.

THE true and genuine Preparation of the Golden Sulphur of Antimony, is thus; Take two Pounds of Crude Antimony, one of Tartar, half a Pound of fine Nitre, and making a *Regulus*, according to Art, boil the *Scoriæ* in a ſufficient quantity of Water, ſtirring it from time to time, till part of the *Scoriæ* be diſſolv'd: Let the Solution be filtrated thro' brown Paper, and the ſtrain'd Liquor reſerv'd: At the ſame time boil in Wine a ſufficient quantity of Tartar, ſtirring it till it be diſſolv'd, which will require a conſiderable time: Then by degrees pour the Solution of the Tartar upon the Solution of the *Scoriæ* in an Earthen Pot; and they will precipitate a brown Powder, throwing out a ſtrong and noiſom ſmell. This Powder you are to dry on Brown Paper and to preſerve it for the Golden Sulphur of Antimony: It's given by way of Infuſion in White-wine, *&c.*

Baſilicon.

TAke half a Pound of yellow Wax, as much of Sheep Suet, and of Roſin and black Pitch; let them be cut in ſmall pieces, and five Pounds of Oil Olive in a Baſon or Pot added to them, which ſet over a pretty ſtrong Fire, and add the other Ingredients to the Oil, when 'tis hot; when they are wholly melted, ſtrain the Liquid Maſs thro' a piece of Canvaſs or coarſe Cloth; then add a Pound of Turpentine, ſtirring it conſtantly till 'tis cold: And this will make an excellent Suppurative,

True Ointment of Montpelier.

TAke of the true Ointments of Roſes, Marſh-mallows, *Populeum* and Honey, of each a Pound, mix them cold, and keep in a Pot cloſe covered: It ſtrengthens without Heat: Here note, that the Ointment of Roſes is often adulterated, by taking Tallow coloured red with Alkanet, and waſhing it in Roſe Water, as well as that of *Populeum*, by adding Verdigreaſe, to give a bright green Colour, and to make it more Saleable.

Duke's *Ointment.*

THE Preparation is to take a Pound of clear and pure Linſeed Oil, and four Ounces of Flowers of Brimſtone; which put into a Matraſs or Glaſs Vial, with a long Neck, letting it ſtand in a moderate Sand-heat for the ſpace of an Hour: Then augment the heat and keep it up to the ſame degree, till the Flowers are perfectly diſſolv'd: In the mean time, before the Oil grows cold, let part of the Brimſtone fall to the bottom; melt a Pound of Tallow or of Boar's-greaſe, in another Veſſel, with two Ounces and a half of white Wax; inſtead of which if you can procure *Horſe*'s Greaſe, the Remedy will be more effectual; but then you muſt take four Ounces of Wax, becauſe *Horſe* Greaſe is not ſo thick as Boar's-greaſe: Pour in the Linſeed Oil when the Wax and Greaſe are wholly melted, and taking the Veſſel off the Fire, ſtir the Ointment with a ſlice of Alkanet Root, till it be cold: It reſembles the Ointment of Roſes; ſeeing the Brimſtone is ſo perfectly diſſolv'd that you can hardly perceive it otherwiſe than by the Smell.

White Honey Charge and Plaiſter.

TO prepare this, boil eighteen large Lilly-roots, chopt (or for want of them) a Pound and a quarter of the Powder of Linſeed, in two Gallons of Whey; which is allow'd to be better than Beer: When the Roots begin to grow ſoft and cleave to your Fingers, add Leaves of Mallows and Marſhmalmallows, without the Stalks, of each ten handfuls; which boil, till all be reduc'd to a Maſh, pouring in Whey from time to time to make up the Waſte: then ſtrain the Maſh thro' a Hair Sieve turn'd upſide down; and boil the Straining for ſome time, with a Pound of Tallow and as much Butter; ſtirring all the while: This done, take the Veſſel off the Fire, and as ſoon as you perceive that the Boiling is perfectly ceaſed, incorporate the Ingredients with Honey and common Turpentine of each a Pound; thicken it, if not thick enough, with Wheat-flour. Tho' the beſt way is at firſt to boil the Maſh to ſuch a Conſiſtency, as ſhall need no thickning. It muſt be kept well covered; and tho' it appears mouldy, it may be very good near the bottom: If the moiſture was well evaporated in the Boiling, it will keep two Months in a dry place: It's to be applied cold with Flax.

Farrier's inſtead of this Charge are wont to apply the White Plaiſter, which is prepared in this manner; boil half a Pound of Honey with a Dram of fine Wheat-flour, and a Pint of Milk, ſtirring them gently over a little Fire, till they begin to incorporate and grow thick; then adding four Ounces of common Turpentine and two of Oil Olive, continue boiling and ſtirring them for ſome time, and apply it as you do the Honey Charge.

Lime or Yellow Water.

TAke two or three Pounds of unſlack'd Lime, newly made, which put into a large Baſon of fine Tin, and gradually pour five Quarts of Rain Water upon it: Then ſet the Baſon in a convenient place for two Days, ſtirring the Water often; and after you have ſuffer'd it to ſettle, decant the Water off, ſtrain it through a brown Paper, and add half a Pint of good Spirit of Wine to three Pints of it, as alſo an Ounce of Spirit of Vitriol, and as much Corroſive Sublimate in fine Powder, mix them for uſe; when a Wound is peſtered with Proud-fleſh, they add an Ounce of Arſenick in Powder to this quantity of *Lime-Water*.

Stinking Pills.

THeſe are prepared of an equal quantity of the fineſt and cleareſt Aſſa Fœtida, Barberries of *Provence* or *Italy*, and Liver of Antimony, which are boiled to Powder, and mix carefully with a Peſtle, in a large Mortar, pouring on by degrees, a ſufficient quantity of Vinegar to incorporate them. Let the Pills weigh fourteen Drams each, be dry'd at the bottom of a Hair-ſieve, and they will keep as long as you will. Aſſa Fœtida, the chief Ingredient of theſe Pills, is a Gum that grows in the *Indies*, on a Buſh with ſmall Leaves reſembling Rue, and that in Stony and dry Places: Theſe Pills are univerſally uſeful, and ſo portable that no Body ſhould be without them; and may perhaps be a Cure for even the fatal kind of Cholick, called the Red Gripes.

Cinnabar Pills.

THeſe are prepared of a Pound of the fineſt and cleareſt Aſſa Fœtida, as much of Barberries of *Provence* or *Italy*, and of Cinnabar, all in fine Powder, with a ſufficient quantity of ſtrong Brandy, made into a Maſs in a Braſs Mortar, to be formed into Pills of fourteen Ounces each: They may be kept for the Cure of Wounds twenty Years.

Liquid Cauſtick.

ADD, after the Ebullition is over, two Ounces of Quick-ſilver to as many of the Spirit of Salt and of Nitre, put into a Matraſs, which place in a moderate heat till the Mercury diſappear, then add two Drams of good Opium, and you will have an excellent Cauſtick, which muſt be kept in a Glaſs Vial.

Chewing Balls.

FOR the making of theſe Balls, whoſe uſe is to reſtore loſt Appetite in *Horſes*; take a Pound of Aſſa Fœtida, as much Liver of Antimony, half a Pound of the Wood of the Bay-tree, an equal quantity of Juniper-wood, and two Ounces of Pellitory of *Spain*; beat all the Ingredients apart, to a groſs Powder: For which reaſon the Woods muſt be dried; then put them all together into a Mortar, and incorporate them with a ſufficient quantity of Grape Verjuice, well clarified, pouring it in by degrees, till they are reduced to a Maſs, of which make Balls of the weight of an Ounce and a half, to be dried in the Sun: Wrap one of theſe in a Linnen-clout, and tying a Thread to it, make the *Horſe* chew it two Hours in the Morning, and he will eat as ſoon as you will unbridle him: Do the ſame at Night and perſiſt in this Method; till the *Horſe* recovers his Appetite: When one Ball is conſumed, put in another, and they may be uſed on the Road, as you Travel, being tyed to the Bridle.

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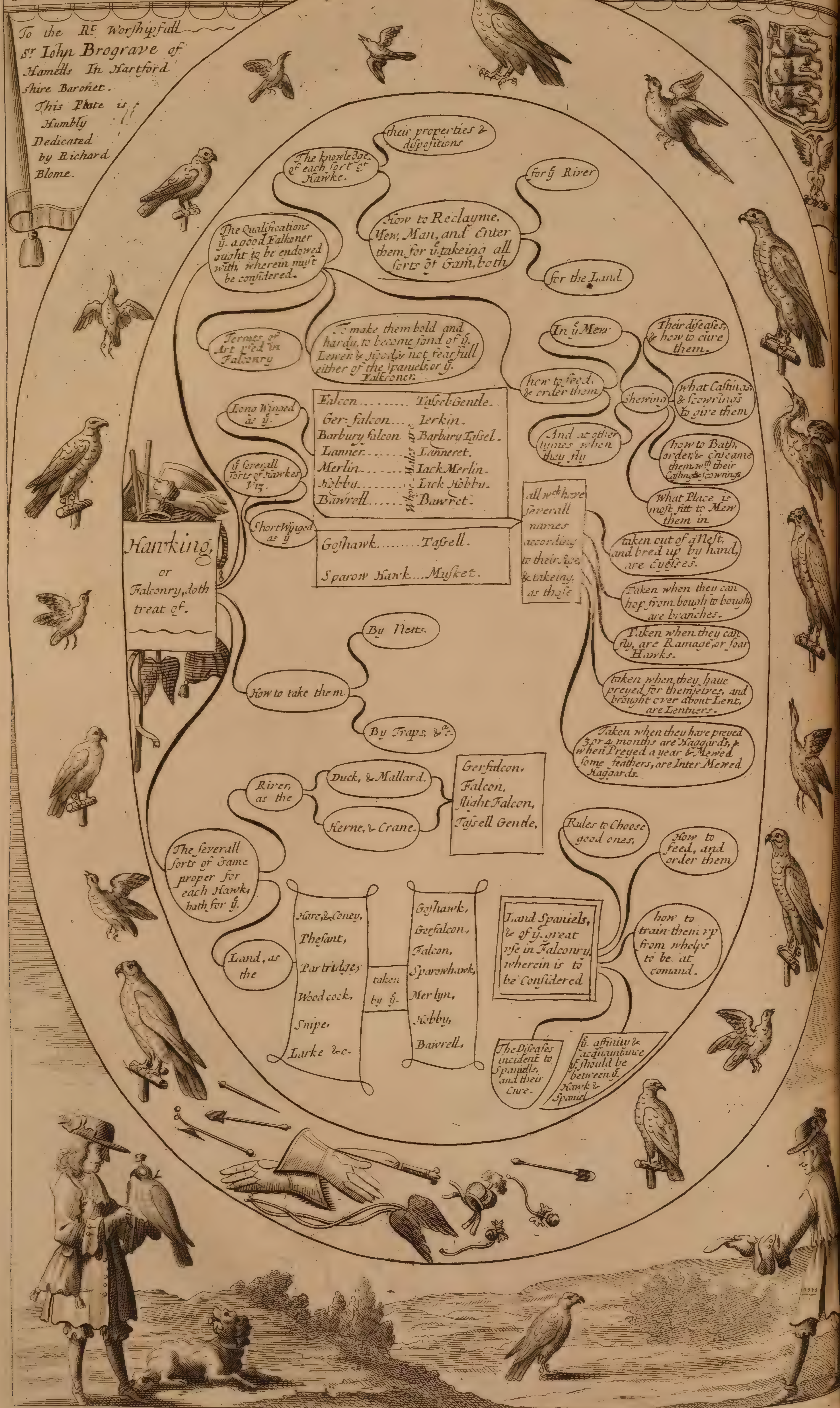
OF

HAWKING, or FALCONRY.

To the Rt. Worſhipfull
Sr. John Brograve of
Hamells In Hartford
ſhire Baronet.
This Plate is
Humbly
Dedicated
by Richard
Blome.



Hawking, or Falconry, doth treat of.

- The Qualifications yͤ a good Falkoner ought to be endowed with, wherein muſt be conſidered.
  - The knowledge of each ſort of Hawke.
    - their properties & diſpoſitions
  - How to Reclayme, Mew, Man, and Enter them for yͤ takeing all ſorts of Gam, both
    - for yͤ River
    - for the Land
  - To make them bold and hardy, to become fond of yͤ Lewer & Hood, & not fearfull either of the Spaniels, or yͤ Falkconer.
  - how to feed, & order them
    - In yͤ Mew
    - And at other tymes when they fly
    - Shewing
      - Their diſeaſes, & how to cure them.
      - what Caſtings & Scowrings to give them
      - how to Bath, order, & Enſeame them wth their Caſtings & Scowrings
      - What Place is moſt fitt to Mew them in
- Termes of Art vſed in Falconry
- yͤ ſeverall ſorts of Hawkes Viz.
  - Long Winged as yͤ
  - Short Wynged as yͤ

	Whoſe Males are
Falcon	Taſſel-Gentle.
Ger-falcon	Ierkin.
Barbury falcon	Barbary Taſſel.
Lanner	Lanneret.
Merlin	Iack Merlin.
Hobby	Iack Hobby.
Bawrell	Bawret.
Goſhawk	Taſſell.
Sparow Hawk	Muſket.

- all wch have ſeverall names according to their Age, & takeing, as thoſe
  - taken out of a Neſt, and bred up by hand, are Eyeſſes.
  - Taken when they can hop from bough to bough, are branches.
  - Taken when they can fly, are Ramage, or ſoar Hawks.
  - taken when they haue preyed for themſelves, and brought over about Lent, are Lentners.
  - Taken when they have preyed 3 or 4 months are Haggards, & when Preyed a year & Mewed ſome feathers, are Inter Mewed Haggards.
- How to take them
  - By Netts.
  - By Traps, &c.
- The ſeverall ſorts of Game proper for each Hawk, hath for yͤ
  - River, as the
    - Duck, & Mallard.
    - Herne, & Crane.
    - Gerfalcon, Falcon, ſlight Falcon, Taſſell Gentle,
  - Land, as the
    - Hare, & Coney, Pheſant, Partridges, Wood cock, Snipe, Larke &c.
    - taken by yͤ
    - Goſhawk, Gerfalcon, Falcon, Sparowhawk, Merlyn, Hobby, Bawrell,
- Land Spaniels, & of yͤ great vſe in Falconry, wherein is to be Conſidered
  - Rules to Chooſe good ones,
  - How to feed, and order them
  - how to train them vp from whelps to be at comand.
  - The Diſeaſes incident to Spaniells, and their Cure.
  - yͤ affinity & acquaintance yͭ ſhould be between yͤ Hawk & Spaniel

HAWKING AND FAULCONRY.

PART II.

Wherein is treated of the ſeveral kinds of Hawks *now in uſe, with their* Natures *and* Qualities. *The manner of* Reclaiming, Mewing, *and* Flying *them for the reſpective* Game, *proper for each* Hawk; *with directions for* Feeding *and* Ordering *them. Their* Diſeaſes *and* Cures. *With a ſhort Diſcourſe of the* Spaniel, *ſhewing his Uſe in* Faulconry; *With Directions for the* Breeding, Ordering *and* Managing *him for the* Game: *Together with Directions for the* Chooſing, Ordering *and* Making *a* Setting Dog.

CHAP. I.

The Introduction.

ANcient Authors, ſuch as *Ariſtotle* and *Pliny*, make no mention of this Noble Art, from whence we may probably conjecture it was unknown unto them of that Age, elſe without doubt we ſhould have met with ſome Tracts thereof among other things of Antiquity. 'Tis true, many of them tell us that the *Eagle* is a Bird of Prey, but none of them have obſerved that this fierce and couragious Prince of the Air was ever reclaimed by the Art of Man.

In the Creation, all Creatures were willingly ſubject to our firſt Parents; but ſince, it is by conſtraint that they obey us, and not without great trouble mixt with frequent danger. Of this there is no clearer Demonſtration than this Art of *Hawking*, by means whereof a Bird, that by nature is wild, ſtrong, ſwift, and cruel, is brought to be tame and tractable, inſomuch that when ſhe is at her own liberty ſoaring in the Air, yet ſuch is her Compliance with and Obedience to her Maſter, that at his Hollow, or Signal of the Lure, ſhe deſcends and comes to his Fiſt.

In our Age this Art is arrived to its Perfection, but hitherto what hath been treated of it has been very Erroneous.

The *Greeks* and *Latins* finding the *Faulcon* of all other Birds of Prey, the moſt adventurous, hardy, and yet tractable, did communicate her Name to all others. The one calling *Hawks* by the name of *Jerax*, and the others by that of *Accipiter*. The *French* have imitated them, and we the *French*, and hence it comes that this Art hath its Denomination of *Faulconry*.

CHAP. II.

Of the ſeveral ſorts of Hawks.

THey who have wrote of this Art have divided the ſeveral ſorts of *Hawks* after a various manner; ſome aſſigning ten ſorts, others eight or nine, and others but ſeven. In this Treatiſe I ſhall ſpeak of thoſe in uſe amongſt us in this Kingdom, which are the beſt for any Game, either for River or Land.

Theſe *Hawks* may be comprehended under theſe two general Heads, *viz.* Long-wing'd, and Short-wing'd *Hawks*; and the rather for that all Long-wing'd *Hawks* require much the ſame Reclaiming, Manning, Feeding and Mewing the one as the other; the like do thoſe that are Short-wing'd, which differ much from the Long-wing'd. The Long-wing'd *Hawks* are the *Faulcon*, or *Slight-Faulcon*, the *Gerfaulcon*, *Lanner*, *Bawrel*, *Merlin* and *Hobby*.

The Short-wing'd are the *Gos-hawk* and the *Sparrow-Hawk*.

Note, That all Long-wing'd *Hawks* are brought to the Lure, and Short-wing'd ones to the Hand.

All theſe *Hawks* have their Males or Taſſels, which are nothing near ſo ſtrong, large and fit for Service; yet are they of very good courage and ſerviceable, eſpecially the *Jerkin*, *Taſſel-Gentle*, and *Taſſel* of a *Gos-hawk*, and ſometimes ſurpaſs the Females. And theſe *Taſſels* have names appropriate to them; *viz.* The

Gerfaulcon, her *Jerkin*.
Faulcon or *Slight Faulcon*, her *Taſſel-Gentle*.
Lanner, her *Lanneret*.
Merlin, her *Jack-Merlin*.
Hobby, her *Jack-Hobby*.
Bawrel, her *Bawret*.
Caſtrell, her *Jack Caſtrell*.
Gos-hawk, her *Taſſel of the Gos-hawk*.
Sparrow-hawk, her *Muſlet*.

All theſe *Hawks* have theſe Names, *viz.* *Eyeſſes*, *Branchers*, *Ramage* or *Soar-Hawks*, *Lentiners*, *Haggards*, and *Entermewed Haggards*.

She is called an *Eyeſs*, for being taken out of the Neſt and bred up by Hand in a Room. There is another *Eyeſs*, and that is alſo taken out of the Neſt, but bred up at Hack, that is, by bringing her up, and letting her fly at pleaſure, but obſerving a certain place to feed her at, and making there a Neſt for her; and this ſort ſo bred up is called a *Tackler*, or *Hack-hawk*, which generally proves the beſt.

She is called a *Brancher*, that is taken, when ſhe is but able to hop from Bough to Bough: And this Term properly belongs to Short-wing'd *Hawks*.

When ſhe can flee and prey for her ſelf, then ſhe is a *Ramage*, or *Soar-Hawk*.

A *Soar-Hawk* taken about *Lent* following, is properly called a *Lentiner*, but being taken in hot Weather generally is ſhort liv'd.

If taken after *Lent*, ſhe is properly called a *Haggard*; and when ſhe hath preyed for her ſelf a Year, and hath Mew'd moſt of her Feathers, ſhe is called an *Intermew'd Haggard*.

There are other names to be obſerv'd for *Hawks*, *viz.* The firſt Year ſhe is a *Soar* or *Ramage Hawk*; the ſecond an *Intermewer*; the third a *White Hawk*, then a *Hawk* of the firſt *Coat*, and every Year a *Hawk* of ſuch a *Coat*, as the ſecond, third, fourth, or the like, ſo long as ſhe liveth.

The Male of an *Eyeſs*, is an *Eyeſs Taſſel*; of a *Brancher*, a *Brancher Taſſel*; of a *Lentiner*, a *Lentiner Taſſel*; of the *Soar* or *Ramage Hawk*, the *Soar Taſſel*; and of a *Haggard*, the *Haggard Taſſel*.

According to theſe diverſities of Names and Times a *Hawk* is to be eſteemed; for by how much the later you take her, by ſo much the more difficult will ſhe be to be Reclaimed and Manned, as being the more *Haggardly*, or wilder of Nature; but being well Manned, doth make the beſt *Hawk* for the Field.

An *Eyrie* of *Hawks* conſiſts ſometimes of more, ſometimes leſs, four or five being a good *Eyrie*, and ſeldom more.

The Mails of *Hawks* are to be obſerved; the firſt Year they are of a reddiſh Plume, after they have Mew'd they are bleuiſh, and the older they are, the bleuer and whiter is the Mail; and 'tis obſerv'd, that the white Mail proves the beſt condition'd; the dark Mail is brave mettled, but ſubject to Crowing, that is, to fly at Crows.

The earlier a *Hawk* is hatch'd in the Year, the redder, brisker and livelier will her Eyes be, (which is her Excellency, and ſheweth a good *Hawk*) and one to be in Health; for when ſhe is Sick her Eyes will be pale and wan.

Thus having given ſome general Heads of the ſeveral ſorts of *Hawks* now in uſe amongſt us, in the next place I ſhall treat of each *Hawk* apart; and firſt of Long-wing'd *Hawks*, among which the *Gerfaulcon* requires the firſt place.

CHAP. III.

The Gerfaulcon.

THIS *Hawk* is much larger than any other *Faulcon*, and thence it is that they have ſometimes been eſteemed a peculiar kind of Bird, not comprehended under the general Name of a *Faulcon*; and for her largeneſs, ſome eſteem her to be a kind of *Eagle*. She is very fierce and hot, which cauſeth her to be ſo hard to be Reclaimed, ſo that her Keeper had need to be endowed with Patience, and muſt treat her gently; but being overcome ſhe proves an excellent *Hawk*, and will ſcarce refuſe to fly at any Game, as the *Hern* and *River Fowl*; but her Largeneſs is ſuch, that it frights the Fowl which are in theſe Parts, which hinders her killing her Game, and therefore ſhe is not eſteemed ſo uſeful as the *Haggard Faulcon*, or *Ramage Faulcon*.

She is a ſtately Bird to behold, and moſt fit for Princes and Perſons of Quality. Her Head and Eyes are like the *Haggard Faulcon's*, with a large bending Beak ſomewhat blueiſh; her Wings are ſhorter than the *Slight Faulcon*; ſhe hath large *Nares*, and a *Mail* like a *Lanners*; her Feet are large, and ſtrong armed, and her Train is much like the *Lanners*.

In going up to her Gate ſhe is much of the nature of the *Merlin*, not uſing the ſame way as other *Faulcons*, for they climb up upon the Train when they find any *Fowl*, and as ſoon as they have got above it, they make ſeveral Throughs or Down-ſhoots till they have killed or bound it; and after ſhe hath killed her Game, reward her as you do the *Faulcon*, which ſhall be next treated of.

Her Keeper had need to have a great care how to make her at firſt (as indeed all other *Hawks*) for being well made, ſhe will keep ſo; therefore be not too over-haſty in your Manning and Reclaiming her, but uſe a gentle and familiar way.

If you intend her for the Brook, Lure her as you do the *Faulcon*, and alſo feed her ſo, unleſs ſhe be a ſlack mettled *Hawk*, and then her Meat muſt be waſh'd, and Stones often given her, and Tyrings conſtantly, when ſhe is empty, keeping her warm after it.

When you have brought her forward, give her often Caſtings to cleanſe and purge her, as alſo to prevent the growth of too much Glut and Fatneſs in her inward Parts, which will endanger her Life, (which is but ſhort at beſt) unleſs in very skilful Hands, which, together with the great Trouble and Charges in keeping her, makes it that ſhe is in ſo little uſe among the Gentry, and the rather for that the *Haggard Faulcon* doth perform the ſame, and better, unleſs it be at the *Hern* or *Kyte*, for which Flights the *Gerfaulcon* and *Jerkin* are only fit.

CHAP.

CHAP. IV.

Of the Faulcon, *or* Slight Faulcon.

THE *Faulcon* or *Slight Faulcon*, is of ſeveral Shapes, *viz.* ſome large, ſome ſmall, others long ſhaped, and ſome round truſs'd; ſo are they alſo of ſeveral Mails, as White, Black, Brown and Ruſſet.

The principal Sorts of *Faulcons* are by all agreed to be the *Intermewed Haggard*, and the *Lentiner Faulcon*, now much in Uſe.

Thoſe that are excellent are thus ſhaped, *viz.* broad Shoulder'd, carrying her Breadth down to her Train wide and ſtrong, with ſhort Arms and a large Foot, a ſhort Beak and a large Nare, and cloſe plum'd, high Thighs, with White on the Inſides, great, full, black Eyes, a large Breaſt, her Head plumed dark or black, and a white Wreath. In her Flight ſhe is known from another Hawk, by her nimble and quick getting up to her Place, by her ſtrong Stirring, and by her Skill in her Stooping, and Killing her Game.

She is very bold and hardy, of a great Strength and Courage to endure both Wind and Weather, gaining her Prey by main Wing; and into what Place ſoever ſhe cometh ſhe is Victor. By Nature ſhe is very hot, and conſequently the better able to endure cold Weather: Witneſs her high Soaring in the Air; and likewiſe when once ſhe begins to caſt her Feathers, ſhe meweth with more Expedition. Her greateſt Fault is, ſhe is more difficult to be reclaim'd than any other *Hawk*.

From this Bird the *Faulconer* is ſaid to derive his Name, as well as the Art it ſelf; for that it ſeems the chief End of a *Faulconer*; and the Art of *Faulconry*, is rightly to reclaim and man the *Faulcon*; for ſhe flyeth at all Games, both in Field and River, but moſt proper for the River: So that he that thoroughly underſtands how to bring the *Faulcon* to that Perfection that ſhe is capable of, may well deſerve the Name of a Maſter of this Art.

This *Hawk* is a great Pains-taker, no Weather diſcouraging her from her Game, if poſſible to be found; and though ſhe hath laboured two or three Days together in ill Weather, yet ſhe will not be tired; and indeed every *Hawk* requireth Exerciſe: But old *Staunch Hawks* ſhould have more Reſt.

There is a pretty way for flying at the *Kyte*, which affords good Diverſion: It is thus perform'd; Get an Owl, and tye a ſmall Fox-Tail, or ſome ſuch Device, to one of her Legs, that ſhe may not give you the Go-by, and being in the Field, the Day being warm and clear, you will ſoon diſcover a *Kyte* cooling herſelf in the Air; then let your Owl fly, and the Kyte will not fail to make near her to gaze upon her; and when the Kyte is deſcended pretty near her, then let fly your *Hawk*, and the Kyte perceiving the Surprize, doth endeavour to preſerve herſelf by mounting up, and winding the moſt ſhe can. And here the Combat begins, but oft-times none can ſee where it ends, both mounting out of Sight; but in the End the *Hawk* becomes Victor, and by main Strength and Courage beats down the Kyte; yet not without many Turns and Wrenches in the Air, to the great Pleaſure of the Spectators.

CHAP. V.

The Lanner.

THIS is a *Hawk* well known, and much uſed, being called a *Kitchin-Hawk*, and that not improperly, as being able to make more Flights in a Day than any other *Hawk*, except the *Goſ-hawk*. She is both for the River and Field, but chiefly for the laſt for Pheaſant and Partridge.

If ſhe is excellent, ſhe ſhould have her Head ſmall, her Beak ſhort, her Feet bleuiſh, with ſhort Tallons; her Feathers before mix'd with Black and White, not traverſed as the *Faulcons*, but with ſtraight Spots amongſt the Plumes, and her Neck ſhort and thick.

She is very eaſie to be mann'd, yet hard to be made a good *Hawk*, by reaſon of the Slackneſs of her Mettle; and he only can make her a good *Hawk* that can keep her Stomach in good Order.

She is thus known from other *Hawks*; ſhe is of a more blackiſh Colour, is leſs arm'd and pounced, and hath a leſſer Beak.

The *Lanner* is leſs inclining to the Crock than other long-wing'd *Hawks*, and therefore moſt fit for a young *Faulconer*. She holds her Perch without Baiting, more conſtantly than any other *Hawk*.

If you fly with the *Lanner*, ſhe muſt be kept very ſharp.

She keeps her Caſtings long, therefore give her hard Caſtings made of Tow, and ſometimes Knots of Wormwood, and often Stones.

After ſhe hath flown to Mark, ſhe will ſit or fly according to her Mettle and Nature; and for that reaſon ſhe is very obſervant to the Dogs, giving great Attention to their Queſting, and all to give herſelf a Labour, and that ſhe may kill at her Eaſe and Pleaſure.

She is of a harſh and ſtubborn Mettle, and wants neither Courage nor Strength in the Field, being wild; and yet, when under our Keeping, will ſtand in need of all the Spurs that can be given her to make her to do her Buſineſs; ſo that her Keeper had need uſe all the Care and Gentleneſs he can towards her, more than towards any *Faulcon*. The *Eyeſſes* are indifferent gentle, but the *Haggards* ſurpaſs in Wildneſs.

All the time of her Luring, the *Lure* ſhould be garniſh'd with hard waſh'd Meat only, and moſt of her Rewards ſhould be Bits from her Keeper's Hands; and being of a hard and ſtrong Conſtitution, you are to uſe hard waſh'd Meats, with Stones, according to her Temper.

She is exceedingly addicted to Carry, and therefore the greater Care ought to be had in reſtraining her from that Vice, which may be thus prevented: When ſhe is brought to know the Lure, you muſt lure her only one at a Time, ſhe being ſubject to catch at another; and if you obſerve not this, you hazard her Spoiling; for when once ſhe begins to know the Lure, ſhe will ſettle her Love on it with a greedy Deſire to hold it faſt, and not to part with it: And from hence it is, that if you uſe it often, ſhe will, through Fear of being deprived of it, endeavour to carry it from you.

You muſt be very careful of begetting a good Acquaintance and Familiarity betwixt her and the Spaniels; for ſhe hath a Coyneſs more than other *Hawks*; and therefore at firſt accuſtom her to few Spaniels, and ſuch as are ſtaunch, and well beaten to the Field, and at good Command; for ſhould ſhe at firſt take any Offence at them, it is a hard matter to reclaim her from it.

The *Lanners* may be made to fly the River, but it will require great Care, long Training, and much Skill and Conduct; however ſhe is capable of it: But then you muſt neither feed too hard, nor fly too much, either drawing her down from her wonted Gate and High-flying, although ſhe were never ſo hard and able: You muſt therefore be careful to feed her well, and not to ſet too ſharp an Edge on her Stomach when you deſign her for Flying; for her Nature rather leads her to return to her Keeper for a Reward, than to take Pains for it.

What hath been ſaid of the *Lanner* may be ſaid of the *Lanneret*, obſerving to keep her high, and as full of Fleſh as you can; to do which rightly, you muſt give her due Quantities of Stones and Caſtings, leſt ſhe be overcome with Glut and Fat: But being well train'd, and made in ward to the Man, ſhe may be flown to the River, and being well quarred, proves a good Killer. But I hold ſhe is beſt for the Partridge, if you can thoroughly reclaim her from her Averſion to the Spaniels.

In Summer, the Weather being hot, you ought to feed ſo much the cleaner, and waſh the harder. In Winter, being cold, feed the better; and by this means you may hold an even Hand over them.

CHAP. VI.

The Merlin.

THIS kind of *Hawk* is fit for Ladies, by reaſon of its Smallneſs and fine Shape, as alſo for its good Conditions; yet it is of a bold Courage, being in all Points like the *Gerfaulcon*, and muſt be kept after the ſame manner.

If ſhe is well mann'd, lur'd and attended, ſhe will prove an excellent *Hawk*, being of a quick Flight, and very bold and eager at her Game, which is the Thruſh, Black-bird, Quail, Lark, and the like; alſo the Partridge, and will attack thoſe larger than herſelf: And tho' ſhe hath not the Strength to hold the Partridge, yet with the great Strength of her Beak, ſhe will kill them, in which is her Excellency.

Having made her to the Lure, and that ſhe will patiently endure the Hood, then make her a Train with a Partridge; if ſhe foot and kill it, reward her well, permitting her to take Pleaſure thereon; and being well enter'd this way, you may fly her at the wild Partridge, and be ſure to reward her with it, if ſhe kill, cheriſhing her alſo with your Voice, which is a great Encouragement to her. If ſhe proves not hardy at the firſt Train, try her with a ſecond or third; and if ſhe proves not good then, you may deſpair of her.

For the Manning and Reclaiming the *Merlin*, uſe the ſame Ways and Means as with *Faulcons*. But ſome are of Opinion, that *Merlins* cannot be mew'd, and if they be, are ſeldom afterwards good; but Experience declares the contrary: For if they are hardy, and have flown well in their Soarage, they have proved much better after their Mewing.

It is uſual to fly a Caſt at a time, which is very pleaſant; for the Birds are ſo terrified at the Sight of them, that they chuſe rather to take ſhelter under the Horſe's Legs, than to rely on their Wings. And a Caſt of *Merlins* makes excellent Sport for the *Snipe* in the Winter, being much like the Flight of the *Hern* and the *Gerfaulcon*.

To order this Flight aright, do thus: When your *Merlins* are thoroughly mann'd, and made gentle, carry them into the Field, and having found a Lark, or ſome ſmall Bird, make looſe their Hoods, and go as near as you can into the Wind to the Bird, and as ſoon as the Bird riſeth, unhood them, and caſt them off to fly; and when they have beaten down the Game, let them feed thereon for their Reward. At firſt you muſt fly them with the moſt Advantage you can, that they may not be over-wrought.

CHAP. VII.

The Hobby.

THIS *Hawk*, next the *Merlin*, is the leaſt of all *Hawks*, yet had in good Eſteem, being obſerved to follow the Faulconer and Dogs in the Field; and when ſhe eſpies any Lark, or other ſmall Bird, ſhe makes at them with great Courage, few eſcaping her.

As to her Shape and Colour, her Legs are yellow, her Back blue, with the Crinets, or ſmall Feathers under the Eyes, black; the Top of her Head is like the *Faulcon*'s, with two white Seams on her Neck; her Breaſt-Feathers are for the moſt part brown, yet powder'd with white Spots; her Back, Train and Wings are blackiſh; her Stretchers and Pounces large, in reſpect of her ſhort Legs, and her Wings and Sails larger than any other *Hawk* of her Bigneſs.

She is a *Hawk* of the Lure, and not of the Fiſt, (as all Long-winged *Hawks* are) and is a High-flier, very nimble, bold and daring, and will attack a Kyte, or Crow.

She affords very good Diverſion with Nets and Spaniels, which is thus done: Cauſe your Dogs to range, and beat about the Field, to ſpring the Larks; but the poor Birds, eſpying the *Hawk* ſoaring aloft, dare not betake themſelves to their Wings, thinking to lie cloſe; and ſo you draw the Nets over, and take them.

The *Hobby* lieth indifferent well on her Wings, and when ſhe follows the Spaniels as they range about, will make divers Turns on them; ſo that when the Game is ſprung ſhe may the more advantageouſly ſtoop from her Wings; and being well mann'd, ſhe ſerves for ſeveral ſorts of Game.

The *Hobby* muſt be taught and trained in each Particular like a *Faulcon*; and obſerve, not to fly her in the Heat of the Day; for then ſhe is apt to ſoar, and be loſt, (tho' but for a time, being to be found again) but about Two a Clock in the Afternoon begin to fly her; and ſo hold on till near Sun-ſet; longer is not good, for fear of loſing her; and if you order her according to the Directions given for the *Faulcon*, ſhe will make a *Hawk* of great Delight;

for you may fly her oftner, and when you cannot any other.

She is often made to fly the Partridge at the firſt Seaſon of the Year; alſo the Quail, Wheat-Ear, and the like.

In plain Champion-Fields, where great and tall Buſhes grow, the *Hobby* will make abundance of Stoopings, (with Reſting ſometimes) and if the Buſhes ſtand at ſome reaſonable Diſtance, the Birds will be ſo terrified at the Sight of her, as to ſuffer you almoſt to take them up with your Hand, but you may eaſily kill them with a Croſs-Bow. And thus they will do ſeven or eight times, making their Stoopings with Reſt between, ſo that the Sport will laſt three or four Hours.

The *Eyeſs Hobby* is beſt for the Mount; and I hold this way the beſt for Reclaiming and Preparing them. You muſt take her out of the Neſt a little before ſhe is able to ſtand on the Side thereof; then provide ſome other Neſt on any Tree in your Garden or Orchard, about ſeven or eight Foot from the Ground; and there at ſet times feed her with Bits from the ſharp End of a Stick, and when ſhe is able to ſtand ſtiff on her Legs, and to tug hard for her Meat, then teach her to come from thence by your Art, in lureing and calling her, though it be but a Foot at firſt, and ſo by Degrees further and further, until ſhe will come from the Neſt to you as far as ſhe can well hear you; and there muſt ſhe attend on her Wings, until you take her in. When ſhe is full Summed, ſhe muſt have her Jeſſes, Bewits and Bells, with other uſual Ornaments and Dreſſings; then muſt ſhe be made acquainted with the Hood, and Carriage on your Fiſt all Day: She muſt be alſo accuſtom'd to Men, Horſes and Dogs, and train'd with Larks, which had need be let looſe with a great deal of Caution, that ſhe perceive not they are let go from your Hand. Her firſt Trains ſhould be let looſe in a Creance of brown Thread, aud mounted forty or fifty Foot high before you unhood her: Three or four Trains thus killed will be a ſufficient Introduction. When ſhe is thus thoroughly made, you may fly her at the Lark with Advantage of the Wind, and near Approach, and afterwards you need not uſe ſo much Care; for ſhe will ſoon gain Strength, and underſtand her Buſineſs. At ſuch times when you do not uſe nor fly her, you need look after her only at Feeding-times, remembring to draw her by your Lure and Voice, at leaſt a Quarter, if not half a Mile from Home, and there feed and leave her; for when ſhe hath once fed, feak'd and rejoiced, ſhe will ſoon find the Way Home to the Place where ſhe hath been bred and train'd up. On Reſting-days, when ſhe is gorged, you may find her in the Heat of the Day flying and ſoaring aloft, whereby ſhe becomes acquainted with the adjacent Places; ſo that if you leave her three or four Miles from Home with her Prey in her Foot, you need not fear her coming Home after ſhe hath eaten it, and rejoiced, as aforeſaid; but you may not truſt her thus longer than the Beginning of *September*.

There are of the *Haggard Hobbies* that are very cunning in their Flights, and will deſire to be High-flown on their Wings, that from thence they may conquer their Prey with Advantage, and will hardly be provoked to go from the Fiſt to their Place. When they fly not, their Feeding ſhould be clean waſh'd Mutton, or the like; they ſhould alſo have Stones and Caſtings duly given: And you muſt be careful of ſetting a right Edge on their Stomachs when you fly them; for they are in all Reſpects, according to their Capacity, as bold and hard as any other *Hawk* whatſoever.

CHAP. VIII.

The Bawrel.

THIS *Hawk* for Largeneſs and Shape is ſomewhat like the *Lanner*, but hath a longer Body and Sails. She is generally a faſt Goer afore-head, and a good Field-Hawk; and in Encloſures will kill a Pheaſant; but being a Long-winged *Hawk*, is unfit for the Coverts.

CHAP. IX.

The Caſtrel.

THIS is a ſort of *Hawk*, which for Shape is much like the *Lanner*, but for Size like the *Hobby*: Her Game is the Grouſe, a Fowl common in the North of *England*, alſo in *Windſor* Foreſt, and divers other Places. She will kill a Partridge; but it is a *Hawk* of a very cowardly Nature, and a ſlow Goer afore-head, and therefore not much in Uſe.

CHAP. X.

The Goſs hawk.

THIS is a Short-winged *Hawk*, whoſe Nature and Properties require different Management, that is, Manning, Reclaiming and Mewing, from *Falcons* and other Long-winged *Hawks*. And of all *Hawks* ſhe is doubtleſs the moſt ſhy and coy of any, both towards the Men and Dogs, requiring more the Courtſhip of a Miſtreſs, than the Authority of a Maſter, being apt to remember any unkind and rough Uſage; but being gently handled, will become very tractable, and kind to her Keeper; and may be brought from that Averſion ſhe hath to the Spaniels.

There are divers Sorts and Sizes of *Goſs-hawks*, which are different in Goodneſs, Force and Hardineſs, according to the ſeveral Countries where they are bred; but no Place affords ſo good as thoſe of *Muſcovy*, *Norway*, and the North of *Ireland*, eſpecially in the County of *Tyrone*.

The moſt weighty are by many eſteem'd the beſt, and for Colour the White-Mail; for generally they are bold, and yet not ſo wild, but that by a little Induſtry they may be reclaim'd; and thoſe of this Colour are for the moſt part ſtronger than others, and may be well made to fly the Hern, or any ſuch ſtrong Bird.

As to the Proportion and Shape of a good *Goſshawk*, ſhe ſhould be thus made; To have a ſmall long Head, a ſhort Beak, a large Throat, her Nares, Back, and Feet large, a long Neck, big Breaſt, ſhort fleſhy Thighs, ſhort and ſharp black Pounces and Tallons, large Feathers, under her Train to be engouted, that is to have black Spots; the Train-Feathers to be ſhort, and the Covert Feathers of the Train ſpotted with black Bars, and of theſe the fewer the better.

The Signs to know when ſhe is in Health is by her Pounces, which will be black, and her Sear and Feet well guilded.

The *Goſs-hawk* by Nature is very hardy, and catching for Prey, and withal very diſdainful; ſo that a nice Hand muſt be kept over her, with conſtant carrying her bare-faced, with the Perch to be where People are frequent, and that ſhe take no Fright; ſo that they that deſire to keep her long, muſt uſe her gently, and be well adviſed when and how to fly her, leſt if ſhe miſs her Prey ſhe take Pet, and ſo make you wait upon her.

The *Goſs-hawk* is very apt to take Stand on any Tree, and when they diſcover their Prey, will quit the Tree with ſuch Fierceneſs and Strength, that they ſeldom miſs their Game.

Your *Goſs-hawk* being mann'd, take her to the Field, and with a Train-Partridge embolden her, and let her plume thereon, which will make her more eager. If the Partridge chance to ſpring, let her fly, and if ſhe kills it, reward her: And if it happen that the Spaniels ſhould take it (as oft-times high-mettled Dogs will do) then be ſure to ſnatch it ſpeedily from them, and caſt it out to your *Hawk*, crying, *Ware Hawk, ware*, and let her feed thereon at pleaſure. Thus uſing her three or four times, if ſhe have any Mettle, ſhe will doubtleſs become excellent for this Sport. But take notice, that after you have thus rewarded her with ſuch bloody Meat at Fill, you muſt not fly her in at leaſt a Day or two after; and at firſt enter her to the ſtrongeſt Partridge you can; for if you enter her on young ones, it will make her lazy, and not care for long Flights. If ſhe kill, reward her therewith, and be ſure have a great Care to keep her in good Order: And in caſe your *Hawk* (as being out of Order) turn Tail, or give off the Flight, and take a Tree, call in your Spaniels to the Retrieve that way ſhe flew the Partridge, and let the *Falconer* alſo draw himſelf that way; and being provided with a Partridge, let him caſt it out to her, (but ſo that ſhe ſee it not) which will make her believe it is the ſame ſhe flew at, and when you caſt it out, cry, *Ware Hawk, ware:* Then make her ſeize it, let her feed thereon, and by this means ſhe will be encouraged to fly out her Flight another time. If the next time you fly her (which muſt be after a Day or two) ſhe ſerve you ſo again; then obſerve the aforeſaid Directions, and if ſhe yet retain her ill Cuſtom, ſhe will not be worth the Keeping.

Partridge-Hawking.

THIS Game affords great Diverſion and Recreation, and is attended with no ſmall Profit; for I have been credibly inform'd by a worthy Gentleman, and an expert *Falconer*, Sir *Ralph Dutton*, that he hath kill'd in a Seaſon with one *Goſs-hawk* an Hundred Brace of Partridges.

To take them, your chief Buſineſs is to be prepared with about four or five Couple of Spaniels, that are good Rangers, and ſuch as will hunt at Command in Compaſs, whoſe Motion you are to follow on Horſe-back, with your *Hawk* on your Fiſt, ſo that you may be ready to caſt her off upon their ſpringing any: And when ſhe hath killed it, for her Reward obſerve the aforeſaid Directions.

It is now the Mode to go into the Fields with a Caſt or two of *Hawks*, and about ſix or ſeven Couple of good ranging Spaniels, and when a Covey is ſprung, to caſt them all off at a time, which affords good Diverſion to the Spectators. But, in the Opinion of ſome, this Way is not approved of, as being deſign'd rather to go out to kill what they can, than only for the Sport.

The *Falcons*, and other Long-winged *Hawks* being flown at the Field, if they kill not their Game in the Foot the firſt Flight, are taught by Nature to climb up, and mount aloft upon the Mark for their Advantage, to the end they may kill at their Stooping. Some indeed will truſt to their own Swiftneſs, and maſter their Prey at the Stretch. So alſo the *Goſs-hawk*, thro' her ſwift Flying, doth at her pleaſure maſter her Prey; whereas thoſe others that are Slugs and ſlow of Flight, do win what they get by Policy, watching their Advantages, wherein their Keeper ought to aſſiſt them.

The *Gos-hawk*, in the time of her Fulneſs and Pride, will not, without very gentle Uſage, be brought conformable in any meaſure to her Keeper's Will; but when ſhe comes to be enſeam'd, and made ready for the Purpoſe, is exceeding prone to Bate, and conſequently to throw herſelf into ſeveral Diſtempers, which ſhortens her Days. To prevent this, and many Inconveniences, you ought with your utmoſt Diligence to make her inwards and loving to you.

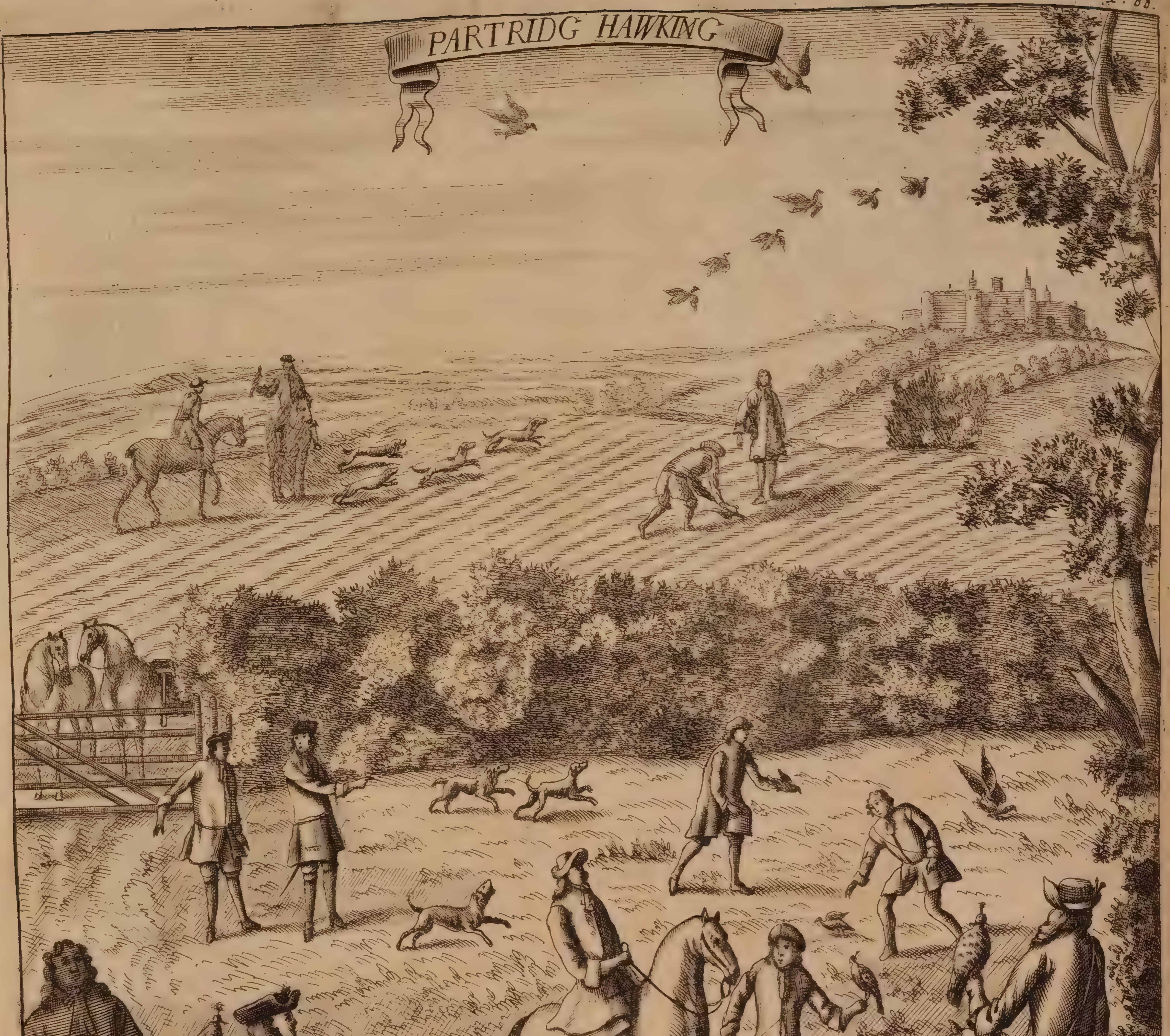
As for cold Meat, it matters not much whether you waſh it or not; for the Blood being cold for a Day or two, hath loſt its Vigour; but uſe not cold Meat long, for that breeds many Diſeaſes. When you go into the Fields to fly, take a Meal's Meat, well waſh'd and clean dry'd; and after ſhe hath caſt in the Morning, give her a Bit or two as ſhe is hooded; and if you fly her not in about an Hour after, give her another Bit, and ſo afterwards according to your Diſcretion, to keep her Stomach ſharp, and yet prevent Wind, whereunto all *Hawks* are ſubject.

When you ſet her to the Perch, Hood her, and indeed your Fiſt for the moſt part ſhould be her Perch, until ſhe is thoroughly Reclaimed and well flown; for in her making, a little reſt will cauſe her to return to her firſt Rามageneſs, and to forget what you have taught her.

Whilſt you are Making, Enſeaming, and Reclaiming her, feed her often, and but a little at a time, and not with ſet Meals, and give her often Tiring upon a ſweet Rump of Beef, or the Pinions of the Wings of a Fowl, which will keep her Head clear, and quicken her Stomach; for when once ſhe is full, ſhe hath no more love for you at that preſent; whereas if you keep her ſharp, ſhe will be regardful of you, liſtning for your coming with joy and delight when ſhe hears your Voice, for then ſhe expects ſomething from your welcome Hands.

When you Enter her, put her on the higheſt pitch of Hunger to prevent the worſt, and then you ſhall diſcover both her Mettle and Love; beſides you ſhall thereby prevent many Inconveniences of Frights and Sloth, which attend an imperfect and dead Stomach.

Having


PARTRIDG HAWKING

To the Worshipfull John
Bassett of Heanton-Punchardon
In Devon-Shire Esq.
This Plate is humbly dedicated by Richard Blome

Having ſhewed how to make your *Goſs-hawk* for the Land, it will not be amiſs to give ſome Inſtructions how to make her for the River, for the *Hern*, *Wild-Gooſe*, *Duck*, *Teal*, &c. which is thus done. Firſt, Make her to the Fiſt, as is already preſcribed; then carry her without Bells and enter her with a live Duck tyed to a *Creance*, and ſo draw near it with your *Hawk* on your Fiſt unhooded, and then throw out the *Duck* and caſt off your *Hawk*, and if ſhe take it at the *Souſe*, let her be Rewarded and fed with a reaſonable Gorge: Then take her up to your Fiſt, hooding her, and giving her a Leg or Wing thereof to plume upon.

After this manner do two or three times with about three Days reſpite between, and it will well enter her for the Game.

Directions for Keeping and Reclaiming a Goſs-hawk*; as alſo how to Mew and draw her ut of the Mew, and make her flying.*

THE chiefeſt Skill of a *Falconer* is to make his *Hawk* delight in her Flight, which is occaſioned by kind Uſage; and therefore it happens that many *Goſs-hawks* (and indeed other ſorts) that are good in their *Soarage*, become worſe after Mewing.

At the firſt entrance he ſhould be provided with a *Train-Partridge* in his Bag to Reward her on occaſions, to gain her love; and be ſure to keep her always in good order; and to that end obſerve, that all *Gos-hawks* are naturally full of all moiſt Humours, eſpecially in their Heads, and therefore he ought to ply them with Tiring and Pluming Morning and Evening, to open their Heads, and occaſion them to caſt out Water thereat. A Rump of Beef, a Pigeon, or the Leg of a Chicken is very good to plume them.

You ſhould give her every Night Caſtings of Feathers, Cotton, Linnen Thrums, a Hare's, or Rabet's-Foot; and obſerve in the Morning whether it is wrapped round or not, whether dry or moiſt, and of what colour the Water is that drops out of the Caſting; for by theſe ſigns you may know the condition of your *Hawk*, for the cleaner the Water is, and the ſweeter the Caſting, the better ſhe is in Health; for if her Caſtings are clammy, ſhe is not fit to be flown that Day.

Her Mewts muſt alſo be obſerved, to ſee if they be clean or not, and preſcribe Remedies accordingly. He muſt keep her clean, and her Feathers whole, and if any happen to be broken to Imp them, and if bruiſed to put them into warm Water to ſtraighten; but if they happen to be in ſuch a place that you can't put them into Water (as towards the Plumage or Pinion) then heat the Stem or Stalk of a *Cabage* in warm Water, ſlit it and ſo lay it on the Bent-feathers, which will ſoon draw them ſtraight. And a good *Falconer* ſhould always be provided with his Imping-Needles, his Semond, and other Inſtruments. He ſhould ever keep her high and luſty, yet ſo that ſhe may be in a condition for a flight.

If ſhe chance to bathe her ſelf in cold Weather, after a flight (which ſometimes ſhe will do through the careleſneſs of the *Falconer*, in not letting her Bathe her ſelf) ſet her in the Sun and ſhe will ſoon dry her ſelf; but if it is Rainy or Froſty-Weather, then ſet her near a Fire with her Back towards it, and not her Gorge.

Gos-hawks by nature are addicted to *Poult*; that is, to kill *Poultrey*. To bring them from that ill quality, ſet their Perch in ſome place where *Poultrey* comes to acquaint them therewith, by which means they will not be apt to fly at them, and the Perch ſhould be lined with Cotton or Canvaſs; and in Warm-Weather ſhe may be ſet for an Hour or two in the Morning in the Sun-ſhine, and always obſerve never to ſet her near a Wall, to the end ſhe may not hurt her Feathers when ſhe Bateth.

It is requiſite to fly the *Goſs-hawk* the firſt Year to the Field, and not to the Covert, by which means ſhe will learn to hold out, and not to turn Tail in the midſt of her flight; For a Mew'd *Hawk* is very tractable, and it is better for her to be a little Ramage than over-Manned.

If you deſign her for great Fowl, then make her Trains thereof, and do not fly her at leſs.

If you would have her to fly with Dogs, train her up with them, and Reward her with them to make her acquainted with them; but of this more in the Chapter of *Spaniels*.

In caſe ſhe is in flying, and a great Killer, you may give her Bloody Rewards, with Suppers of the ſame, or at leaſt three times a Week; but not ſo in the time of Reſt.

Concerning Caſtings.

AS for the Caſtings to give your *Goſs-hawk*, I adviſe you neither to this nor that in particular, but ſearch out what agreeth with her beſt, and that uſe. Be ſure to get her a good Stomach before you proffer her Caſtings, and let it be no more than what ſhe can eaſily ſwallow; when once ſhe hath taken it, give her a bit or two of Meat to pleaſe her at firſt putting on her Hood, in which ſhe muſt ſit, until you find ſhe hath put over her Caſting into her Pannel. She will ſoon perceive what it is ſhe is to do when you afterwards offer her any, if you Reward her kindly after her taking it. When once ſhe hath put it into her Pannel, give her a reaſonable Supper. I hold it not amiſs to acquaint you with this Method at the beginning; but when once ſhe is truly Enſeamed give her her Supper, and when you are going to Bed, give her her Caſting with a little bit of Meat. When ſhe is in flying, give her Plumage every Night when you feed her up; but when ſhe Reſts, feed her at Night with very clean Meat without any Caſting, and prepare a Thrum or Hare's Foot Caſting of a reaſonable ſize, not too big, and early in the Morning ſhe will Caſt; and then in half an Hour you may give her a bit or two of Meat, and ſhe will be fit to fly in the Afternoon.

Your own Obſervation of the difference between the Complexions of Caſtings thus given, compared with thoſe given upon a full Feeding, will ſoon convince you that the latter way is ſafe, and not unpleaſing to your *Hawk*, as the other is. But if you will give Caſtings at Night, feed her not too full, and give her a little Plumage with it. If ſhe diſlikes Caſtings of Thrum (as many do) then give her thoſe of a Hare's or Coney's Foot, the Bones and Fur being well broken together.

How a Goſs-hawk ought to be called looſe, and taught to Draw, and in what Places.

FOR calling your *Goſs-hawk* looſe, that is, to teach her to follow you from place to place, you muſt take her ſome diſtance from Home, and to ſuch a place that is remote from a Town or Houſe where *Poultrey* are, being great Temptations to her; but the moſt convenient Place is a young Wood or Grove ſolitarily ſeated, and having prepared her Stomach fit for the purpoſe, put her up into ſome Tree, walking ſome diſtance from her into the Wind, gently uſing your Voice as if you had Spaniels with you, to the end ſhe may be the better invited to follow you; and if ſhe doth, let her not be too long, but call her to your Fiſt, Rewarding her with a Bit or two of Meat, which you ſhould have in a readineſs in your Bag; Then put her up into a Tree again, and with a gentle and low Voice call her after you, as before directed, ſaying, *Come, Come.*

Pheaſant Hawking; *Giving Directions how to enter a* Goſs-hawk *to the* Covert *for* Pheaſants.

THere's none can order and manage the *Goſs-hawk* to the *Covert*, but ſuch as are of a ſtrong and able Body, with Spirit and Courage added thereto to follow her up and down; and having one ſo qualified obſerve theſe Directions, for this Flight is different from the Champion-Fields, where the *Hawk* and Game is always in ſight: For you are to make her to the *Pheaſant*, and ſuch like ſort of Fowl that always frequent Woods, Coverts, and the like obſcure Places, which hinder your Sight that ſhould be your guide in the Flight. And for the better effecting this, you muſt be very careful what Place you firſt enter her in, to the end ſhe may be well guarded and kept from taking any diſlike or offence at the Dogs, which if ſhe do at the firſt Entrance, it will be difficult to bring her to endure them again: For the former Familiarity betwixt her and the Dogs was bred in the Field, where ſhe might ſee them before they came at her, and they were prevented by the *Falconer*'s running haſtily into her, to occaſion any ſuch Fright. Therefore to divert any ſuch ill quality at the firſt, ſhe muſt be better Manned, Followed and Govern'd, than in the Field; ſo that if you would have her made a perfect *Hawk*, and to be bold and venturous in thick Woods with the *Falconer*, the Dogs and the Game, you muſt make good choice of the Time, Place and Dogs.

For the Time, it ſhould be early in the Year, *viz.* about *January*, *February* or *March*, which is before the Approach of the Leaf; but the beſt Months for *Pheaſant Hawking*, are *November*, *December* and *January*, after which you muſt be preparing her for the Mew, that ſhe may be early Mew'd, to Fly at the Field the next Seaſon for *Partridge*.

Having made good choice of the Place to Fly your *Hawk* in, and that you have let her go unto her Flight; you muſt be ſure to command your Dogs behind you, until you have found her; and if ſhe hath killed the Game, it is ſufficient, if not, but that you find her on the Ground out of an eagerneſs of the Sport (as many will be at firſt entrance) if there be any Tree that ſhe may well ſee from it, ſet her thereon, otherwiſe keep her upon your Fiſt, and beat for it again; then if ſhe Fly and kill it, keep back the Dogs until you have found her; and ſuffer her to Plume, and take her Pleaſure for a while, then call in your Dogs gently, and walk about her, encouraging her with your Voice, that ſhe may be acquainted with the Noiſe; and when you ſee it convenient ſtoop to it on your Knees, and rending the Chaps, give her Blood in the Throat, which will much pleaſe her. Alſo pare away the hard Brain-pan from the reſt, and give her the Head in her Foot to eat, the Ground hiding from her the Body, and having your Dogs cloſe by (which muſt be in great Command), when ſhe has done, and begins to look about her, then throw the *Pheaſant* among them that ſhe may (together with ſome words of Rebuke from you) make them give way with Fear unto her; but let them be in her ſight, and having ſufficiently taken her Pleaſure, take the *Pheaſant* gently from her, leaving the Head in her Foot, and let her eat it on the Ground, where the *Quarry* lay, only reſerving a little to take her to your Fiſt withal; then put on her Hood, and Reward her according to the former Directions, which will much win her Love to you. And according to theſe Directions, with a good Keeper, fair flying, and two or three ſtaunch Spaniels, in a ſhort time ſhe will be brought to good Perfection.

For the Emboldning your *Hawk* to make her take a *Pheaſant* from the Perch with Courage, obſerve theſe Directions: Before you fly her, provide a dead *Pheaſant*, or one alive, which is beſt, which take along with you into the Wood, and when you are diſpoſed to call your *Hawk* for her Supper, and as ſhe is drawing and attending after you for the ſame (having a convenient Pole ready for that purpoſe) call your *Spaniels* about you to make them Bay, and ſuddenly breaking the Neck of the *Pheaſant*, lift it upon a Bough that the *Hawk* may have ſight thereof, and with your Voice call and incourage her to come in to ſeize it; and if ſhe pulls it down, be ſure that you ſo rebuke the Dogs, and keep them at command, that at her deſcending they give her way; and that ſhe may Plume, and take her Pleaſure thereon, which in a ſmall time will ſo embolden her, that when ſhe ſeeth a *Pheaſant* take Perch, ſhe will immediately ſeize it, and pull it down; nor will ſhe be fearful of the Dogs; for when they are once Manag'd and brought into good Subjection, they will know their Duty, and be fearful of Tranſgreſſing, ſo that you may venture them if you were abſent: But be ſure you have no ſtrange Dogs, for one may ſpoil your Sport, drawing the reſt into Errors, and cauſe them to hunt after any thing: Nor is it convenient to hunt with many *Spaniels*, for two or three Couple are enough to range and beat about a large Wood, and to Perch a *Pheaſant*.

For Reclaiming and Ordering an Eyeſs Hawk.

YOU muſt be provided with ſome convenient cool Room that is Airy, with two Wicker or Glaſs Lights to let in the Air, and on the Floor for coolneſs ſtrew freſh Sand, and place in the Room two or three great Turfs or Sods for her to ſit cool upon; you muſt alſo have two or three Perches lined, and

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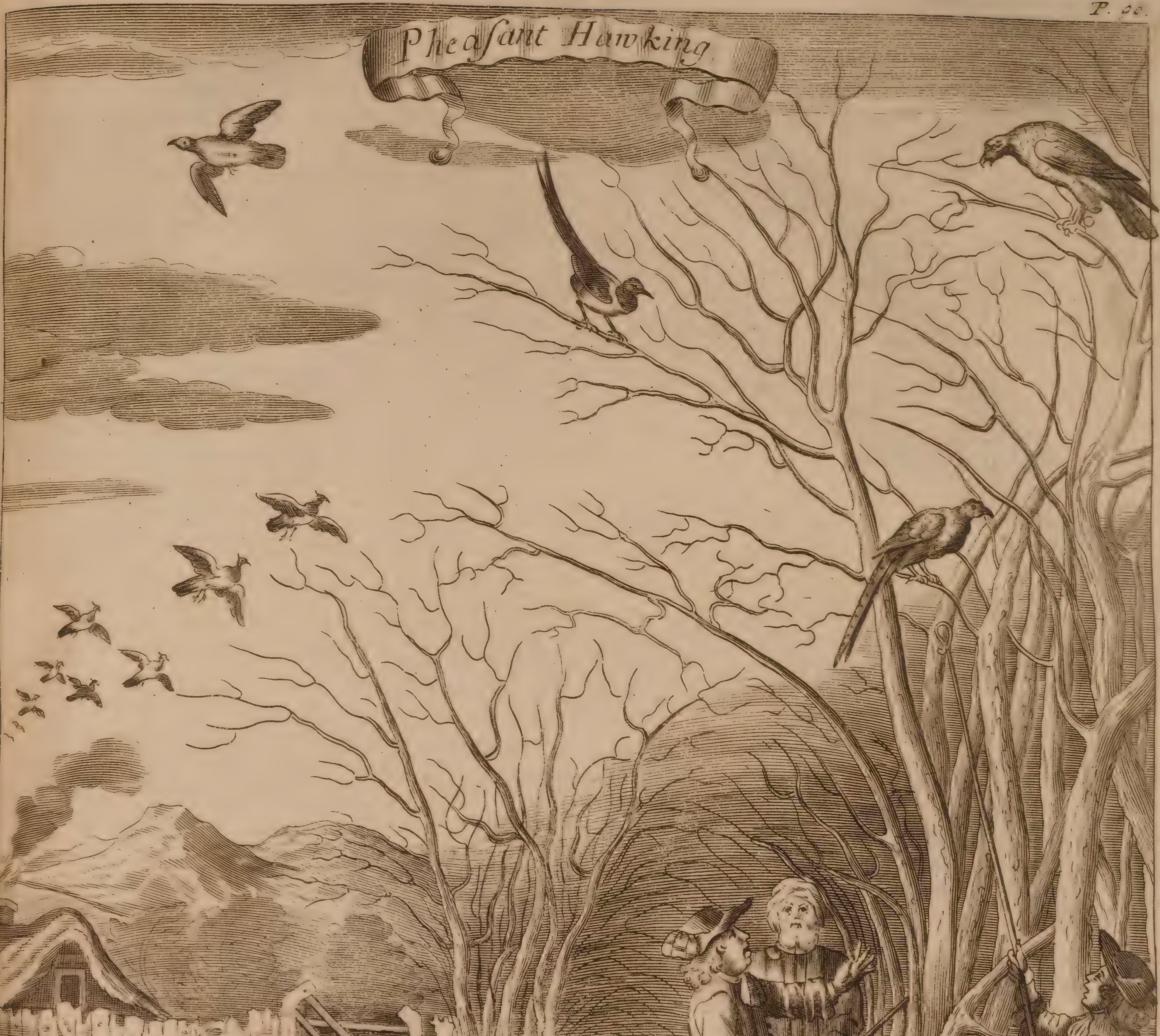

Pheasant Hawking
Arthur Soly fecit

To the Right Worshipfull Sr:
John Thorold of Marston in
the County of Lincolne Baronet

This plate is humbly dedicated by Ricd Blome

and one higher than another. When ſhe is full Summed, ſo that ſhe can fly, then ſet a Pan of Water in the Room to bathe in, which muſt be ſhifted every two or three Days; being not only very wholſome, but it will cauſe her to Mew or be full Summed the ſooner and better.

You muſt feed her with young Pigeons, Sheeps-Hearts, and the like; and whilſt ſhe is young, her Meat ſhould be cut in ſmall Pellets, and be given two or three times a Day, according as you find her Endew it, and put it over. When ſhe is full Summed, and flies about, you may give her Pigeon's, feeding her ſometimes on your Fiſt, permitting her to gripe and kill them in your Hand. You may alſo put a live Pigeon into the Room where ſhe is kept, which will the better teach her how to foot and kill them; and that ſhe may be taken off from that ill Quality of hiding her Prey after ſhe hath ſeized it, which is cuſtomary to all *Eyeſſes*, let her feed in your Preſence; and to make her the more bold and acquainted with you, go into the Room every Morning to call her to your Fiſt, whiſtling and uſing ſome incouraging Ways as is accuſtomary, and that you would have her acquainted with.

When ſhe is full Summed, and hath put forth all her Feathers, take her out of the Room, and furniſh her with a Ruſter-hood, as alſo with Bells, Jeſſes and Bewets: And to make her endure her Hood, put a Brayle, that is, a piece of Leather ſlit upon one of her Wings to tye it up, and then ſpout Water out of your Mouth to wet her, and put her Hood on and off ſeveral times, which will teach her to take it gently. And to make her indure the Hood at firſt, you muſt have a Ruſter-hood, with which often hood and unhood her, ſtroaking her Head gently with your Hand, until ſhe will abide it; then in the Evening by Candle-light unſeal her, giving her ſomething to tyre upon, handling and ſtroaking her Feathers, as alſo hooding and unhooding her.

When your *Eyeſs* is well won to the Hood, and to the Fiſt, (which cuſtom will ſoon bring her to) let her kill Birds or Pigeons on your Fiſt; then for four or five Days, or longer, (as occaſion requires) call her until ſhe will come to you at ſome diſtance; then take a live Pigeon tied by the foot with a Creance, which you muſt ſtir until ſhe Bates at it, and ſeizeth it; but this muſt be at a ſmall diſtance, leſt the Pigeon's ſtruggling ſhould diſcourage her, until ſhe is well entred; therefore in ſuch caſe you ſhould aſſiſt her, and let her Plume and Foot it, ſuffering her to feed thereon, whiſtling and incouraging her: Then hood her, and let her Plume and Tyre a little. The Day following call her to your Fiſt, ſhewing her a live Pigeon ſo near, that ſhe may reach it; then caſt it out before her, and let her fly and ſeize it, giving her a Reward. Again, throw out a Chicken before her, and if ſhe ſeize it, Reward her well; and by this means uſing her to great Trains, ſhe will get Courage, and will not fly away with them and hide them as if trained to ſmall Birds. But this is only for a *Sparrow-hawk*; for a *Goſs-hawk* muſt have no live thing given her in her Foot, from the time of her firſt entring, until ſhe hath killed ſomething by her own ſtrength: But if a *Goſs-hawk* be ſo cowardly as not to ſeize it, then take a live Partridge, make a hole in the Ground, and put the Partridge therein, covering it with a Slate or thin Board, and tye a String to it of about twenty Yards long, which you muſt hold in your Hand to draw away as occaſion requires; then make as if you uncoupled your *Spaniels* to hunt, and put up the Game, and carry her unhooded; and when you perceive that ſhe looketh towards the Place where the Train is, then draw off the Slate or Board, and cauſe the Train to ſpring as if by the *Spaniels*; and if ſhe take it, let her feed thereon her fill on the Ground: And this courſe do ſeveral times to make her perfect therein.

CHAP. XI.

The Sparrow-hawk.

THis *Hawk* is much of the nature and reſemblance of the *Goſs-hawk*, but not of the bigneſs, and ſhe requires the ſame Feeding, and makes the ſame Flights. It is a *Hawk* common in theſe European Parts, and thoſe are beſt eſteemed that are bred in cold, barren, and high Places, where there is little or no Game, for thereby they are taught to be more Laborious and Induſtrious. The only Reaſon I ſuppoſe why they are of ſo little eſteem, is their Commonneſs and Cheapneſs, for they are of great Uſe and Pleaſure; and he that hath once experienced a well Reclaimed *Sparrow-hawk* will hardly be without one.

Their Game is young Partridges, but their excellency is for Magpies, Black Birds and the like ſmall Birds.

There are ſeveral ſorts of *Sparrow-hawks*, and of different Plumes, juſt as there are of *Goſs-hawks*, which is occaſioned through the diverſity of Regions, and Countries where they Breed; the larger are in moſt eſteem, and want nothing but Strength to match their Courage.

The Marks of a good and Beautiful *Sparrow-Hawk* are theſe; the Head little, the Beak thick, the Legs ſhort and fattiſh, the Pounces ſharp and long, and of a ſad Mail, the Eyes full, the Circle about the Ball of the Eyes of a colour betwixt white and green, and the Neck long and thick.

I would adviſe all young Learners in *Faulconry*, to begin their practice on this *Hawk*, for thereby they may learn to manage others, eſpecially the *Goſs-hawk*.

The *Sparrow-hawk* ſhould not be Fly'd in the Morning, unleſs ſhe be prepared over Night with a ſhort and clean Supper, and you ſhould always have in a Box about you freſh Butter, mixt with a little Saffron and Sugar-Candy to give her now and then with her Meat, which ſhe will eat with great delight; and this will keep her Head always looſe, and in good Temper; and it will alſo prevent the Cray, and keep her Proud and full of Spirit.

They Mew every Year in April, May *and* June.

AS for *Sparrow-hawks* that are newly taken and will not Feed, rub their Feet with warm Fleſh, or with a live Bird, and put it to her Beak, and if ſhe ſeize it, 'tis a ſign ſhe will Feed, and then tear off the Skin and Feathers, and put it to her Beak.

It is beſt to enter the *Sparrow-hawk* in ſome Champain Country, far from Woods; and let her be unhooded when the *Spaniels* are uncoupled; then if the Partridge ſpring near you, and ſhe Bate, let her go, and if ſhe kill, Reward her on the Ground with the Head, Brains, Neck and Breaſt of the Partridge; then when ſhe hath fed take it away, and get on Horſe-back a pretty diſtance from her; whiſtle and call her, and if ſhe come Reward her well. But above all things have a great care that ſhe fail not at her firſt Flight, which ſhould be at large Partridges called Stub-tails, leſt always after that ſhe ſhould turn Tail, when ſhe Flies at ſtrong ones.

There are ſeveral Names or Diſtinctions of Partridges; the firſt, when newly hatch'd are called *White-Heads*, the ſecond names are *Chick-tails*, the third *Stub-tails*, the fourth *Ruin-tails*, and then they are full Summed and hard ſet.

When you enter your *Sparrow-hawk*, hold your Hand aloft; that ſhe may the better watch both the Spaniels and Prey: You muſt give her ſome ſmall Reward after every Flight, eſpecially if ſhe kill; and if at firſt entring ſhe miſs, be ſure to have ſome young Partridge or Bird in your Bag, for her to kill; after ſhe is well entred and nouſled, then hold down your Fiſt, whereas formerly you held it up. You ſhould likewiſe be ſure to let your Spaniels Range near together, and on your Right Hand, that ſhe may the better diſcern her Game, and Fly to the moſt advantage; for which purpoſe you ſhould be as near the Dogs as poſſible, and carry your Hand low, that ſhe may not bear at the Game before they ſpring. He that is not quick of ſight, and nimble of Hand with his *Sparrow-hawk*, ſhall ſoon ſpoil her, but with Care and due Attendance, there are few *Hawks* of more Pleaſure, for you may Fly her at ſuch times of the Year, as you can't the *Goſs-hawk*: Her keeping ought to be delicate, and in regard ſhe is ſo ſmall and weak, be ſure to keep her High and Luſty; yet with due Regard to the Preparation of her Stomach, before you take the Field with her. She will kill according to the ſeveral Seaſons, Diverſity of Game. She generally delights to Fly cloſe to the Ground, and will ſtoutly attack the Lap-wing, Ring-dove, Jay, Mag-pye, Black-bird, and the like Game, and ſhe may be made to hold out all the Summer.

You ſhould Fly her from the Hood, and not let her ſpend her little Strength, and diſorder her ſelf by unruly Bateing, which happens by being carried Bare.

If you Fly her in the Morning, prepare her accordingly in her preceding Supper, with Weathering in the Morning, that ſhe may come ſharp ſet.

To take Sparrow-Hawks.

IN regard of the Uſe and Pleaſure, together with the Commonneſs of the *Sparrow-hawk*, I hold it not amiſs to give theſe Directions for the taking them. You ſhould chooſe out ſome level piece of Ground, with a good Covert or Thicket near it, where you may be concealed, there fix about half a dozen Sticks, about the bigneſs of a Man's Arm, and about ſix Foot long, on each ſide three; to theſe Sticks muſt be faſtned certain Nets, made of very fine green Thread, and to them a Cord, which may reach to the Man that lieth concealed in ſome Buſh; on the Plain muſt be ſet ſeveral ſmall Birds, eſpecially Chafinches, which ſort of Bird the *Sparrow-hawks* much delight to Feed upon, and ſhe will not fail to Fly with great Eagerneſs into the Net, thinking to ſeize the Bird, and ſo becomes enſnared. In Winter they are often found Perching on ſome Tree in Hedgrows near High-ways.

CHAP. XII.

Rules for Reclaiming the Haggard-Faulcon, *with Inſtructions to enter her to the* Lure; *which Directions will ſerve for all Long-Wing'd* Hawks, *except the* Merlin.

HAving one of theſe *Faulcons*, ſet her down, and let her reſt quietly the firſt Night, in ſome convenient Place, in her Ruſter-hood; then the next Morning early, take her up eaſily on your Fiſt, and carry her all Day up and down thereon, gently ſtroaking her with a Feather until you find her Gentle and Bold, ſo as not to ſtart when ſhe is touched, and ſometimes with your Hand; and when you find her not Coy, take off her Hood being alone, putting it on preſently again; and this do till ſhe will Feed, giving her but a little at a time, and do not pull her Hood off, or put it on without giving her a bit or two, uſing your Voice, which will gain her Love, for by this means when ſhe is Reclaimed, ſhe will know when ſhe ſhall be Fed, and, when ſhe will, feed Boldly. The next thing is to teach her to jump from the Perch to your Fiſt, which is thus done: Let her ſtand on a Perch about Breaſt high, ſo that ſhe take no Offence, or Fright, until acquainted therewith (for the firſt handling or uſing of a *Hawk*, is the making or marring her; and an ill Habit ſhe is not eaſily Reclaimed of;) then unſtrike her Hood, and Lure her, uſing your Voice, but be ſure you do not fright or diſtaſte her, that thereby ſhe may Bate from you; therefore be ſure unſtrike her Hood, and encourage her with ſome Food to come to you. Now for the better bringing her to ſubjection, it is good to keep her with a ſharp Appetite, for unleſs that be rightly obſerved, all the reſt is to little purpoſe.

When you find by this means that ſhe will freely come to your Fiſt, and be not apt to take Offence; you may let her ſit unhooded, keeping by her, to hinder her Gazing about by your diverting her, and often feeding her with a Bit or two; and when ſhe is brought to this Paſs, and will boldly receive your Bits, hearken to your Voice, and jump to your Fiſt, then you may ſet her to the Lure.

When you find ſhe will readily come to your Lure, which muſt be garniſh'd with Meat in the Creance, put a young Pigeon to the Lure, and therewith lure her; and when ſhe hath killed it, and eaten the Head, take her up gently with a Bit of Meat, and put on her Hood; then unſtrike her Hood, and lure her to the Pelt, uſing this twice or thrice; but if you do it often, ſhe will be very unwilling to part with the Pelt, and by conſequence provoke her to carry; which Fault is more cuſtomary, and worſe in a Field than River *Hawks*. You muſt have a care that you lure her not too far till her Stomach be perfect, elſe ſhe may find ſomething by the way more pleaſing to her, which will occaſion her Stay, and prove of ill Conſequence in her obeying you.

Alſo obſerve, that in the time of her Making, (whilſt ſhe is on the Ground pluming or feeding) you walk about her, often feeding her with your Hand, and uſing your Voice, which will much win upon her, eſpecially if you give her a live Pigeon between the *Faulconer* and the Lure, in a long Creance, that ſhe may kill it near you, and in ſuch manner, that ſhe may truſs it over your Head; and by this means, when you come to her from ſome Diſtance, ſhe will not be afraid, but delight to come to you; and the Neglect of this will make her timorous, ſo that ſometimes ſhe will not only leave her Prey, but forſake you. And there are ſome *Hawks* that will not be taken up without ſtriking or raping in the Creance, which, without ſuch a Device, muſt be the Loſs of the *Hawk*; ſo that the *Falconer* ought to be very careful to reclaim her from ſuch Vices in her firſt Making.

To make your *Falcon* (or indeed any other Long-winged *Hawk*) a right and perfect Flyer, thoſe following Directions ſhould be obſerv'd.

When you have fed her on the Lure, ſo that ſhe knows it, then begin to lure her in the Creance; and when ſhe will come nimbly and readily thereto, then fly her looſe; and when ſhe will come nimbly looſe, then give her Trains between the Man and the Lure, which is thus to be done: Let your *Falconer*, or he that holds the *Hawk*, go at ſome Diſtance one from the other, (but he that lures her muſt be upon the Wind) and when he that carries the *Hawk* has drawn her Hood, then begin Luring, and ſhe (being acquainted with your Voice) will make up to you. Then having a Pigeon ready ſeal'd, or a Feather put thro' her Eye-lids, to make her look upwards; by this means in three or four times you may venture to ſtoop the Lure upon her, and let her fly a Turn or two over your Head, and then have a Pigeon ready ſeal'd to give her, with a ſhort Pair of Creances to the Pigeon's Leg, that if in caſe your *Hawk* ſhould be ſhy, you may hold it, that ſhe can't carry it away.

If your *Hawk* prove giddy-headed, to go at Check, and carry her Game with an Unwillingneſs to let you come in to her, then load her with heavy Bells, and cope her Beak above and below to the very Quick; and ſear the Point of her Beak with a hot Iron, till the Blood comes, and this will hinder her from eating that which ſhe gets herſelf; ſo that by degrees ſhe will be fond of your coming in to help her to Meat, which you muſt always ſhew her as you come in unto her in your Hand; and in a little time this will reclaim her of that roving kytiſh Trick, of carrying away the Quarry, and make her, as aforeſaid, very fond of you, if duly obſerved: For when ſhe finds ſhe cannot kill of herſelf, thro' the Weightineſs of her Bells, nor carry the Prey to eat, by reaſon of her Coping and Searing, ſhe will be willing to come to you. Then having her Stomach ſharp ſet, after a due Weathering of about three Hours, ſhe being ſometime without her Hood, and Water ſet in a large Pan, to ſee if ſhe will bathe; and if ſo, then ſhe muſt continue until ſhe hath dry'd herſelf: Then ride with her on your Fiſt into the Field, and ſtrike her Hood, whiſtling ſoftly, to provoke her to fly; and doubtleſs ſhe will make ſome Motions, either to bate, flap with her Flags and Sails, or advance herſelf on your Fiſt; which Motions ſuffer her to uſe, until ſhe either rouſe herſelf, or mute, and when ſhe hath done either of them, unhood her, and let her fly with her Head to the Wind, that ſhe may the better get upon the Wing; and ſhe will then naturally climb upwards, flying round; and when ſhe hath made two or three Turns, whoop to her, and when you find her coming in, and near you, (but not before) caſt out your Train into the Wind, and if ſhe ſtoop to it, reward her well with ſome Bits of clean and ſweet Meat.

When your *Hawk* is perfectly reclaim'd, and thoroughly made by gentle and fair Uſage, you may adventure to fly her every Day, provided you feed her accordingly; for if you fly upon Reſt, you ſhall never have a good *Hawk*, nor make a good Flight; for Reſt filleth them with Glut, Fat and ill Humours, which are purged and wrought out by Exerciſe. Whilſt they continue wild, they ceaſe not to get their Prey, come what Weather will, fair or foul, Winter or Summer; and certainly it is moſt natural for them to be ſo uſed by us: Howbeit, we muſt obſerve a due Regard to the State and Condition in which they are, and that much of their Natures are altered whilſt they remain under Subjection.

You muſt be careful to obſerve the Nature and Diſpoſition of your *Hawk* at the Time of her Luring and Making, and be ſure you give her no great Scope to fly high or be wild; but hold her down, and near you, in caſe you find her high-minded. Contrarywiſe ſome *Hawks* are ſo lazy, or fond of their Keeper, that they care not much to ſtir from him, were a Partridge ſprung up near them. Such *Hawks* muſt be quicken'd by ſetting a good Edge on their Stomachs, and training them up by little and little; for the dulleſt of them are capable of Preying for themſelves when wild; and aſſuredly by Art and Obſervation they may be brought to do at leaſt as much for us. They want neither Mettle nor Strength; the only thing is how to ſet them to Work. Thoſe that are dull and lazy ought to be deprived of the Aſſiſtance of other *Hawks*, which will be a good Way to force them to work for themſelves; and if they do not yet give you Content, do not abridge them of their Reward; but try them further, and by degrees they may be brought to know their own Strength.

When your *Falcon* is become ſo familiar and gentle, as to ſit bare-faced in an Evening amongſt Company, then, and not before, may you adventure to give her a Stone or two over-hand, which you may do every other Night, until you find her Stomach good: and then you may proffer her Caſtings, which ſhe will not refuſe; but have a great Care not to diſtaſte her, but let her have it with her own Will and Liking, leſt ſhe take an Averſion to it, as ſome do through their Keepers Indiſcretion, and by no means let her Caſtings be too big.

If you ſhould give her Caſtings before her Stomach is well prepared by the Stones, it would ſignifie nothing; for they are as it were the Key of the Work, that the Greaſe and Glut may be ſtirr'd and diſſolv'd, ſo as to be fitted to paſs away in her Mewts downwards, or in her Caſtings upwards.

The beſt time of giving Stones is doubtleſs at Night, until ſhe be thoroughly clean, and then in the Morning; but not until ſhe hath put away her Supper from above: Half a Dozen at a Time are ſufficient, and to do well they ſhould be given above the Hand: But for that every one hath not ready Skill, you may caſt her, and give them ſo without Danger, if it be carefully done. This Courſe muſt be continued until you give her Plumage in her Luring and Training; and then muſt you add the Bending of the Wing, being the ſhort Feathers of the Pinion, with as much clean-waſh'd Flannel as will make a reaſonable Caſting; and remember in uſing Stones and Caſting to obſerve this old Rhime.

Waſh'd Meat and Stones will cauſe a Hawk *to fly;*
Long Faſting and great Caſting will cauſe a Hawk
(to die.

But I ſhall forbear any more at preſent concerning Stones and Caſting, it being more proper in the Chapter relating to the Diſeaſes and Cures of *Hawks.*

In reclaiming the *Lanner* and *Lanneret,* be ſure to make them well acquainted with the Lure, which ſhould be garniſh'd with hard waſh'd Meat, and let her take the greateſt part of her Reward in Bits from your Hand, and be careful to reſtrain her from dragging or carrying any thing away from you; which ill Quality ſhe is much ſubject to, more than any other *Hawk.* For what elſe relates to the Reclaiming and Manning of the *Lanner,* it's the ſame with the *Faulcon.*

When your *Hawk* is perfect at the Lure, then ſpring her up a live Pigeon as ſhe comes in to you betwixt the Man and the Lure, remembring to tye a long Creance at the Pigeon's Feet, that ſhe may not fly from you, but that the *Hawk* may truſs her, if poſſible, over your Head, or very near you, leſt if ſhe kill it at a Diſtance, and take ſome Offence when you come towards her, ſhe forſake both the Prey and you; therefore be very careful to prevent her getting any ſuch ill Quality at firſt; for preventing of which, be ſure to gain her Love by making her bold and acquainted with you, as already treated of, and do not deceive her in her Rewards. But if you ſhould have ſuch a *Hawk,* that, notwithſtanding all Care (as ſome ſuch there are) will be apt, upon the leaſt Scope of Liberty, to turn Tail, and leave you. In ſuch caſe you muſt ſomewhat abate her Pride, with reſpect to the Seaſon of the Year, and the Weather: Which done, get a *Quarry Hawk,* (that is, an old, well-entred and reclaim'd *Hawk*) and a Couple of live Fowl, and let her ſee them flown once or twice, and at length, when your *Quarry-Hawk* is coming to kill it, be ſure to ſtand under the Wind with her, and let her ſee the Fowl overthrown, and go in to the *Quarry*; and if ſhe go in with Courage, and ſeize it greedily, make in apace, croſſing the Fowl's Wings, and ſuffer both the *Hawks* to take their Pleaſure a little while together; then take up the *Quarry-Hawk* gently with clean Meat, and let the young *Hawk* enjoy the *Quarry* to herſelf, keeping on your Knees to aſſiſt and pleaſe her. You muſt be very careful that ſhe ſwallow no Pelf to glut her; but give her clean Meat for her Reward, and let her have her Supper, as ſhe ſits on the Fowl, clean waſh'd, and well dreſt.

If you cannot have the Conveniency of a *Quarry-Hawk* at firſt Making hour young one, then be ſure to caſt her off with the moſt Advantage you can of Wind and Stomach, and let her take not too much Pains before you ſhew her the Fowl; and if ſhe doth not make her firſt nor ſecond Stooping right, ſo as to kill; then have in a Readineſs a tame Fowl, as near the Colour of the wild as you can, and therewith take her down before ſhe has too much toil'd herſelf; for many *Hawks* will take Diſcontent when they find they miſs killing their Prey, and ſo leave their Maſter.

Further Rules for Reclaiming and Manning Hawks, *and entring them to be acquainted with the* Spaniels.

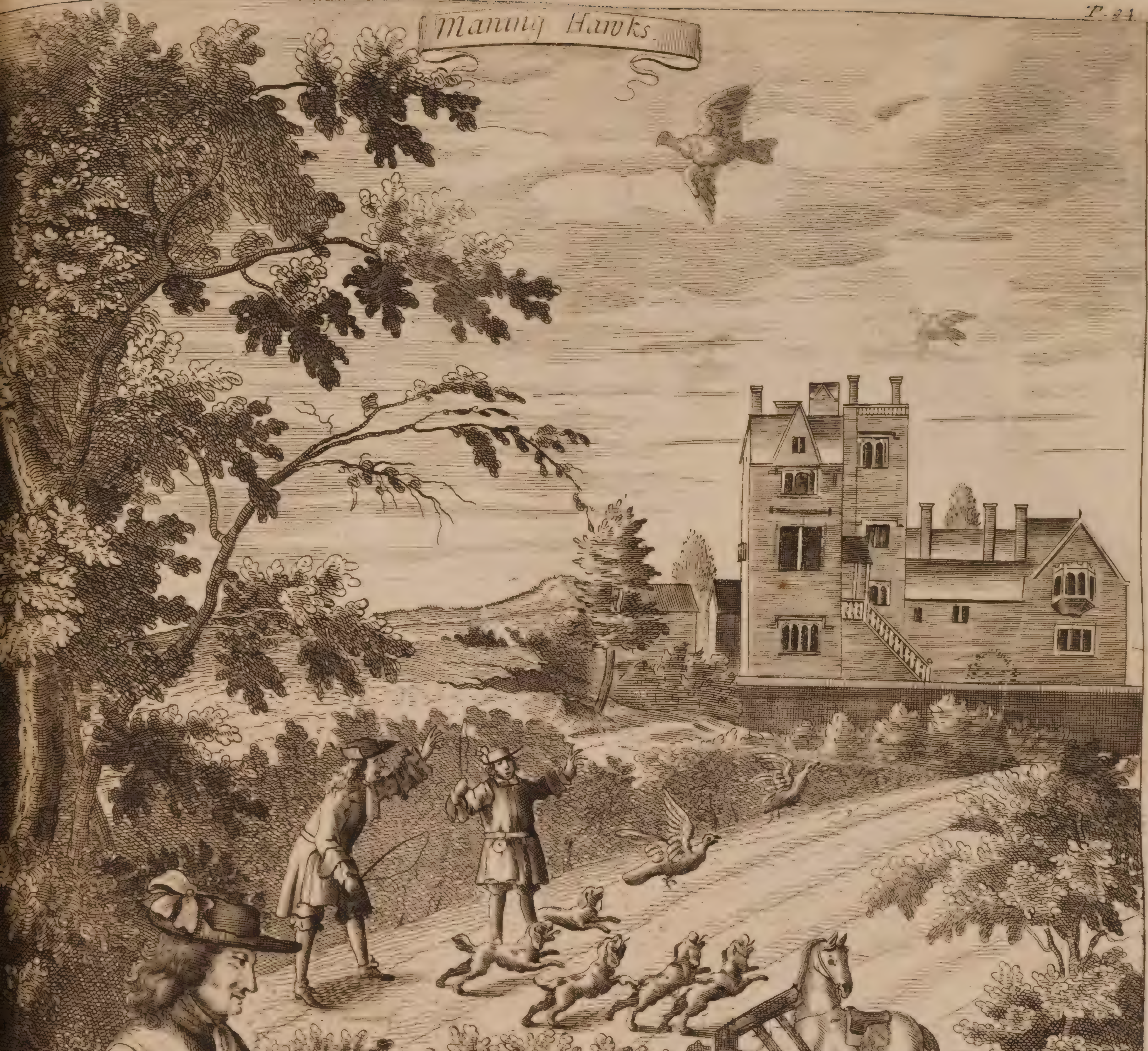
IN reclaiming and manning your *Hawk,* remember that *Haſte makes Waſte,* and he that boaſteth of his Art in making her ready to fly in a Month, or ſooner, (as ſome ſuch there are) I hold him very indiſcreet, and little to underſtand the Nature and Conditions of her; for it is impoſſible to bring her to Perfection but by Degrees; as firſt, he muſt abate her Fleſh, and if then you offer to fly her before ſhe is in her Pride, and luſty again, ſhe is for ever ſpoil'd; beſides ſhe muſt have ſome Teaching to come, as well as go, and ſhe muſt be acquainted not only with the Dogs in general, but with thoſe in particular that are to be uſed about her.

He that offereth to fly her whilſt ſhe is poor and low, ſhall never have her free from Diſeaſes, nor can he receive any Content in her, as being not able to make a good Flight; and to fly her before ſhe is acquainted with the Dogs, as well as her Keeper, he may go whiſtle after her, and not be Maſter of her in haſte.

It hath been already ſaid, that whilſt you endeavour to reclaim your *Hawk,* you ſhould divide one Meal's Meat into three Parts, and feed her the oftner; and now when ſhe is reclaim'd, you muſt increaſe her Meals ſomewhat every Day. You are to have a great Care that, during the Time of Reclaiming, ſhe doth not ſoar up too high, and that ſhe be thoroughly enſeam'd before you fly any Fowl with her, be ſhe *Eyeſs, Brancher, Ramage,* or *Mewed-Hawk,* leſt peradventure ſhe ſoar out of Sight, and be loſt. Alſo obſerve, that during the Time your *Hawk*'s Feet continue blackiſh and rough, ſhe is full of Greaſe and Glut; for as ſhe enſeameth, her Feet will become yellow and ſmooth, and when they are very yellow and ſmooth ſhe is perfectly enſeam'd: But this is better known by her Caſtings and Stones eſpecially after any laborious Flight, when her Caſtings and Stones will be greaſie and ſlimy, and her Mewts will be foul and diſcoloured.

In teaching your *Hawk* to fly to the Field, it is good to have other *Faulconers* to aſſiſt you with their *Hawks*; and to do well, the *Hawks* ſhould be tyed to the Ground, to prevent their taking Wing before their Time. Bring her not into the Field to fly neither, until ſhe is well acquainted with the Spaniels; and the better to effect the ſame, obſerve theſe Directions. Feed her always in the midſt of the Dogs, and when ſhe is bold, ever and anon throw a Pigeon in a ſhort Creance, amongſt the thickeſt of the Dogs, ſuffering her to quarry amongſt them, and to plume for a while; then take her up to your Fiſt with ſome Stump, and ſoon after caſt out the Pigeon again and again, until you find ſhe is bold, and ventures amongſt them: and with your Whip laſh the Dogs, now and then crying, *Ware Hawk, ware,* which will much encourage her; and when ſhe is come to this Paſs,

you


Maning Hawks.

To the Honorable Sr Richard Wenman of Caswell in Oxfordshire
ar^{t}. Created (by Letters Patents to comence, after the death of y^{e} R^{t}. Honble.
illip now L^{d}. Vis^{t} Wenman Baron Wenman of Kilmainham in ye County
Dublin, in ye Kingdome of Ireland, as also Vis^{t} Wenman of Tuam.
ye County of Gallway, in the said Kingdome.
This Plate is humbly dedicated by Richard Blome.
Barlow delin: A. Soly fecit

you may venture to fly her. And for the preventing theſe Qualities that *Hawks* are ſubject unto, at firſt train her up well, and for the Effecting of which obſerve theſe Directions: Provide three or four Hand-Partridges, if poſſible, or for want thereof live Pigeons, and have the Aſſiſtance of a Man or two, with one or two Couple of Staunch Spaniels; chuſe a plain large Field, in which there is not above two or three Buſhes. Let one of the Men take the Dogs with him, and beat the Buſh or Brake, making a Noiſe to the Dogs, that the *Hawk* may ſee, hear, and obſerve it well; then let him dexterouſly throw off the Partridge or Pigeon, ſo as ſhe may ſuppoſe it to have ſprung out of the Buſh, your ſelf holding the *Hawk* to the moſt Advantage; and at the time of throwing off the Partridge or Pigeon, cry, *Gaze ho*, which uſing frequently, will make her obſerve her Game and Opportunity. By this Artifice there is no doubt but that ſhe will go off with Mettle, eſpecially if you bring her to a right ſharp Stomach. You muſt be vigilant and quick to make in after her, that ſhe may receive no Fright by the coming in of the Dogs, or the like; and your Spaniels being got near about her, teach her to break the Head in her Foot, and to eat it on the Ground; and when ſhe hath made an End thereof, and begins to look about her, be provided with the Wing of a Pigeon, and let her jump to your Fiſt, and feed thereon.

For her Supper, you ſhould prepare good freſh Meat of Pigeons, or other feather'd Fowl, which muſt be well and clean dreſt. This Courſe ſhould be obſerved with four or five Partridges in ſeveral Afternoons, with ſome Advantage to your *Hawk* in her going off; but every Day leſs and leſs, that ſhe may not grow lazy; for ſhould you at the firſt hand uſe her to kill whatever ſhe flies at with Eaſe, and at the Sowce, ſhe will expect to be ſo treated, and perhaps refuſe to fly after any that are ſprung at a Diſtance from her, but caſt her Regards another way, as being lazy.

Some *Hawks* at firſt Entrance, if they fly a Partridge hard to the Covert, and take it not at the firſt Flight, will ſit on the Ground, loſing the Advantage of getting upon ſome Stand, whereby ſhe will never ſee the Partridge again at the Retrieve. This for a Short-winged *Hawk*: But for a Long-winged one, if ſhe falls to the Ground, then let the *Faulconer* ſhew her the Pigeon and Lure, to make her take to her Wings, and then call the Spaniels to a Retrieve. Now to prevent this jadiſh Trick, make in to her with the Dogs, having firſt called them off: And for a Short-winged *Hawk* ſhew her ſome Meat, and take her to your Fiſt, or make her take her Stand in a Tree.

Rules to reclaim Hawks *brought from the Cage, and how to hood them.*

WHen you get any *Hawk* that is brought from the Cage, you muſt proceed with her in a different Way from the former; for ſhe muſt be reclaim'd in this ſort: Give her at leaſt three Weeks Carriage in her Rufter-hood, always ſtroking and playing with her, at firſt with a Feather, and then with your Hand very gently. You muſt feed her with clean waſh'd Meat (which muſt be warm, and for the moſt part feather'd Meat) all the time, which will bring her the ſooner to a good Stomach, and to be well pleaſed and gentle, which you may diſcern by her Liſtning to your Voice, by her Chirping, her eager Feeding, or the like, (this to be done within three or four Days after your firſt taking her to the Fiſt, by which means ſhe will thrive much better, and come ſooner to a Stomach;) then waſh her all over with Water and Pepper prepared for that Purpoſe ſome Evening; or, which is better, ſmoke her with Tobacco when ſhe is empty.

Having thus prepared her, and being provided with another Hood, take off her Rufter-hood, and as ſhe grows dry put on the Hood, and give her a Bit or two of Meat to pleaſe and refreſh her. And thus you may continue for ſome Hours Hooding and Unhooding her, rewarding her with the beſt Meat you can get, until ſhe is thoroughly dry, and then ſet her down bare-faced, permitting her to take two or three Hours Reſt in ſome warm Place, and on a dry Perch, to prevent Colds and the Cramp, which at ſuch Times they are ſubject unto: Then when you come next unto her, let your Voice give her Notice of your Approach, that ſhe be not ſurpriz'd with Fear and Diſtaſte, and let her ſee you come with Meat, but give her none until ſhe is hooded; and uſe her ſo for ſome time, that you may bring her to a Liking of her Hood, which ſhe will ſoon do when ſhe finds that the putting it on uſhers in Meat. All this while divide one Meal's Meat into three, feeding her oftner; and be ſure in this Interval to obſerve her Nature and Temper, and accordingly guide your ſelf: For it is not a Work of leſs than a large Volume to give particular Directions for the Temperatures, &c. of every ſort of *Hawk*. Theſe which are here laid down, with your own Reaſon and particular Experience, may ſuffice.

Now, foraſmuch as I am fallen on this Diſcourſe of *Hooding*, I hold it not amiſs, once for all, to give you this Direction and Caution: You ought to be exceeding careful in reclaiming her to take her Hood. We have already laid down ſome Directions how to preſerve her from this ill Vice; it will not be amiſs to give you one, how to remedy it, tho' ſhe were almoſt quite ſpoil'd thro' ill Uſage and Bobbing. You muſt be provided with a Hood of ſome light Colour, as Green, Red, or Yellow, which hang on your little Finger of the ſame Hand whereon you carry your *Hawk*, and let it hang ſo, that it may be always in her Sight, eſpecially at ſuch Times as you feed her. This do for about a Week, or until you find her acquainted with it ſo well as to ſearch thro' the Hood for the Meat, if you interpoſe it. When ſhe doth this boldly, you may then ſometimes eſſay to bear a little hard with the Hood againſt her Head, by which means ſhe will in about a Month come to Hood and Unhood herſelf as often as you pleaſe. And whereas before you uſed to reſtrain her from eating, let her now eat moderately when ſhe is hooded, and never but then; nor ſhould you take off her Hood until Feeding-time: And remember you uſe not this Courſe with any *Hawk* until her Stomach be perfectly come to her, if it be a *Hawk* taken out of the Mew. And of all others, you ought to be moſt careful as to this Point, in handling your *Goſs-hawk*; for ſhe is (as already ſaid) very nice and coy, and apt to take Offence, and withal hard to be reconcil'd and reclaim'd, but by Degrees with gentle and ſoft Uſage you may overcome the worſt natur'd *Hawk*.

To help a Hawk *that is coy and fearful.*

IN caſe your *Hawk* is coy and fearful, ſo as not to endure the Sight or Noiſe of Strangers, Paſſengers, Horſes, or the like, you ought to conſider from whence this happens, which doubtleſs is from her Keeper's not rightly reclaiming her : For tho' all *Hawks* do this by Nature, yet by Art they are brought to leave it; and it is eaſier to reclaim two Caſts of young wild *Hawks* than one mann'd *Hawk* that hath been ill handled in her firſt Making.

Before you begin to practiſe on ſuch a *Hawk*, carry her a Day or two upon your *Fiſt*, and when thro' Watching and Manning, ſhe hath a ſharp Stomach, and withal is ſomewhat gentle, repair to ſome Place where there is a great Reſort of People, as at a Bowling-Green, or the like; then put her into a Pair of Creances, ſet her on a Man's Fiſt, and let her jump to a Catch, and there paſs away the Time in this manner with her every Day, as oft as you can for ſome Weeks, now and then practiſing it at the End of ſome great Town, on a Market-day, where People paſs, permitting her to ſport and play on the Catch. And by often practiſing this Way, you may bring her off from that ill Quality whereunto ſhe was addicted thro' the Fault of her former Keeper.

There are ſome *Hawks* that will not fly with others, but draw backwards. There are alſo others that bind with every *Hawk*, and ſo fly for the purpoſe: And others again do hate either to fly, or ſet with any others, which is occaſion'd either through Fear, or for want of Love to them. For the Helping this ill Quality, get a gentle *Lanner*, being an old and true-made *Hawk*, which ſet on the ſame Perch with the other *Hawk* by Day, but at a good Diſtance; then give each a Bit of Meat as you paſs by them, and ſo by degrees ſet them a little nearer together; and when you find it convenient put ſome Meat between them, that they may feed together. If your *Hawk* makes any Motion to crab with the *Lanner*, gorge her up at Night with good Meat, and ſet her on a Perch abroad in the Cold, (provided ſhe be in good Plight, and able to endure it) and let her ſit there three or four Hours, and hold the *Lanner* near the Fire; then bring in the other *Hawk* hooded, and hold her cloſe to the *Lanner*, and when ſhe finds the comfortable Heat received from her, ſhe will draw nearer and nearer unto her. Let them thus ſtand together until ſhe ſeem very deſirous to jouk. Then unhood her gently, and let them both ſtand cloſe together all Night, and in the Morning ſet them on the Perch near together, but not to reach; and continue to do in the Evening as aforeſaid: And about the fourth and fifth Night you may adventure to ſet them both out in the Cold on the ſame Perch, ſo as they may come to each other for Warmneſs. And when ſhe is thus brought to love Company, you may unhood them, feed, perch and lure them together.

CHAP. XIII.

How to Enſeam a Faulcon *with her Caſtings and Scourings.*

WHEN your *Hawk* is well in Blood, and well quarred, let her fly with other *Hawks*; but reward her well at the Beginning, ſuffering her to feed well on the Quarry, which will ſo encourage her, that ſhe will have no Mind to go to the Check.

When you feed her, call and lure her (as if to the Lure) and proffer her Water every Day and every Night; give her Caſtings according as ſhe endureth.

In the Evening, by Candle-light, amongſt Company take off her Hood, and ſet her on the Perch, with a Light by her.

You ſhould make your Lure to imitate or counterfeit the Game you deſign your *Hawk* for. If for a *Gerfaulcon*, (whoſe Game is the Hern) then your Lure ſhould be garniſh'd with a Hern's Wings: If for a *Faulcon*, a *Lanner*, or other Long-winged *Hawks*, then tye a Partridge's Wings to the Lure; and if for a *Goſs-hawk*, then thoſe of a Partridge or Pheaſant.

If you would make your *Goſs-hawk* for the Pheaſant, feed her always on the Ground, or in ſome thick Place, where ſhe muſt encounter the Pheaſant at Perch; and firſt enter her at a young Pheaſant, and every time call her from Tree to Tree, that ſhe may learn to take her Stands.

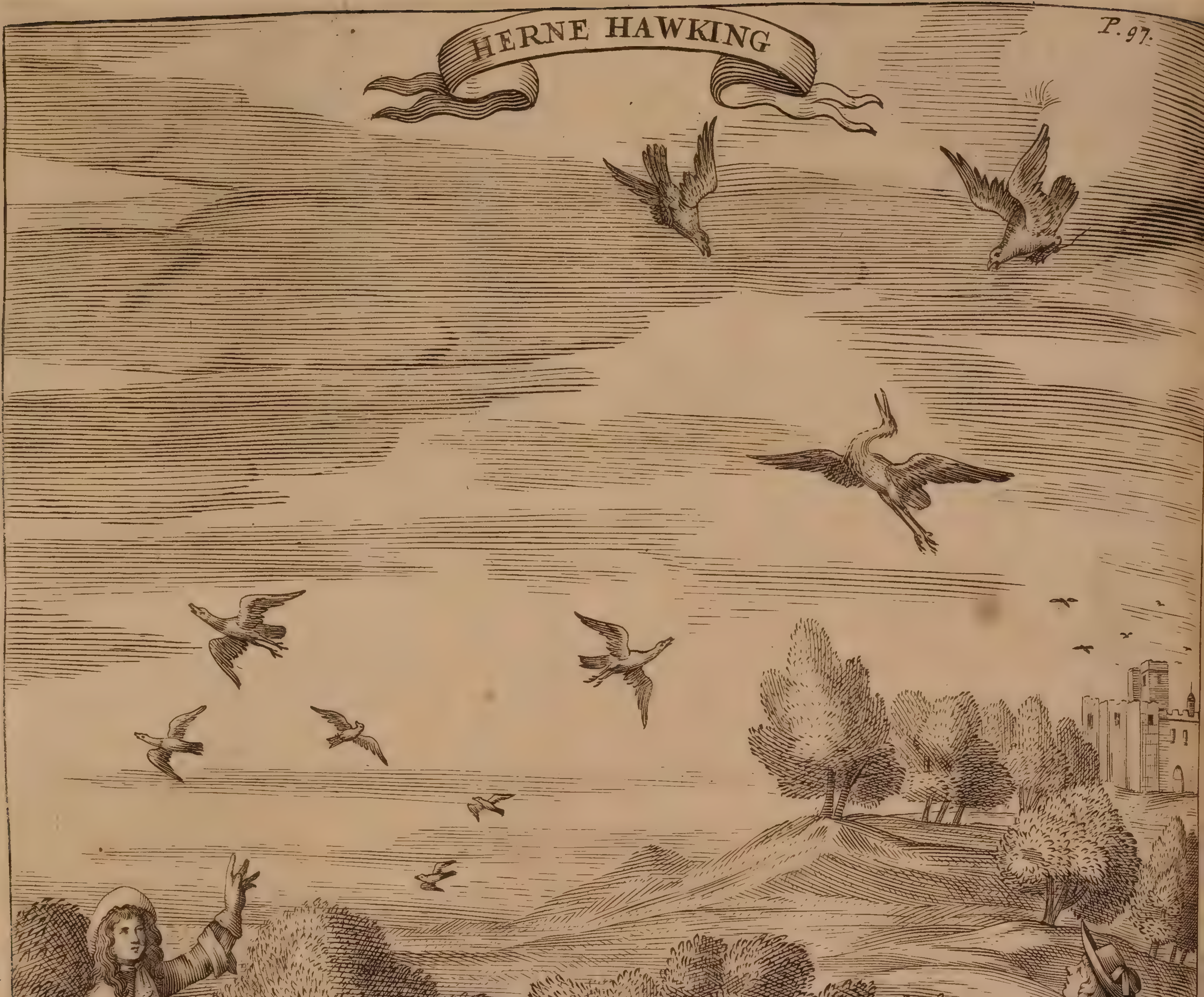
You ſhould reward her upon the Lure with what Fowl ſhe kills, to make her the more in love with it.

If you would have your *Hawk* clean and ſound, ſhe ſhould have Caſtings every Night until ſhe is made clean; alſo Tiring or Plumage at Night is very good, provided ſhe hath not been hard flown.

You may fly your *Faulcon* twice a Day at the River (if the Seaſon be good) and three or four Flights at the Field.

You ſhould feed your *Hawk* until it is fitting to give her Plumage; and for your doing the ſame, obſerve theſe Directions: If her Mewts are white, and the Black thereof very black, and not mix'd with another Colour; and if ſhe be ſharp ſet, and plumes eagerly, you may give her Caſtings, either of the ſmall Feathers of a Hen's Pinion, or, for want of any other, of a Coney's or Hare's Foot.

You ſhould make the Place under the Perch clean, to ſee if the Mewts be full of Streaks or Fellenders, or Slimy; for if ſo, the aboveſaid Caſting muſt be uſed three or four Nights together; but if you find the Feathers or Caſting ſweet, or lapp'd round, and the Water within it clean, like Spring-Water, then give her Pigeons, or ſuch like good waſh'd Meat.


HERNE HAWKING
P. 97.
S. Gribelin Sculps.

To the Rt: Honourable William Pierrepont
Earle of Kingston upon Hull, Viscount Newarke
Vpon Trent, Baron of Holme=Pierrepont ~ ~
Manvers and ~ ~ Herris &c:a

PIE REPONE TE

This plate is humbly Didicated by Ric: Blome

CHAP. XIV.

Rules for Bathing a Hawk.

FOR Bathing your *Hawk*, 'tis good to offer her Water once a Week in the Winter, and twice or thrice a Week in the Summer; but uſe no Force to provoke her to bathe; for a young *Hawk* that is ſound and ſtrong doth not care for it, but thoſe that are old, and ſubject to Infirmities, delight therein, as being a great Refreſhment to them, creating a ſharp Appetite; but be ſure to give no waſh'd Meat in the Days of Bathing, neither go abroad with her; and after Bathing give her a Bit or two of hot Meat unwaſh'd.

If the Weather be fair and temperate, let her dry herſelf abroad; otherwiſe help Nature with Art, and never let her bathe in froſty Weather. If ſhe refuſeth to Bathe in a Baſon (as ſome will) then carry her to ſome ſmall Brook, and ſuffer her to ſtand up to her Thighs; and in the time of her Bathing ſhe muſt be Unhooded, to prune and pick her ſelf.

CHAP. XV.

To make a Hawk *Bold and Hardy*, &c.

IF you would have your *Hawk* Bold and Hardy, keep her oft times all Day on your Fiſt, and feed her early in the Morning, with the Fleſh of ſome Fowl; then ſet her abroad in the Sun, with Water before her, to bathe and bowze her ſelf as oft as ſhe pleaſeth, (for if a *Hawk* hath any Infirmity, Bowzing will ſoon Cure, or Kill her); and when you have ſo done, take her up and carry her on your Fiſt all Day; and at Night ſet a lighted Candle before her, to burn till Day break, and if you perceive ſhe hath been well Manned, and is fully Enſeamed, you may adventure to Fly her, obſerving the aforeſaid Directions.

If ſhe Kill, give her a good Gorge, and in caſe ſhe miſs, you muſt have ſome ſweet Pelt to encourage her; and thus muſt you Fly her daily, remembring to obſerve not to bring her too low through overmuch Flying.

If you would have your *Hawk* love her Prey, and be very eager upon it, you need only bring her to it with a good ſharp Stomach.

To make your Hawk *Diſgorge her ſelf.*

IN caſe your *Hawk* be full Gorged, and yet on ſome occaſion you have a deſire to fly her, take three or four Corns of Wheat, which put into a ſmall piece of Fleſh, and give her; and it will forthwith cauſe her to Diſgorge; and be ready provided with a little good hot Meat to give her; and then you may Fly her without Danger.

Or if you deſire to Fly her in the Morning, Feed her the Night before with good warm Meat, well waſh'd in Urine, the Water being well wrung out, which will ſet a ſharp Edge on her Stomach, and raiſe her Courage.

To Remedy a Hawk's *ill Quality, of Flying to a Tree, and ſtand and Gorge.*

IF your *Hawk* hath got an ill Quality of Flying to a Tree, as ſoon as ſhe hath killed her Prey, and there Gorge and eat it (as ſome will do). To Remedy this, let her be ſhort Couped as before directed; then take a Leather of the Faſhion of a Bewet, which put on either of her Legs, upon one of her hinder Tallons, and then button it on to her Bewet, whereon her Bell hangs, which will ſo hold up her Tallon, as to hinder her Griping; and conſequently ſhe can't ſit on a Bough to hold a Bird, and to feed thereon, which will force her to forſake the Tree; and thus doing five or ſix times, ſhe will leave this ill Quality.

CHAP. XVI.

Directions for feeding your Hawks.

FEED not with two ſorts of Meat at one time, for that Breeds ill Humours, as alſo Worms; it will alſo fill her with Wind, and make her very unhealthful. Alſo forbear to Feed her with Old Stale Meat, being hard to Endew, and breeding Infirmities: The Fleſh of a Brood Hen is very naught, as alſo of all Fowl that live on Frogs, Fiſh, or the like: So is the Fleſh of Ravenous Birds, as the Kite, Pattock, Crow, Raven, *&c.* It is good to change her Meat, and ſometimes to give her the Fleſh of Coneys or Hares (but not the Brains, nor any of the Hair, for that breeds Worms.) Mutton is good for *Gerfaulcons*; but the Fleſh of a Lamb and Kid is good when your *Hawk* is low and poor. Dogs Fleſh is very good and ſound Food, for all *Hawks* of a hot Nature; but not whilſt they are Flying. Cats Fleſh is good in the Mew. The Fleſh of ſmall Birds, or indeed any that feed on Seeds is very good; but do not give them much, nor often, unleſs at ſuch times as your *Hawk* hath been abroad in the Cold all Night; for ſuch Birds are by Nature very hot, and will make your *Hawk* very ſtately, and hard to be Reclaimed from her Pride and Coyneſs. The Fleſh of Pheaſants, Partridges, Pigeons, and the like, is good, eſpecially if ſhe be ſick; but the Fleſh of Chickens and Pullets is very good at all times, and never out of ſeaſon.

CHAP. XVII.

Hern *Hawking.*

ABout the beginning of *March Herns* make their Paſſage; and if you would have your *Hawk* fit for this Game (which is a moſt noble Flight) let them not fly longer at the River. For by this Flight you ought to have a Caſt of *Hawks*, and that they may be the better acquainted together, and be aſſiſtant to one another, call a Caſt of them to the Lure at once; but be careful that they Crab not together, which will endanger one another in their Flight.

Your *Hawk* being clean ſcoured, and ſharp ſet, you may enter her for the Game, by getting a live Hern, which tye in a Creance, or elſe diſable its Wings that it can't fly, and ſetting her on the Ground unhood her, and let her fly at the Hern; and if ſhe ſeize it, make in apace to her ſuccour, and let her Plume and take Blood thereon; then take the Heart and give it her on your Hawking-Glove; In the next place, rip up her Breaſt, ſuffering her to Plume thereon until ſhe is well Gorged; afterwards hood her upon the Hern, ſuffering her to plume at Pleaſure; then take her on your Fiſt, and let her tyre on the Foot or on the Pinion of the Hern. Let the *Faulconer* take the Hern, caſt it about his Head, and Lure her to come, not caſting it out, but ſtay till ſhe come to ſeiſe it in his Hand as he Lureth with it, and let her feed thereon. Thus in three or four times ſo doing, you will bring her to good perfection at this Flight.

For preſerving your *Hawk* from the danger of the Hern's Bill, place a Joint of a hollow Cane on the upper part of their Bill.

Having well entred your *Hawk*, let looſe a Hern in ſome fair Field without a Creance, or without Arming her; when ſhe is up at a reaſonable height, caſt off your *Hawk*, and if ſhe bind with the Hern and bring her down, then make in a pace to her help, thruſting the Herns Bill into the Ground, and breaking her Wings and Legs, to the end the *Hawk* may with more pleaſure plume and foot it, then Reward her with the Brains, Heart, *&c.* as before directed.

Having ſhewed you how to enter your *Hawk* at a Train-Hern, I ſhall now give ſome Inſtructions how to fly her at the Wild-Hern. When you have found one, get in as nigh as you can to her, going under the Wind with your *Hawks*, which muſt be a *Gerfaulcon* or a *Jerkin*, with a *Haggard ſlight Faulcon* for your Driver; and having their Hoods looſe in a readineſs, ſo ſoon as the Hern is put up and got upon her Wings, throw off your Driver, which doth make in unto the Hern, and cauſeth her to work into the Wind; then let go your *Hawks* that are to fly her, and when they have worked above the Hern, that they come through her, and by often doing it doth occaſion her coming to Siege, make all the haſte you can to aſſiſt her by breaking her Legs and Wings, and thruſting her Bill into the Ground: And for this Flight you muſt always have a Dog that ſhould be trained up to the Sport, whoſe buſineſs is to come in and kill the Hern.

But in caſe your *Hawk* doth fail to beat down the Hern, or doth give over the Flight, give her a Train-Hern or two more before you ſhew her another Wild one; then fly her with a Quarry that is well entred, and in good flying; for thereby ſhe ſeeing the *Quarry-Hawk* fly at her, and bind with her, ſhe will take freſh courage and become bold, and when they have killed the Hern, reward them both together whilſt the Quarry is hot.

CHAP. XVIII.

Brook Hawking.

HAWKS for this Sport are the *Gerfaulcon* and *Jerkin*, the *Haggard Faulcon* and the *Taſſel Gentle*.

In many places there are Ponds encloſed with Woods, Buſhes, and the like Obſcurities, ſo that they are concealed from Paſſengers, and ſuch places Ducks do much reſort unto. Now for the Training up your *Hawk* to take them, obſerve theſe Directions.

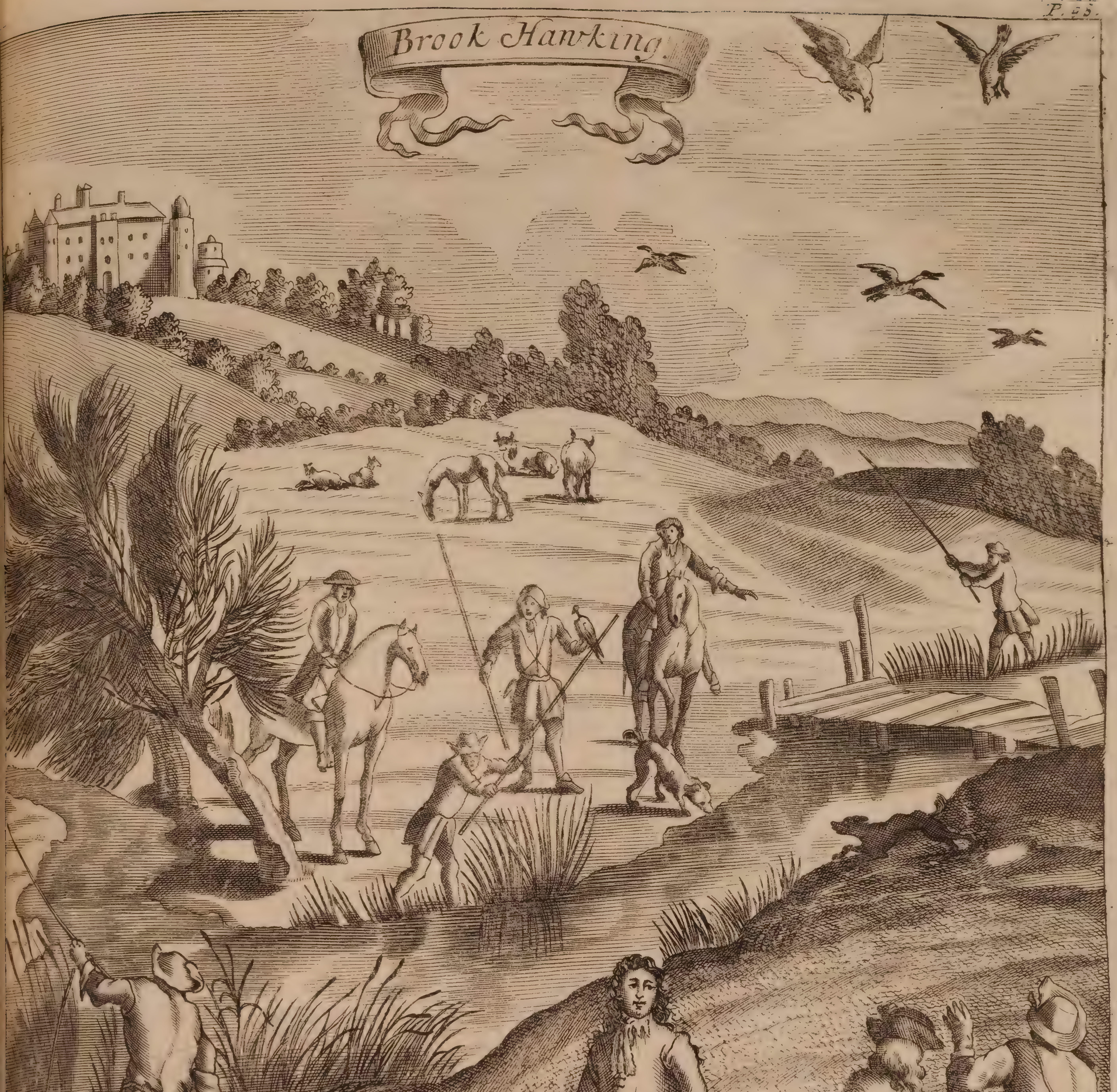
Your *Hawk* being in all points ready to fly, be provided with two or three live Train-Ducks, and let there be a Man that muſt lie concealed in ſome Buſh by the Pond with them; ſo that coming to the place, and having your *Hawk* prepared for the ſudden Flight, beat the Buſh with your Pole where the Man lies concealed with the Ducks, who muſt caſt forth one of them, to the end the *Hawk* may think it was put up by you, and if with a Courage ſhe takes it, reward her well. And this is the way to train up a *Goſs-hawk* to catch a Fowl at Sowce.

Having trained your *Hawk* to this, you may boldly go with her to the Ponds where the Fowl lies, and creeping cloſe to the place raiſe them by beating about with your Pole, and when any riſe, let go your *Hawk* from your Fiſt, and if ſhe ſeize it let her take pleaſure thereon, and Reward her well.

It is very neceſſary to have a Spaniel with you; for if the *Hawk* is well acquainted with the Sport, ſhe will be ſo nimble at the Catch, that they will fall into the Water together, and by that means the Fowl may go to Plunge, ſo that then the Spaniel will be ready to do good Service, and not diſpleaſe the *Hawk*.

A Flight for a Faulcon *to the River.*

WHen your *Hawk* will fly, jump, and come in at your Lure, then ſhe is fit to go to the River; and to manage your Flight obſerve theſe Directions: When you have found where the Fowl lies, go about a quarter of a Mile up in the Wind to the River ſide, and whiſtle off your *Hawks*, looſing their Hoods, and let them fly with their Heads in the Wind, for there muſt be a Caſt of *Hawks* for this Flight. Then let the *Faulconers*, or others that are at the Sport, ſtrike their Poles in the Water to cauſe the *Hawks* to come in unto you and own the River; and when they are got up into their places, let one of the *Faulconers* ride down to ſhew the Fowl, and when the *Hawks* have made their ſtooping, and have ennued the Fowl, then go off from the River again; and when the *Hawks* have made good their places, let one of the *Faulconers* go below the Fowl, that is, down the River; and for the other that is above, let him come down and ſhew the Fowl again, and by that means the Fowl will be croſt over Land, that the *Hawks* may make a fair ſtooping, and knocking the Fowl on the Land will occaſion the killing it, which will Quarry your *Hawks*.


Brook Hawking.

To the Worſhipfull Gilbert Gerard Coſsine of Braſſerton
hall in the North Rideing of York ſhire Eſq.^{r} Son
and heyre of Sr Gilbert Gerard Knight and
Baronet by Mary Daughter to the Right Reverend
Father in God Iohn Coſsine late Lord Biſhop of Durham
This Plate is humbly Dedicated by Ric. Blome.

il Tempo vien chi puo aſpettare

But if they ſhould miſs their ſtooping, ſo as that the Fowl may get to the River again, your *Hawks* muſt go to their Wings to make good their Flight; but if the Fowl ſhould go to plunge, then take down your *Hawks*, leſt you ſhould fly them too long, and the *Faulconers* with their Spears or Poles may endeavour to Spear or kill the Fowl, which take to Quarry the *Hawks* with.

If they kill not the Fowl at firſt ſtooping, give them reſpite to recover their Place; and when they are at their Place again and their Heads in, lay out the Fowl as before directed, and Reward them well if they kill.

You ſhould do well to have a live Duck in your Hawking-Bag, that if they kill not the Fowl which is ſtooped (as oft-times it happens) then your *Hawks* being at their Pitch and their Heads in, you may throw it to your *Hawks* and Reward them; and by this means you ſhall always keep your *Hawks* in good Life and Blood, and to be Inwards.

To make a Hawk *Inward of the River, when ſhe Raketh out.*

IF your *Hawk* can't recover the Fowl by reaſon of its breaking away at ſtretch, and gives it over and comes in again, then caſt her out a Seeled Duck; and if ſhe ſtoop it, or truſs it, croſs the Wings and let her plume and take her pleaſure thereon, and reward her therewith; by this means ſhe will learn to give over the Fowl that Rakes out, and take back to the River again.

To keep a Hawk *high flying.*

YOUR *Hawk* being well made to the River, you ſhould not fly her above two flights in the Evening, but feed her up tho' ſhe kills not; and if ſhe be a ſtately high flying *Hawk*, one flight in an Evening is ſufficient; for often flying will bring her down, and make her fall off her ſtately Pitch, and ſhe will become greedy of the Quarry.

When a good flying *Hawk* doth get up to a good Place, you muſt continue her therein, Flying with her upon narrow Waters and Rivulets, ſhunning broad Waters and ſuch places that lie near Coverts, where a Fowl can hardly be landed without the aſſiſtance of Dogs, and where ſhe can't ſee the Water under her; which are ſuch great Impediments, as will cauſe her to play the Kite, much abate her Gate, and quite ſpoil her high flying; therefore always keep her as high flying as poſſible; but be ſure make her Inwards, that is, fond of the Lure, and to be in ſuch love with it, as upon toſſing it up ſhe will preſently come ſowcing down upon it, which is no ſmall honour to the *Faulconer*, to have her at ſuch command. And if ſhe chance to play the Kite and be lazy, throw her out either ſome Train-Duck, or dead Quarry, and Hood her up for about half an Hour; then call her to the Lure and feed her.

Some are of Opinion that in ſuch caſes you ſhould not Reward her at all, to the end ſhe ſhould not be encouraged to uſe ſuch ill Tricks; but the former way is adjudged the beſt.

If your *Hawk* ſo ſoon as ſhe hath ſtooped and endewed a Fowl, will take ſtand on a Tree or Stump by the Rivers ſide, Reclaim her from this ill quality, by having in readineſs two or three Men with live Trains, and that way which ſhe ſits or moſt bends, let them caſt forth the Train-Duck, and if ſhe kill it Reward her. And thus doing for three or four Days, ſhe will be broke of that ill quality.

To make a Hawk *fond of the Lure.*

WHen your *Hawk* is well Quarred, and flieth well to the River with a good Pitch and a great Gate, it is requiſite to make her fond of the Lure, and to take her down therewith, permitting her to kill a Duck or Pigeon tied thereto, after ſhe hath made two or three Stoopings.

The higher ſhe flieth, the more need there is to take her down.

If it happens that a Fowl (being often ſtooped) will not riſe again, but fall to Diving (that is, Plunging) contrive all the ways you can to kill it by Poles or Spears, and take down your *Hawk* with the Lure, and let her feed on the Train-Duck to pleaſe her ſelf thereon, and this will make her become fond of the Lure. But if you take her down to a ſweet Pelt, and Reward her well with a warm Pigeon, ſhe will be as well pleaſed as if ſhe had killed the Fowl.

In caſe ſhe uſeth to rake out after Check, and lean out ſo far as not to come in again to the Flight, neither the Luring, Whooping, nor Caſting the Glove about your Head will do the Buſineſs; for there is no Remedy but following her, and if perchance at length ſhe comes in unto the Lure, take her gently up, feed her with good Meat, and uſe her kindly as before directed, to the end ſhe may be encouraged, and become in love with your Voice and Uſage againſt the like occaſion.

If you practiſe this diligently towards *Soar-hawks*, or *Hawks* of the firſt Coat, they will learn to hold in at Voice, or ſight of the Lure, when ever you perceive they are inclin'd to gad.

All *Hawks* ſhould be ſet out in the Evening before Flying, to be well air'd and ſharp ſet againſt their coming into the Field, and to ſtand Hooded as before directed.

CHAP. XIX.

Rules for Ordering Hawks *in the Mew.*

AS to the Mewing your *Hawks*, In the firſt place it is neceſſary to know when ſhe ought to leave Flying, and accordingly prepare her for it, which by moſt is agreed to be about our *Lady-Day*; ſo that about *October* ſhe will be fair Mewed, hard and home ſet.

Your *Soar* and *Ramage-Faulcon* may be kept out longer, and fly her to *May-Day*; but your *Haggard* of all ſorts, ought to be put into the Mew by the firſt of *April*: And the older the *Haggard* is, the ſooner ſhe ought to be put therein; for Nature will incline her ſooner than younger *Hawks*.

It is neceſſary that immediately after you leave flying, and before you put her into the Mew, you feed her up to be full of Fleſh and luſty, which is not acquired by letting her have of the beſt, and her fill; for then out of a greedineſs and the heat of her Stomach, ſhe will take too much into her Gorge, over-preſſing herſelf, and conſequently rather retard through Indigeſtion, than promote by due Concoction the end of your deſire. My advice therefore is, that you continue, as to Quantity and Times of Feeding, the ſame Rules as in the time of her Flying for two or three Days, only let her have then unwaſh'd Meat to ſcour and Enſeam her; afterwards increaſe your Hand a little by degrees, and let her not glut her ſelf too full, leſt ſhe thereby fill her Stomach with tough raw Humours, and ſo fall into Diſtempers. About a Fortnight's obſervance of this Courſe (if ſhe be ſound) will raiſe her Fleſh to your deſire, and then you may be bold to feed her once a Day, but with young Pigeons, for three or four Days; for they are moiſt and hot, of eaſier Digeſtion, and more nouriſhing than old ones: But for want of young, you may uſe ſuch as you can get, always remembring that her firſt Gorges are reaſonable as to quantity, becauſe at that time of the Year moſt old Feed is drier and harder of Digeſtion than at other times.

With theſe Obſervations you ſhall find your *Hawk* raiſed in her Fleſh, and ſettled in her Health, otherwiſe ſhe muſt be put into the Mew: And without this Preparation ſhe will ſoon be at a ſtand, which will give you cauſe to fear it proceeds from ſome Bruiſe or inward Grief, whereas it is meerly for want of Care in the preparing and feeding her in the Mew.

When you put her into the Mew, be ſure let her be free from Mites and Lice, for ſuch like Vermin (which generally attend lean *Hawks*) will obſtruct her thriving. You ſhould alſo put on her Legs, inſtead of her old Jeſſes, a pair of ſtrong new ones, that you may not be neceſſitated to put her on others at your drawing her out, which can't be done without heating and diſturbing her, which at that time ſhould be prevented, as being in the prime of her Grace. And ſhe ſhould alſo have Bells on, that if in caſe ſhe break out of the Mew ſhe may be heard.

Keep the Mew clean ſwept, and let there be a large broad Pan of Water ſet therein for her Bathing, which muſt have freſh Water every other Day. She muſt have Stones alſo lying by her in Gravel; for by her taking and caſting of theſe Stones you may know the Condition of her Body; and they may be carefully gathered up, clean waſh'd, and laid for her in convenient Places to take them again.

If whilſt ſhe continues in the Mew you give her any Fowl killed by a Gun, be ſure to take away all the Shot and bruiſed Fleſh, both being very hurtful and offenſive to the Nature of all *Hawks*.

As to the ſituation of the Mew (which ought to be a pretty large Ground-Room) it ſhould be ſo diſpoſed that no Vermin, as Weeſels, Polecats, Rats, or the like, annoy it; nor ſhould it be nigh any High-way, or where there is great reſort of People: And the Perches ſhould be lined to keep their Feet from hurting. Whilſt ſhe is in the Mew none ſhould come near her but her Feeder or Keeper: And it were not amiſs if you had a Feeding-Stock in the Room, with a String fixed thereto to make faſt her Meat in it, to prevent her dragging it up and down in the Duſt or Filth, which renders it unfit for her Feeding: But if you give her no more than ſhe can eat, this Rule is not to be obſerved.

Stale Meat is very hurtful, nor ſhould you come into the Mew, but when you bring ſomething to Feed her.

It is convenient that the Air have a free Paſſage into the Mew, and that it have the benefit of the Sun, therefore I hold that broad Lettice Windows are very good: And you muſt not let any Rain drop upon your *Hawk* whilſt ſhe is in the Mew.

As for her Meats whilſt ſhe is in the Mew, all ſmall Birds are very good; alſo Chickens and Kid, and Eels cut in pieces, and dipt in warm Sheeps-Blood; and indeed moſt ſorts of Fleſh, provided it is freſh and ſweet. And as to the Quantity, let it be rather too much than too little.

Let her Bathe once in two or three Days if ſhe will.

A *Hawk* is not full and firm drawn out of the Mew until her Sarſels be full grown and hard penned; and when you intend to draw her out, do it with all the expedition you can, putting on her Ruffer-hood very gently, and immediately ſet her on the Perch, that ſhe may reſt quietly for that Night, until her firſt heat and fury is allay'd, which will be by the next Morning; for ſhould you at that time uſe much ſtriving with her, it would indanger the over-heating her, which will occaſion many Diſeaſes.

When ſhe is on the Perch let ſome Company be Diſcourſing or Walking near at hand, that ſhe may obſerve them, yet not ſo as to diſturb her: And when you perceive her pretty quiet, take her gently to your Fiſt, ſtroaking her with a Feather. If ſhe be troubleſome and very Coy, ſet her down again, and take her up a ſecond time about an Hour after, and ſo continue until you have gained her love, then, proffer her a bit of Meat, afterwards accuſtom her to more Carriage; but indeavour with all your Art to prevent her from Bating.

After ſhe is taken out of the Mew, hood her until ſhe hath a good Stomach; feed her bare-fac'd, and ſuffer her Hood to be put on gently; and then in an Evening by Candle-light you may unhood her, and the next Day ſhew her the Glove, and your Fiſt, ſuffering her to Tyre and Plume Morning and Evening. And ſometimes in the Morning when her Gorge is empty, if you give her Sugar-Candy, it will help her to endew.

When by her eager Feeding you think ſhe is Enſeamed, and that you may Fly her, carry her into the Field, and if empty, ſhe will Bate and fly of her own accord, and if ſke kill, Reward her.

There is more danger in heating a *Hawk* taken out of the Mew, than one newly taken being a *Ramager*; for the latter comes from her Exerciſe, and altho' ſhe is fat, yet peradventure her Fat and Fleſh is firm, and ſo made from her daily Exerciſe.

There is alſo more danger in a Mew'd *Hawk* than in one taken out of the Cage; for though they are fat, yet their long Carriage by Sea and Land makes them leſs apt to Bate, and over-heat themſelves.

Thoſe that are taken from the Mew get their Fat by Eaſe and Reſt, ſo that when they are brought to eat they muſt be fed twice a Day with good new Meat well waſh'd and clean dreſt, that all the Blood may be well wrought out. As to the Quantity you may uſe your Diſcretion, giving her enough.

For the firſt ten Days after your *Hawk* begins to feed, give her neither Stones nor Caſtings; but afterwards give her every Night about half a Dozen of Stones, after ſhe hath put away her Supper from her Gorge, and you will find that ſhe will have render'd them all again in the Morning.

The third Week begin to give her Caſtings, and ſo continue the ſame Courſe for Diet and Feeding, as before directed, until ſhe be flying: And all the time of her Feeding add to her Meals, and forbear to waſh altogether ſo hard; for it is careful and due Feeding that makes her ſerviceable: Nor is there any *Hawk* but what will fly as ſhe is taught; and if her Stomach be right, will fly with Courage and Attention to her Keeper.

After a long, tedious and laborious Flight, if you miſtruſt any Greaſe or Uncleanneſs in her, give her Plumage and Blood to content her, but not much Meat, half her uſual Gorge being ſufficient: Then when her Meat is put over, give her Stones, and ſet her up warm, and you ſhall find the Stones preſerve her in a due Proportion of Heat for the preſent, which is very neceſſary for her, rendring her cool and temperate for the future.

To conclude, concerning the giving Stones, you muſt uſe the Stones and Caſting with Diſcretion. The latter without the former in a *Hawk* (ſuppoſed to be clean) will work no effect, and thereby deceive you. For Example; Give ſuch a *Hawk*, as you ſuppoſe to be very clean, Caſting for a Week together, and ſhe will render it fair and white; and do but then give her ſome Stones, and then Caſting, and you ſhall ſoon find ſome Filth and Glut which the Stones had made fit to remove by the Caſting, and which without theſe Stones the Caſting could not have wrought off.

Sometimes it happens that a *Hawk* may break out of the Mew, to regain, or find out the Place where ſhe percheth in the Night; then take with you a Dark-Lanthorn, and at your Approach hold the Light to her, that ſhe may not ſee your Face, but be employ'd in looking altogether on the Light, which is cuſtomary to all Birds: Then having eſpied her, climb up the Tree with as little Noiſe as poſſible, ringing a low Bell at the Bottom of the Tree, and holding the Light towards her until ſhe is taken, which you may eaſily do, for ſhe will hardly ſtir.

About a Fortnight or three Weeks before you intend to draw your *Hawk* out of the Mew, let her be fed twice a Day with clean dreſs'd and waſh'd Meat, and you will find her thereby well advanced towards her Enſeaming. She will likewiſe thereby have ſcour'd out of her Pannel and Gut much of that Glut and Greaſe which had there engender'd, which will prevent many Dangers that might have befallen her thro' Heat, occaſion'd by the leaſt Stirring, or Bating in the Time of her drawing out of the Mew.

Of Mewing at the Stock.

THE Place for this purpoſe ſhould be a Ground-Room, free from Noiſe; and there muſt be as many Turfs or Sods placed therein upon the Ground as you intend to mew *Hawks*; and let the Diſtances be ſo wide, as not to reach one another. Let the Ground be covered with Sand, and your Turfs muſt be raiſed ſo high one upon another, that your *Hawks* Trains may not touch the Ground.

For the faſtening her to the Turf, put a Stick thro' the Middle of the Turf, ſo that about two Inches of the Stick goes beyond the Turf at each End; then faſten your *Hawk*'s Leaſe to the one End, and draw it over the Top of the Turf, with a Swivel fixed in the Middle of the Top of the Turf; and, drawing it hard, faſten it to the other End of the Stick; then faſten your *Hawk* by the Jeſſes to the upper part of the Swivel, which will give her Leave to bate round about the Turf, but not to get off; and as oft as your upper Turf grows dry, ſupply it with freſh.

Note, That all *Gerfaulcons* and *Jerkins* are to be mewed this way, and not looſe; as alſo all *Haggards* are unquiet in the looſe Mew.

Every Morning when the *Faulconer* comes to feed the *Hawks* thus mew'd, as he enters the Room he muſt give them his Voice, that they may know of his Approach; then with a Broom ſweep away all their Mewtings, and then feed each *Hawk* as uſually. The Sand thus ſwept away muſt be renew'd to keep all ſweet and clean.

All *Hawks* mew'd this way, ſhould have Cophoods, which are large and eaſie, which muſt be taken off about once a Fortnight, that nothing may hurt their Eyes.

Having treated of the ſeveral Sorts of *Hawks*, together with Inſtructions for their Feeding, Reclaiming and Mewing, the next Buſineſs ſhall be to treat of ſome neceſſary Things fit for a *Faulconer* to underſtand and obſerve.

CHAP. XX.

Neceſſary Rules for a Faulconer *to obſerve.*

WHoſoever intends to apply himſelf to his Art, and to become Maſter, muſt for ſome time beſtow all his Care and Endeavours therein: He muſt be diligent to learn and obſerve the Natures, Inclinations, Strength, Mettle and Conditions of his *Hawks*: He muſt treat them with a gentle and loving Hand, and paſs by their Faults with Patience: He muſt not be addicted to Tables, Cards, or playing of Good-fellow; for many an excellent *Hawk* hath been loſt, through the Intemperance of her Keeper; nor can he be term'd a good *Faulconer* that is apt to be led away by theſe, or the like Diſorders. I grant he may be expert in Reclaiming, Enſeaming and Flying his *Hawk*; nay, he may attain to great Skill in the Ordering and Managing her in her Flights, and whilſt ſhe is in the Field: But if then he betakes himſelf to the Pot and Pipe when he is return'd Home, and peradventure let his poor tired *Hawk* to hang by the Heels, ſuch a one cannot deſerve the Name of a good *Faulconer*. He that is a Smoaker muſt not chew the *Hawk*'s Meat in his Mouth for ſome good time after; for it will make her caſt her Gorge, or ſtand upon her Meat, which will occaſion a Diſorder in her, if not kill her.

It is not enough that a *Faulconer* knows how to cure his *Hawk* of any Diſeaſe or Diſtemper, nor what Remedies he ought to uſe in ſuch and ſuch Accidents; but his Care muſt be to preſerve her from Diſeaſes and ill Accidents, which he may in a great meaſure perform by Care and Diligence; for that Phyſician, which prevents a Diſeaſe is of more Eſteem than he that Cures it.

He muſt be careful to keep his *Hawk* clean, and free from Lice, Mites, and the like Vermin; the firſt being in the Body, and the latter about the Eyes and Nares: And ſhe muſt be in good Caſe as to State of Body; for a lean *Hawk* is ſubject to more Diſeaſes than a fat one, eſpecially Lice and Mites; and yet a Meaſure ought to be obſerved in her Feeding; for if over-fat, it hinders her Flight.

The Place under the Perch ſhould be often gravell'd, the better to diſcern by her Caſting when ſhe hath need of Scouring, Stones, or the like.

Every Morning tye your *Hawk* out to Weather her; and thoſe Mornings that ſhe bathes, when ſhe is thoroughly dry, give her ſome Plumage or Tiring, to prevent her catching Cold, and ſhe will be fit for Flying.

After you come from your Sport, ſet a Candle lighted by her, which will occaſion her to rouze, pleaſe and oil herſelf, where ſhe ſits unhooded.

Every Morning that you intend to fly her, ſet her out early to Air or Weather, pulling off her Hood for ſo long time as ſhe ſits quiet, and then hood her up again, and ſo let her ſit till you go to the Field: And when you ſet her out to Weather, place her on a Block or Stump, about a Foot high, and tied at half Length of the Leaſe; and if there be more *Hawks* than one in a Room, place them ſo, that they reach not one another, as before directed.

Every Night after Flying, give them Caſtings, ſometimes Plumage, and ſometimes Knots of Flannel, or Feather-Caſtings, and ſometimes Phyſick, as you ſee Occaſion by their Caſtings and Mewts.

Be careful not to tye your *Hawk* too high from the Ground, for fear of Bating, hanging by the Heels, or the like ill Accidents, but ſet her low; and if there be more *Hawks* than one in the ſame Yard or Garden, place them ſo as not to reach one another.

The *Faulconer* muſt be provided with Coping-Irons to cope the *Hawk*'s Beak, when it is over-grown; alſo Cauterizing-Irons, Sciſſars, Bodkin, and ſuch like neceſſary Tools.

CHAP. XXI.

Terms of Art in Faulconry.

THE firſt and principal Term to be practiſed is, *Hold faſt*; and that at all times, eſpecially when he bateth, or ſtriveth to fly away.

Say, *Feed your Hawk*, and not give her Meat; and when ſhe hath fed, ſay, *She feaketh her Beak*, and not wipeth it.

She is full *Gorged*, not *Cropped*; and if her Gorge be void, and her Bowels any thing ſtiff, ſay, *She is embowell'd*, and hath not fully endued; and ſo long as you find any thing in her Bowels, it is dangerous to give her Meat.

You ſhall ſay ſhe *Jouketh*, and not *Sleepeth*; ſhe *Pruneth*, not *Picketh* herſelf; nor can ſhe properly be ſaid to prune herſelf, but when ſhe begins at her Legs, and fetcheth out Moiſture at her Rump, wherewith ſhe oileth her Feet, and ſtrikes the Feathers of her Wings through her Beak, which ſhe doth after ſhe hath been wet in a rainy Flight; and when ſhe pruneth herſelf, do not diſturb her; for then ſhe ſheweth herſelf to be luſty, and of good Courage. When ſhe has done Pruning, ſhe will exceedingly rouze herſelf.

When ſhe Picketh herſelf, ſay ſhe *Pruneth* herſelf.

When ſhe ſtretches one Wing and a Leg, ſhe *Mantleth*; and when ſhe lifts up her Wings, ſhe *Towreth*.

To *Brayle the Hawk's Wings*, is to put a Piece of Leather over the Pinion of one of her Wings, to keep it cloſe.

Say ſhe *Rouzeth*, and not Shaketh herſelf.

If a Long-wing'd *Hawk*, ſay ſhe *Mewteth*; and if a Short-wing'd, ſhe *Sliceth*.

Say, *Set your* Hawk *to the Perch*.

Say, She is a fair, long, ſhort or thick *Hawk*, and not a great *Hawk*; and ſhe hath a large or ſhort *Beak*, and not a Bill.

Say, She is full *Gorged*, and not Cropped.

Say, She *Putteth over*, and *Endeweth*, but both in a diverſe Senſe; for ſhe puts over when ſhe removes her Meat from her Gorge into her Pannel, by traverſing with her Body, but chiefly with her Neck. She never endeweth ſo long as her Gorge is full at her Feeding; but as ſoon as ſhe hath fed and reſted, then ſhe endeweth by little and little.

When a Long-wing'd *Hawk* is flown from the Fiſt at her Game, it is ſaid, *She goeth well aforehead*; and after ſhe hath laid in her Game, and betakes herſelf to her Wings, it is called *Flying*.

For a Short-wing'd *Hawk*, ſay, *She goes well from the Fiſt*; and when ſhe has laid in her Game, and taken her Stand, it is ſaid, *She goes well or nimbly at the Retrieve*.

Hawks have Proper Names to their Feathers. Their principal Feathers are ſix in each Wing, and twelve in their Train. All her ſmall Feathers (except her Flag-Feathers under her Wings, which are thin and broad) are her Plumage. The firſt Feathers in the Wings are the *Sarcel Feathers*, which ſhe always caſts laſt, when ſhe is in the Mew; and then, and not before, is the proper Time to feed her with waſh'd Meat; and begin to enſeam her, that is, to take away her Greaſe; for waſh'd Meat purgeth her. There are other Feathers that cloſe up the Sarcels, and thoſe are term'd the *Covering Feathers*, as are all the Feathers which are next over the *Long-Beam* and *Flag-Feathers*.

When ſhe picketh herſelf, ſay, *She reformeth her Feathers*.

Say, She *Collieth*, and not Breaketh; She *Straineth*, not Clitcheth nor Snatcheth.

When ſhe waits at the Place, where ſhe lays the Partridge, or other Game, until ſhe be retriev'd, ſay, *She keeps her Mark*.

A Hern that ſtands by the Water-ſide, watching for her Prey, is ſaid to ſtand at *Seidge*.

When a *Hawk* goeth forth at Check, it is term'd, *She maketh out*.

When ſhe groweth fat, ſay, *She is raiſed in Fleſh*.

CHAP. XXII.

Concerning the Diſeaſes of Hawks, *with proper Cures for the ſame.*

Diſeaſes are eaſier prevented than cured: Every one therefore that intends to keep *Hawks* ſhould be well adviſed, in the firſt place, how to preſerve them from Sickneſs and Maladies, which is of greater Concern than to cure them when diſtemper'd.

In the next place, if any *Hawk* hath any Sickneſs or Malady, provide timely Remedies, not permitting them to run on too far: And in the laſt place, you muſt be furniſh'd with Medicines proper for the Diſtemper.

Accidents will unavoidably happen, and then your Art and Care will be required to cure them with the greateſt Eaſe, Safety and Quickneſs.

Diſeaſes and inward Infirmities do ſend forth certain previous Symptoms, whoſe Progreſſions may be impeded by a timely Application of neceſſary Remedies.

I ſhall give you ſome Inſtructions how to cure thoſe Diſtempers that *Hawks* are moſt ſubject unto, eſpecially at the Time of their drawing out of the Mew, being then very fat, and full of Greaſe, unleſs you order them accordingly: And withal, being full of Courage, and wild, they are apt to over-heat themſelves by Stirring, Bating, Reſiſting, *&c.* and if you do not prevent the enſuing Evils, your *Hawk* is utterly loſt; for it is impoſſible to cure her of theſe Infirmities whilſt ſhe is in her Greaſe. If therefore your *Hawk* be of great Mettle and coy, waſh her with cold Water, which will much refreſh and cool her before ſhe begins to bate; for after ſhe hath heated herſelf, then too ſudden Exceſs of Cold will clog her up. The Heat will melt her Greaſe, but the Cold will congeal it, which, of the two Evils, is the greateſt.

Alſo it is not good to make too much Haſte in the Enſeaming her, nor to diſperſe her Greaſe too ſoon; for that takes away her Stomach, and cauſeth her to caſt diſorderly. Likewiſe it is the Occaſion of abating her Fleſh, which bringeth Weakneſs of Body, from whence proceeds the Crock, and many other Diſeaſes difficult to cure.

The wild *Hawk* preſerveth herſelf at all Times and Seaſons in a moderate State by her continual Exerciſe and good Feeding. She liveth longer than the reclaim'd ones, and takes greater Pains for her Living, being her own Caterer; and if at any time ſhe finds herſelf oppreſs'd with tough and ill Humours, Glut, Greaſe, Fat, or the like, Nature has taught her (as indeed all Creatures) to be her own Phyſician, and to make choice of her own Medicines, which are no other than fair Water, and Stones or Gravel. It were well if all Men would obſerve ſuch a Courſe when their *Hawks* are out of Order; for certain it is, if theſe things will not cure and prevent Diſeaſes, if timely taken, whereunto your *Hawk*'s Stomach is naturally inclined, then be confident that no Drugs or Medicines will effect the Cure. I hold therefore, that all ſophiſticated Scourings are not only unnatural, but inſignificant to the End for which they are intended. I muſt confeſs, in Appearance they may ſeem to remove ſome inward Diſeaſes, but they do it not effectually, for they return again. But for ſuch that will be perſwaded thereto, I ſhall lay down ſome Scourings, or purging Medicines, with the true Manner how to adminiſter them, and how to prepare your *Hawk* for receiving them, that they may be the more effectual.

Of Scouring and Purging Medicines.

A Strong and full *Hawk* ſhall be exerciſed with Courage, clean fed, Stones and Caſting, at leaſt eight Days, to ſtir the Humours in her Body, and make them fit to be wrought upon. You muſt then feed her in the Morning only, upon that Day that you intend to ſcour her, that ſhe may be empty at Night; then give her Scouring, and ſet her up warm. Early the next Morning give her Stones in this following comfortable Water.

Take a Pint of clean Water, put therein ſix bruiſed Cloves, as many thin Slices of Liquorice, with ſome brown Sugar-candy diſſolv'd. When ſhe hath caſt her Stones, give her a little good Meat to her Breakfaſt. The ſaid Water is very pleaſing and grateful to the *Hawk*, and withal ſtrengthening, and exceeding good for any *Hawk* that is poor and low.

For your ſtrong and full *Hawks* this is a moſt excellent Scouring: Take a Quarter of a Pound of freſh Butter, and four Spoonfuls of White-wine Vinegar; boil them gently together, ſcum and clarifie it well, and then add to it three or four bruiſed Cloves, a Branch of Rue, and one of Wormwood, a Blade or two of Saffron, and a Piece of Sugar-candy; let all theſe boil a little together; then take the Saffron, Cloves, Rue and Wormwood: When the Remainder is cold, drain off the Vinegar, and make up the Subſtance into ſmall Pellets; and being roll'd up in Sugar-candy, give to each *Hawk* two of them; and as to the Bigneſs, you may proportion them to the Size of your *Hawk.*

If it be not ſtrong enough at the firſt Giving, at the ſecond time convey into one of the Pellets the Quantity of a Tare of clean unwaſh'd Aloes, which will work very kindly. This Scouring is good for a Surfeit, and for one that has long continued in a foul and diſorderly Feeding. It purgeth the Stomach, killeth Worms, reſiſteth Rottenneſs, ſtrengtheneth the Heart, and comforteth the Head.

If your *Hawk* be but in a reaſonable State of Body, and you miſtruſt ſome inward Infirmity, then take a Quarter of a Pound of ſweet freſh Butter, let it boil by it ſelf, ſcumming it well; then put into it three or four ſmall Branches of Roſemary, two or three bruiſed Cloves, a little Mace, a little Saffron in Powder, and a pretty Piece of brown Sugar-candy; and boil all theſe together very well. In the cooling put in a little Powder of Rue, and mix them all together very well: Then take out the Cloves, Mace and Roſemary. You muſt give the ſame in Quantity and Manner, both for Time, Preparation, Diet, *&c.* as before directed: And if you find it not ſtrong enough, put into one of the Pellets a ſmall Quantity of waſh'd Aloes. This Scouring gently purgeth, ſtrengthens the Heart, preſerves the Lights, and removes Stoppings and Obſtructions.

A *Hawk* in a low Eſtate, and weak, muſt be order'd in another manner: For whereas you gave your ſtrong *Hawks* Scouring at Night, you muſt give it a weak one in the Morning, and feed her the Night before with good Meat, that ſhe may put it kindly away, and be empty betimes in the Morning; then give her the Scouring you intend, and ſet her on a warm Brick, wrapt up in a double Woollen-Cloth, and there let her ſtand about three Hours, until ſhe is fit to feed; and then give her a little that is good, feeding her by Degrees, not all at once; and be ſure to give her of the Water already preſcribed.

If you order and diet her in this manner, that is, with good Food, moderate Warmth and due Care, no doubt but that ſhe will regain her former Health.

I ſhall add this Compound Scouring, which is very good for any *Hawk* in what State and Condition ſoever.

Take a good Quantity of freſh Butter well boil'd, clarify'd and waſh'd in Roſe-water; then make it up with the Powder of ſix Cloves, two or three Blades of Saffron, the Quantity of a ſmall Nutmeg of Rue in Powder, with good ſtore of Sugar-candy. Being kept cloſe, or covered in a Box, it will keep a long time, and you may give it your *Hawk* as Occaſion requires.

You may feed within about an Hour after it, and it will make her very fond of you, full, haughty and proud. It prevents the Wind, opens Obſtructions, purges the Head, warms the Body, comforts the inward Parts, is good againſt Shortneſs of Breath, and a preſent Remedy for the *Cray* and *Pantas*.

I ſhall now give you an excellent Scouring for a full-body'd *Hawk*, after ſhe has been lured, and her Greaſe and Heat ſtirr'd in her before ſhe be thoroughly enſeam'd. Take ſome ſweet Butter, clarifie it well, and put thereto the Powder of Box-leaves and Roſemary, of each a like Quantity, a little Powder of Horehound: Mix all theſe very well together, and make them up into ſmall Pellets with brown Sugar-candy. Give your *Hawk* two of theſe Pellets at Night, as before directed, and it will purge and ſcour the Pannel, and other inward Parts, of Greaſe, and the like Humours, and will cauſe her to enſeam very well.

I ſhall now add ſomething concerning ſimple Scourings, amongſt which that which they call *Caſting* is one. For a Short-wing'd *Hawk*, the ſoft Feathers of ſmall Birds, with ſome part of the Skin, is very good and natural. And for a Long-wing'd one, fine Flannel, cut into Pieces, about an Inch ſquare, roll'd up, and given in a Bit of Meat.

By theſe you ſhall know in what State your *Hawk* is; for when ſhe has return'd them, if you find them hard, white and round, not ſtinking, or very moiſt; and if upon preſſing or ſqueezing it betwixt your Fingers, you find clear Water come forth, 'tis a ſure Sign ſhe is well and luſty: But if it be long, with contrary Properties, as black, green, yellowiſh, ſlimy, greaſie or ſtinking, it denotes her diſeaſed. The former Caſting is remedied by hot Meats, the latter by feeding her well, and waſhing her Meat in cool Water, as of Endive, or the like; and give her one or two Caſtings of Cotton or Flannel, mix'd with Incenſe and Mummy.

There is another gentle Simple Scouring, and that is the Root of Celandine, of which four or five ſmall Pellets, given out of the Water early in the Morning, (your *Hawk* being faſting) will finely cleanſe her; but it muſt be given to a ſtrong *Hawk*, as being a ſtrong Medicine.

Before you give any Scouring to a *Hawk*, know the State of her Body; and accordingly make and order it, obſerving the Time and Seaſon.

Caſting of Plumage is to be obſerv'd as the former Caſting, that is, if in the Morning you find them round, and not ſtinking, it ſhews Health and Soundneſs: But if long, ſlimy, with undigeſted Fleſh ſticking to it, and ſtinking, it denotes Diſeaſes and Unſoundneſs.

Mewts, as well as Caſtings, muſt be obſerv'd, being of ſuch Importance for the knowing the State and Condition of your *Hawk*, that they ought to be regarded every Morning.

If the Mewt be white, without black Spots, and not very thick, it is a Sign of Health; but if white, and very thick in the Middle, it ſignifies that ſhe is groſs, and full of Greaſe: And this may be remedied by giving her moiſt Meats, as Lambs, Sheeps or Calves Hearts, and the like: And for two Mornings after (being empty) give her Sugar-candy, and this will ſcour her.

If the Mewt be more yellow than white, it is a Sign ſhe abounds in Choler, occaſion'd from great Flights in hot Weather, as alſo from much Bating. This is cured by waſhing and wringing her Meat in Bugloſs, Endive, Borage, or the like cool Waters, and to wring it in a Linnen-Cloth after it is waſh'd.

The green Mewt denotes an infected Liver. For Cure, feed her with Meat, powder'd with Mummy: If ſhe will not take it ſo, give it her in a Scouring or Caſting; and if this will not ſoon effect the Cure, then give her a Scouring of Agarick, and then another of Incenſe to comfort her.

The Mewt full of ſeveral Colours is very bad, and a ſpeedy Courſe muſt be taken, by giving her purified Mummy beaten to Powder, wrapp'd up in Cotton.

The black Mewt proceeds from an infected Liver, and is very dangerous; ſo that it will kill her in a few Days, if it continue. For Cure, give her good warm Meat, and Cotton-Caſting, with Powder of Cloves, Nutmegs and Ginger, or Mummy alone.

The dark ſanguine Mewt, with Black in it, is the moſt dangerous, and hardly curable.

Concerning the Choice of Stones, the Number and the Bigneſs of them, uſe your own Diſcretion, with due Regard to your *Hawk*; for ſeeing you ſhall ſeldom ſee two of one Kind exactly to agree in Proportion and Nature, therefore regulate your ſelf according to Diſcretion.

The Stones moſt proper are a Sort of fine white Pibbles, commonly found in Sands and Gravelly Rivers; the rougher they are the better, provided they are not gritty.

To a *Faulcon-Gentle* give about ſeven Stones, and ſeldom above Nine. To a *Merlin* and *Hobby* not above five or ſix; and ſo to other Sorts proportionable to theſe; and be ſure to give them the Stones always clean waſh'd, and free from Filth.

If your *Hawk* caſt her Stones diſorderly, keeping all, or ſome of them longer than ſhe ſhould, be then well adviſed how to proceed with her. This ill Property is occaſion'd thro' ſudden Colds after Heats, before they are perfectly enſeam'd. For Cure, do not uſe ſtriving with her, leſt you bring her down from her Fleſh; but give her Stones out of fair Water at due times, and often, and not in the Morning, for by that means you will often be conſtrained to keep her often Faſting the whole Day in expectation of them, as being pleaſing to her; but at Night, which is the beſt time for Quietneſs, and then ſhe will have time to receive the true operation of them.

You muſt not give Stones to a ſick *Hawk*, which is not of ſtrength to return them; but to a ſtrong one at Night, and you will not fail to have them again in the Morning: And if ſhe ſhould not have rendred them, yet feed her, and uſe this conſtantly but a little while, and you will Reclaim her to caſt them duly.

Of Worms, *and how to deſtroy them.*

HAWKS are oft troubled with Worms, and there is a ſort called the Back-worm, of about half a yard long, which trouble them, and will in time kill them; It proceeds from groſs and viſcous Humours in the Bowels, occaſioned through ill Digeſtion and want of Natural Heat.

This Back-worm is rarely quite killed; but a careful *Faulconer* by giving her Cloves of Garlick ſteep'd in Wormwood once a Month, and once a Fortnight againſt his putting her into the Mew, will qualifie the Worm ſo as not much to hinder her Flying, and without this Care ſhe will ſuddenly be ſpoiled.

This Diſtemper is eaſily diſcerned by theſe Symptoms, *viz.* By her ſtinking Breath, Caſting her Gorge, Croaking in the Night, trembling and writhing her Train, Mewting, which is ſmall and unclean, and alſo by keeping at a ſtay in a low State of Fleſh.

This Diſtemper may be cured theſe three ways; firſt, Take Preſſure made of a Lamb that was ſlink'd, and make thereof two or three Pieces, which put into the Gut of a Dove, or the like Fowl, and feed your *Hawk* therewith at ſuch times as ſhe is empty, and keep her faſting about two Hours after. Secondly, Provide a Glaſs full of the Juice of Wormwood when it is green, and in its greateſt ſtrength, and put therein twenty or thirty Cloves of Garlick, as many as the Juice will cover, being firſt clean peeled and pierced through; keep them cloſe ſtopt, and when you have uſe for any, give her one at a time for three or four Days at Night for her Supper, having firſt made them clean and dry on the out-ſide, and let her have Water offered her every Morning afterwards; and when you give her her Supper, roul up two or three Bits of Meat in Muſtard-ſeed unbruiſed, and let her eat it: Her Caſting at this time ſhould be Plumage. Thirdly, Your *Hawk* may be cured by a Scouring of waſh'd Aloes Hepatick, Muſtard-ſeed and Agarick, of each an equal quantity; and with theſe Medicines you need not fear the deſtroying of them at any time. And if ſhe void Worms, take fine Filings of Iron, and ſtrew it upon her Meat for two or three Days, and it will cure her.

Of the Filander, or Back-Worm.

THis is a Diſtemper about the Reins, being very ſmall Worms, which lie wrapt up in a thin Skin near that Part; this Diſeaſe makes her poor, and if not timely prevented will kill her. The Signs of this Diſeaſe are her Poverty, ruffling her Train, and Croaking in the Night. This Diſeaſe is cured as before directed for the Worms, and feed her not in about two Hours after; let it be warm and not much; and be ſure to keep her warm all that Day, leſt ſhe take cold. And it were not amiſs if you gave her a Clove of Garlick ſo ſteeped in the Juice of Wormwood once a Month, being a great Preſerver of Health, and preventing divers Diſtempers that *Hawks* are ſubject unto.

There is another ſort of Filander that lies in the Gut or Pannel, being long, ſmall, white and red Worms; For Cure, take Aloes Hepatick, Filings of Iron, Nutmeg, and ſo much Honey as will ſerve to make them into a Pill, which give her in the Morning ſo ſoon as ſhe hath Caſt, and after ſhe hath Mewted it clean away, give her good hot Meat.

Certain Rules to be obſerved to keep all Hawks *in good Health.*

FIRST, Never give them a great Gorge, eſpecially of groſs Meat that is hard to be Endewed and put over, as Beef, and the like; but in caſe you are conſtrained thereunto, then let it be firſt ſoaked well in clean Water and well wrung out; and obſerve if it be in Summer the Water muſt be cold, but if in Winter then luke-warm.

Secondly, Do not feed them with the Fleſh of any Beaſt lately gone to Rut, being dangerous.

Thirdly, Though waſh'd Meat keeps them in Health, yet it is not ſo hearty as that of Fowls newly killed, nor is it ſo grateful to them.

To preſerve a Hawk *in the time of her Flying, and to keep her in Health.*

GIve her every Fortnight in the Morning, and after her Caſting, Aloes Socotrine about the quantity of an Horſe-Bean wrapt up in a little piece of Fleſh, or in the Skin of a Hen, that ſhe may not taſte it, and carry her on your Fiſt, the better to keep her from Caſting it too ſoon; then ſet her in the Sun, or by the Fire hooded, and about two Hours after give her a reaſonable Gorge of ſome live Bird or Fowl.

To help a Hawk *that Endeweth not, nor putteth over as ſhe ought.*

THis is occaſioned by a Surfeit, from being foul within, or elſe being over-gorg'd, when ſhe was poor and low, through overmuch haſte to ſet her up, which is a great Fault in many *Faulconers*.

To Cure this Diſeaſe, feed her with light Meats, and a little at a time; alſo if you feed her with Fleſh of Fowl, firſt ſteep it well in the Blood thereof, which will cauſe her to mount her Fleſh apace. And it were not amiſs if you gave her a ſcouring of Pills made of Beef-marrow, Saffron, Sugar and Lard mixt together three or four Mornings, giving her a reaſonable Gorge about two Hours after.

Directions to preſerve a Goſs-hawk *in the time of her Flying, eſpecially in hot Weather.*

TAke a Pint of Red Roſe-water, put it into a Bottle, bruiſe a Stick or two of Liquorice, and put it therein, as alſo a little Mace, with the quantity of a Walnut of Sugar-Candy. In this Water draw her Meat through two or three times a Week, as you find occaſion. It prevents the Pantas, and ſeveral other Diſeaſes they are ſubject unto; beſides it gives a great Breath, and gently ſcours them.

To raiſe a Hawk *that is poor and low.*

THis is occaſioned by an ill *Faulconer*, in not feeding and ordering her well to prevent Diſtempers, or elſe by Soaring away, and being left for ſome time to ſeek her own Prey, ſhe becomes poor and low.

To raiſe her up, feed her but a little at a time and often, with good Meat of a light Digeſtion.

If ſhe hath loſt her Stomach, either by taking too great a Gorge in the Evening that ſhe can't well Endew, or by being foul in the Pannel, or having taken a Cold; Take Aloes Socotrine, boiled Sugar, and Beef-marrow, of each a like quantity, mix them and make them into Pills, which give her, holding her in the Sun, or by the Fire in Cold Weather, until ſhe hath caſt up the filth and ſlime within her, and feed her not until Noon, and then give her Pigeons, ſmall Birds, or the like Meat.

Of the Frownce.

IF your *Hawk* hath the Frownce, it proceeds from moiſt and cold Humours, either from the Throat, Stomach or Liver, and thereby ſhe loſes her Appetite, and can't cloſe her Clap. It is called the Eagle's Bane, as being commonly the cauſe of her Death. The uſual Signs of it are, her Mouth will be continually furr'd and frothed with white, and her Tongue ſwoln; and if it proceeds from the Throat, it may be ſeen and dreſt: And then do thus; Take a Sawcer of good White-wine Vinegar, put therein three or four red Sage-leaves, and boil them pretty well; then take a little Powder of Burnt Allum, which put into it, ſuffering it to boil a walm or two, and ſo put it into a Vial, and keep it for your uſe.

If you find the Frownce to be rank, Take of the Flour of Brimſtone a ſmall quantity, tye it cloſe in a Linnen-cloth, and let it infuſe in Vinegar four and twenty Hours; then ſtrain into the Vinegar as much of the Juice as you can get out. Having thus made the Medicine, cut or pare off with a ſharp Knife, or Pair of Sciſſars, which you find moſt convenient, the Scale of the Frownce to the Quick, and with the tip of the Feather lay thereon two or three drops of the Vinegar made luke-warm in a Spoon. Do the like the ſecond Day, and afterwards but once in three Days. Keep your *Hawk*'s Mouth open with your Finger for ſome time, after you have touched the Sore place with the Vinegar, that ſhe ſwallow it not down.

If the Frownce be very foul, ſo that it is as big as a Nut; then it muſt be ſlit with your Inciſion Knife, and afterwards cut all out, cleanſing the Blood away with a clean Cloth; then anoint the Sore with Balm, and afterwards with Populion.

If the Frownce proceed from the Stomach, Stones and Caſting will ſoon diſcover that, and recover her.

If it lie in the Liver, there is no way more certain than to give her Stones out of Sorrel-Water, and ſome of the Water with them; give it alſo with the Meat you feed her with, which muſt be ſuch as is eaſie of Digeſtion. Her Gorges ſhould alſo be eaſie and often.

If you infuſe into the Sorrel-Water a thin ſlice or two of Rhubarb, it is excellent to cool all the Inflammations of the Liver in a ſhort time, and to ſet her ſound and right; but not without due care and ordering, for a Neglect will endanger her, and create new Troubles.

Of the Pin.

THis Diſeaſe troubles *Hawks* as it doth Chickens, and proceeds from Cold and Moiſtneſs in the Head, or from feeding on groſs Meats, not well waſh'd in cold Water in the Summer, and warm in the Winter.

For Cure, Firſt give her a Scouring-Pill made of Agarick and Hierapicra, for two or three Days together, with her Caſting at Night, which will cleanſe her Head; then waſh her Tongue with Roſe-water, and anoint it three or four Days with Oil of ſweet Almonds. When you ſee the Pin to be white and ſoft, being then throughly ripe, ſlit it and take it off with the end of a ſharp Awl or Bodkin; then anoint the Place two or three times a Day with the ſaid Oil, until it be cured.

Of the Pantas.

THis is a dangerous Diſeaſe, and eſteemed not curable, if not timely taken: It is eaſie at firſt to be found out, for after a little Bating ſhe will begin to fetch her Breath thick, with panting; and as it increaſeth ſhe will ſhew it more by labouring in her Pannel, even as ſhe ſits ſtill on the Perch; and will be forced to Gape for Breath; but when it is come to this height it is iucurable.

This Diſeaſe proceeds from the Lungs being over dried with heat, ſo that the Heart wants the refreſhing that the Lungs give it, which are the Bellows to draw in the Air; and this Diſeaſe is the ſame with a Broken Winded *Horſe*.

The Pantas doth proceed from two Cauſes, *viz.* From Heat and Drought of the Lungs, which is very hard to be Cured; and from ſome Greaſe or tough Matter ſettled in the Pannel.

For Cure, Take a Quarter of a Pound of ſweet Butter, put it into Damask Roſe-water, in a Vial cloſe covered; and when you uſe it, which muſt be very often, take a little thereof, and put thereto a little Powder of Rue, and the Powder of Saffron mix'd well together, and made into Pellets rolled in Broken Sugar Candy, and give her two of the Pellets every Morning for a Week together, keeping her conſtantly warm.

If you give her a ſcouring of Celandine ſteeped in Oil of Roſes, and waſh her Meat in Colts-foot-water, 'tis very good, for the firſt coming.

Of the Crock, and the Cramp.

THere are ſome *Hawks* that are apt to have the Crock, and Cramp; and although they are of two Names, yet they are of one and the ſame Nature, being both occaſioned by ſudden Cold, after Labour and Heat, either Flying ſtrong Flights before ſhe is clean, or Bating; the former, though well Enſeamed, the latter before it; By this you may know how to prevent it. Be ſure then to keep your new drawn *Hawk* from over-heating her ſelf by ſtriving, and if ſhe doth not, waſh her ſuddenly, but keep her moderately warm. And as for your Enſeamed and Flying *Hawk*, ſet her not careleſly down on any cold Place, after hard Labour, but cheriſh and keep her moderately warm; for through Negligence a *Hawk* gets both theſe Diſtempers, ſo as to loſe the Uſe of her Joints; and in this Caſe expect no Cure.

The Cramp moſt commonly comes after the Crock, and is a general Convulſion of the Nerves and Sinews of the Feet, Legs, and Thighs; and is Cured by Warmth, and inward gentle Scourings. This Diſeaſe ſeizeth on the Limbs, and is eaſily to be diſcerned by the contracting and extending of them. For Cure, there is required Reſt, Heat, and theſe following Directions: Fill a large Braſs Pot or Kettle with clean Water, into which put three handfuls of Red and White Sage-leaves, with as much Polipody of the Oak, and let them boil together, then cover the Pot with good ſtore of Cloths, and ſet your *Hawk* thereon. She muſt not be over-heated, but moderately warmed, neither muſt you ſuffer her to be ſuddainly cooled: You ſhould alſo give her every Morning a Clove of Garlick, for ſeven or eight Days together, to expel the inward Cold, and open her Pipes. You ſhould alſo ſhred very ſmall, a little Rue and Wormwood mixt with ſweet freſh Butter and Sugar Candy, and make it up into Pellets, and give her one or two for three Mornings in a Week; likewiſe now and then take out of the Pot ſome of the Sage and Polipody very hot, to lay before her Nares, that ſhe may be fumed therewith; ſome for the Cramp will only let Blood in that Leg or Foot which ſhe holds up or reſteth upon the other; and if ſhe doth it intermiſſively, then in both, which hath often proved effectual.

For the Crock you may eaſily diſcern it, both by your Eye and Ear. It is ſo termed from her Croaking, or making a hoarſe Noiſe with her Wind from her Throat; and if it be after ſhe is Enſeamed, give her Reſt, and this following Medicine: Take a Pint of Claret, put therein a little Sugar-Candy, three ſlices of Ginger, and as much bruiſed Cloves; and let this ſtew or infuſe over a gentle Fire, cloſe covered with another Diſh of an equal Bigneſs; this upper Diſh muſt be often taken off to wipe away the moiſture with a Feather, and therewith give her ſome with her Meat, as oft as you feed her, and be ſure to keep her warm. If it be taken before ſhe is Enſeamed, it is ſo much the worſe; yet curable, if the Cramp is not alſo in her.

For Cure, diet and order her for quantity and continuance with the Scouring mention'd aforeſaid, wherein the Wormwood and Rue are mixt together; and you need not fear her Recovery, with due Care in the obſervance thereof.

Of the Rye.

THis Diſeaſe proceeds from ſuddain Cold, after Heat and Labour, like as the two former; it produceth a continual ſtopping in the Head, which in a little time cauſeth the Frownce, or a perpetual moiſt, dropping Humour very hard to be Cured.

For preventing this Diſeaſe, do not ſet her on any cold Place, as the Ground, or in any low damp Room; but on a warm dry Perch, which at ſuch times ſhould be a little higher than uſual.

The Cure, if timely taken, is by giving Reſt, and keeping her warm, by orderly Feeding with theſe Directions. Her Food ſhould be opening, and eaſie of Digeſtion, hot and moiſt; and if you ſometimes gave her at her Meals two or three bruiſed Blades of Mace, it would do very well. You muſt alſo give her conſtantly with her Meat ſome of the Confection a little before preſcribed, *viz.* Clarified Butter, with Rue, Saffron, and Sugar Candy in Powder, finely made up in Pellets; alſo give her good ſtore of Plumage, and keep her warm. They will looſen and open her, and cauſe her to throw with her Head, and when once ſhe comes to that, blow the Juice of Dazy Roots, with a Quill or Straw into her Nares an Hour before you feed her; and thrice a Week in the Mornings blow the Juice of Sage into her Nares: Theſe are both good to purge away tough, ſlimy, and corrupted congealed filth, the Body being prediſpoſed to evacuate it.

Of the Cray.

THE Cray with the Cure is almoſt the ſame with the Pantas, and proceeds from Cold, but it is through ill Diet and long Feeding with cold ſtale Meat. The Symptoms are theſe: Her Mewtings will not be plentiful, nor will they come freely and with eaſe from her, ſhe will drop ſome part thereof ſhort and diſperſed, and her Body will be bound, and as it were dried up and clung. It is ſoon diſcovered, and as ſoon recovered, if timely taken. You muſt firſt remove the Cauſe, her Diet muſt be high, eaſie of Digeſtion, and cooling Meat, ſuch as young Rabbets, Chickens, Sheeps Hearts, and the like: Alſo uſe her to your Confection of freſh ſweet Butter made up with Rue, Cloves and Mace, and anoint her Meat therewith. Theſe things will cure the Diſtemper; for it openeth her Body, and cleanſeth her of thoſe Indigeſtions and burning Heats which afflict her, and which in a little time would kill her.

It were not amiſs to give her with her Meat ſometimes the diſtilled Water of Sorrel, Wood-bine, Horehound, and the like cooling, cleanſing, and opening things.

Diſeaſes of the Liver and Stomach.

IF you think your *Hawk* hath any Obſtruction in her Liver or Stomach, or that ſhe hath any inward Diſeaſe which you know not how to remove, you muſt be quick with her; for if for all your Care in feeding and keeping her ſhe continues at a ſtand, or rather falls back; or if ſhe ſits broody and crouching with her Feathers diſplayed, doth ſometimes ſtart and jerk out with her Leg, and the like uſual Motions, queſtionleſs ſhe has ſome Diſtemper that lieth lurking in her. Now to try if it lie in her Stomach only, give her this inſuing Purge. Take ſome clarified Butter that is kept in Roſe-water, then mince a little Rue and Wormwood very ſmall, which mix in the Butter with Powder of Sugar-candy, together with a little Myrrh finely beaten: Theſe Ingredients make up into Pellets, and give your *Hawk* once in a Morning, and it will finely cleanſe her, and is excellent for any Stomach Diſeaſe.

If the Diſtemper lie deeper, then waſh her Meat in White-wine, in which infuſe a ſmall ſlice of Agarick, and the like of white Ginger: You may make it ſtronger or milder, as you ſee occaſion; and you may alſo give her a ſmall quantity of Agarick in Powder.

If ſtill you perceive the Diſeaſe to lie further in, you may conclude it is in the Liver, and that occaſioned through ill Diet, Heats, Colds, Surfeits, and the like, therefore forbear to give her any dry and hot Meat: I do not mean warm Meat, for that you muſt give her and none elſe; but I mean ſuch Meat as is hot and dry in its Nature and Operation, and is ſuch as are old and hard of Digeſtion. You muſt alter her Food every Day, ſometimes one thing and ſometimes another, and not two different ſorts at a time; and give her Caſtings and Stones with moderation. In caſe you find her Mewts and Caſtings to be greeniſh in ſome places, and yellowiſh in others, it is a Complication of Diſtempers in her Gall and Liver. Now all *Hawks* are ſubject to the over-flowing of the Gall, which being diſcernible at firſt, is eaſily cured, if you waſh her Meat in diſtill'd Water of Liverwort ſweetned with Sugar-candy; and now and then, either at Morning or Evening, convey the Powder of three or four Cloves into a bit of Meat, and give her; it will allay and cool all Inflammations proceeding from the Liver.

If you infuſe a little ſlice of Rhubarb in the diſtill'd Water of Endive and Succory, or of one of them, it will cool the heat of the Liver, and cleanſe all Diſtempers of the Gall; the weight of two Grains of Wheat of Rhubarb in Powder given to a *Faulcon*, and ſo proportionable to other *Hawks*, is an excellent Purge for all ill Humours proceeding from the Gall: But then you muſt afterwards in three or four Days give her a gentle Scouring of ſome one of theſe preſcribed in the beginning of this Chapter of the Cures of *Hawks*.

I ſhall only add this Water, which is approved excellent for any inward Sickneſs, proceeding from Heat and Drought, the Symptoms of which are very apparent; for her Countenance will be heavy, ſhe will have a Rattling in her Throat, and her whole Body will be inflamed, as if it were in a Fever; for which there is no better Remedy than this following Receipt. Take two Ounces of French Barley, waſh it well, and put it into a Pipkin with about a Pint of clean Water; let it boil a little, then draw away that Water, and put more to the Barley, which muſt alſo boil four or five walms; draw that alſo off, and pour in ſome more freſh Water, as before; but this laſt time you are to put in about a Quart, which muſt be boiled until about half be conſumed; then ſtrain out the Water, and mix ſome Sugar-candy with it, and boil both together a little. It will not hold good above four Days, ſo that you muſt make it as occaſion ſerves; and when you feed her, waſh the Meat in this Water. It is alſo very good to waſh her Meat in the Waters of Horehound, Woodbine, Woodſorrel, or the like.

To comfort and preſerve the Heart from any Infirmity proceeding from Heat.

TAke the diſtill'd Waters of Burrage and Bugloſs mixt together, into which put half a dozen ſliced Cloves to infuſe; and in this Water waſh her Meat that you give her once a Day, and let her be quiet and at reſt; her Food muſt be light, and not heavy of Digeſtion; and give her but ſmall Gorges thereof, for a great Gorge ruins her.

If the Head is ſtuft with a Cold.

TAke Roſemary Leaves, dry and beat them to fine Powder, which mix with the Powder of about twelve Cloves in clarified and preſerved Butter, ſo made out of the Roſewater and Sugar-candy, and give it her in Pellets in the Morning, one or two at a time, and be ſure to keep her very warm until ſhe is recovered, which will not be long.

To Scour a Hawk *before ſhe is caſt into the Mew.*

IN Luring and Flying time, through foul Feeding, *Hawks* ingender Filanders, and many other Diſtempers, ſo that they muſt be ſcoured and cleanſed before they are caſt into the Mew; for which obſerve theſe Directions: Firſt ſcour her well according to the former Directions; alſo Cope her, and ſet her well in Fleſh, and as near as you can let her be free from Diſeaſes.

Obſerve that a *Haggard Hawk* muſt be caſt into the Mew looſe, unleſs ſhe be one that will not be quiet, and then darken the Room ſo that ſhe may only ſee to feed, and come at Water and Stones; and if that will not do, Mew her upon the Stock, as before directed.

When ſhe begins to Mew, begin to tye her to the Perch or Block, as you do the reſt; and after ſhe hath mewed and comes to fly, let her ſtand on a Block or Billet caſed.

In the ſame manner Mew *Goſs-hawks* and *Sparrow-hawks*, only they are not to be born on the Fiſt, but to be at liberty in the Mew.

About fifteen or twenty Days before you draw your *Hawk* out of the Mew, abate her Diet, the ſooner and better to Enſeam her; and ſhe muſt be fed with waſh'd Meat, to prevent many Diſeaſes that may enſue.

Diſeaſes and Infirmities incident to the Legs and Feet.

HAWKS are oft troubled with outward Infirmities in their Feet and Legs, which proceeds as well from their Keeper's negligence, as otherwiſe; and that occaſioned by ſetting them on the cold Ground, or in moiſt and damp Places when they are heated by Flying, or by Feeding them with cold Meat which creates Diſeaſes; alſo by Pricks of Buſhes and Thorns as they fly after their Game, or for not rolling or lining the Perch with ſoft warm Cloth; for prevention of which, be ſure that after her Flying you quiet her on your Fiſt,and not on the Ground; for if you uſe her not to the Ground, ſhe will not expect it.

When you find ſhe has the Cramp in her Legs, take ſome Piony-Roots, dry and hang them in a little Bag all Night about her Neck, and by Day let it be held often to her Nares to ſmell unto.

If any Knots or Knobs, hard or ſoft, do riſe on her Feet or Legs, ſtay not till they are ripe, but forthwith open them to the bottom with a ſharp Knife the long way of the Leg, and not croſs the Sinews, neither too deep, but enough to take away the corrupt Fleſh or Skin, which is of a ſpungy, hollow ſubſtance: Then take ſome of the Water preſcribed for the Frownce, and waſh it therewith until it is cured. Some are of Opinion, not to open the Knots or Knobs at all, but only to anoint them with ſome mollifying Ointment, and bind it over with a fine Rag.

If your *Hawk* hath got the Pin in her Feet, caſt her gently and cut out the Core or Corn which ariſeth in the Balls of the Feet of unquiet *Hawks*, while they are in the Mew; then have in a readineſs a Plaiſter, to apply thereto, made of Galbanum, white Pitch, and Venice Turpentine ſpread on ſoft Leather, and ſo tyed as not to be removed; yet not ſo ſtrait as to hurt her. She muſt ſtand on a Perch ſoft lined, muſt be kept warm, and dreſt three or four times a Week until cured; and for Cure ſome will ſet them on Salt; but this is found an utter Enemy to it.

If by Accident your *Hawk* gets a Sprain in her Feet or Legs, 'tis ſoon diſcerned by its Heat and Burning: For Cure, anoint and rub the Place Morning and Evening with Oil of Exeter, binding about it a fine Cloth dipt in the ſaid Oil, and keep it warm and ſupple.

If the Sprain happen to be in any of the Tallons or Pounce-Joints, take a Coping-Iron, cut the Tallon to the Quick, and let out a good quantity of the enflamed corrupt Blood, which otherwiſe would endanger the loſs of her Foot.

You muſt ſtay the Blood by Searing the Place with ſome Iron heated in the Fire, and then anoint it with the Oil of Exeter, tying a Linnen-Cloth dipt in the ſaid Oil about the Sore, and over all the Finger of a Glove, with a hole for the Tallon to come out; which Finger muſt be made faſt with a drawing Thread, that you may open it every Morning, to convey three or four drops of the Oil into it; and not to be forced to take it quite off.

If ſhe hath got a Swelling through a Blow, Bruiſe, or any other Accident on her Legs or Feet, anoint the Place with Oil of Bays and Brandy mixt together, and for want of Oil of Bays only with Brandy; then tye over it a Cloth dipt in the ſame, and over all a Leather to keep it warm. In all theſe Caſes give Reſt and due Feeding, or all will be to little purpoſe.

Hawks are apt to have the Gout, eſpecially ſuch that are free mettled and ſtrong Strikers: This Gout is a ſwelling, knotting, or contracting her Feet: The Cure is to bleed her five or ſix drops on the Thigh-Vein, above the Knee; then anoint her Feet with the Juice of Hollihock. Her Perch ſhould be anointed with Tallow, and the Juice of the ſaid Herb mixt together.

If you are not expert in letting Blood, inſtead thereof make an Ointment of May-Butter that is freſh and ſweet, with the like quantity of Oil of Olives and a little Allom; chafe it in by a moderate Fire, and thus do three or four Days Morning and Evening, keeping it warm, and giving her Reſt.

Diſeaſes in the Eyes.

HAWKS are ſubject to many Maladies in their Eyes; ſome proceeding from inward Diſtempers, and others from outward Accidents. I ſhall preſcribe Cures for both.

When ſhe hath a Cold, or Rye in her Head, in time it will fall into her Eyes; therefore apply a Remedy for the curing the Rye, which is the Cauſe thereof: But if it hath cauſed any Film or Web in the Eye, then take ſome white Ginger finely ſearced, and blow into the Eye with a Quill, and it will break the Film; then drop ſome of the Juice of Ivy into the Eye: And if there be no Film, then the Juice of Ivy is ſufficient.

In caſe your *Hawk* hath hurt her Eye by ſome ſtrip of a Bough, or the like; Take ſome brown Sugar-candy, and burn it as you do Allom, then beat it to fine Powder, and Morning and Evening blow ſome of it into her Eyes, keeping her Hooded, and it will ſoon be well. In like manner for an outward Blow or Bruiſe, in and about the Eye, uſe this following Powder. Take a Thunderbolt-Stone, which is not very common, put it into a hot Fire, burn it well, and when it is cold beat it to fine Powder, ſearce it through a fine Linnen-Cloth; and of this Powder the Quantity of a pretty large Pins-Head, either blown into the Eye, or put in, being mixt with a little freſh Butter, will cure all Rheums and Blemiſhes in three or four dreſſings.

The Cataract is hard to be cured; and if of a long continuance and thick is incurable. It proceeds from Groſs Humours in the Head, and ſometimes the Hood is the occaſion of it.

For Cure, give her a Scouring for two or three Days of Aloes or Agarick, then take the Powder of waſh'd Aloes finely beaten one Scruple, and two Scruples of Sugar-candy, mix theſe together, and with a Quill blow it into the Eye, for three or four Days, keeping her warm. If this will not do, then apply ſtronger Medicines, as the Juice of Celandine Roots, bathing her Eyes often with warm Roſe-Water, wherein hath been boiled the Seeds of Fenugreek; but nothing will do ſo well as the cutting it out with a ſharp Knife, and a Skilful Hand.

If your *Hawk* hath Salt Hot Humours running at one, or both her Eyes, ſo that it ſcales off the Feathers under the Eyes, take a little piece of Gum Dragon, and diſſolve it in three or four Spoonfuls of Fair-Water, and drop ſome of the Water into her Eyes; but at the ſame time keep her with moiſt Meat, and let it be drawn through ſome cooling Diſtill'd Waters.

Concerning the Gorge.

SOmetimes it happens that a *Hawk* may be apt to ſtand long on her Meat, before ſhe puts it over, whereby it grows ſour, putrifieth in her Gorge, and conſequently engenders corrupt Humours, which occaſions many Diſeaſes; In this Caſe offer her Water to bowze, which will do her much Good. If ſhe refuſeth it, give her three or four Stones above the Hand, if poſſible, that you may not add to her Diſturbance, and encreaſe her Indiſpoſition. Theſe Stones will provoke her to work it away in due time; yet in regard there will remain Corruptions behind, which may ſend up ill Fumes into the Head, the next Morning give her a Pellet or two of this following Compoſition, to purge, cleanſe, and ſtrengthen her: Take ſome freſh Butter, preſerv'd in Roſe-water, as before directed; then take a little Powder of Myrrh, and the Powder of five or ſix Blades of Mace, and mix them up with brown Sugar-candy. You muſt give it early in the Morning, and when you find it hath wrought, and that ſhe is empty, and her Time of Feeding come, give her a Bit at a time of that, (which is very good) as oft as Occaſion requires for that Day. The next Morning give her Stones, with a Pellet of Wormwood; and when ſhe hath caſt 'em, feed her with clean ſweet Meat, waſh'd in ſome of the wholſome Waters already preſcrib'd. And this freeth her from all Surfeits and ill Humours.

Some in this caſe will provoke their *Hawks* to caſt, which were very good, if it could be done without Straining; yet to ſatisfie ſuch as deſire to have ſome Knowledge therein, I have inſerted this Receipt. Take the Quantity of a ſmall Bean of Roch-Allum, which give her, and it will cauſe her preſently to caſt; then give her a Spoonful of the Cordial ſweet Water, alſo treated of. This will remove Stones, which, by Indiſcretion or Over-haſtineſs, have been given *Hawks* too ſoon, whilſt they have been in Fulneſs of Greaſe, at which time they ſhould not be given, being difficult to remove.

It ſometimes happens, that through a Complication of groſs Humours in the Stomach, for want of clean Feeding, and kindly purging of Stones and Caſtings, ſhe will not keep her Meat, but caſts it; which ſhe may likewiſe do through Sickneſs, Weakneſs, or the like. In this caſe feed her carefully with choice Meat, and but a Bit at a time; and change her Food every other Day, eſpecially of ſmall Birds, which muſt be given warm, being eaſie to be endew'd. In feeding her alſo, give her of the diſtill'd Water of Mint-Royal, which is very comfortable and ſtrengthening to the Head and Stomach.

Biting of a Mad Dog.

IF your *Hawk* ſhould be bit by a mad Dog, preſently clip away the Feathers where the Wound is, and piſs therein, to cleanſe away the congeal'd Blood, and cauſe it to bleed afreſh; then drop into it two or three Drops of Natural Balſom, keeping it cloſe from the Air, and dreſs it once or twice a Day; alſo give her with her Meat a little Powder of Hartſhorn, and let her have Reſt and good Feeding.

If the Mouth of the Wound is very ſmall, rip it larger, ſcour it with White-wine Vinegar, and lay on a Plaiſter of white Frankincenſe and Maſtick, and anoint it round about with Butter, Oil of Roſes and Oil of Olives.

Of the Falling-Sickneſs.

HAwks are ſubject to the Falling-Sickneſs or Apoplexy, which is a Dizzineſs or Vertigo in the Head, proceeding from cold Vapours aſcending out of the Stomach, bred there through ill Food, ſtale Meat and unnatural Uſage. The Symptoms are apparent; for ſhe will fall from the Perch without Bating, being taken with a general Trembling, and after a little Space will get up again, but will continue ſick and heavy for ſome Hours after.

For Cure, take the Juice of the Herb Aſterion, waſh her Meat therein, and ſo feed her; or inſtead thereof, take the Juice of Pellitory of *Spain*, mix'd with a little Sallet-Oil, and put three or four Drops thereof in each Ear, and ſome into her Nares: Keep her warm in ſome dark Place, or hooded, that ſhe may not ſee Light to diſquiet her: But if you find ſhe will be quiet, ſuffer her to ſit bare, and in the Light; but keep her warm, give her Reſt, and warm light Food, as ſmall Birds, and the like, that are eaſie of Digeſtion.

It is the common Opinion, that if a *Gerfaulcon* loſes but two or three Drops of Blood, it will endanger her Life; the Reaſon is, 'tis difficult to ſtop the Bleeding; but Experience has found out a ready Cure. If it be on any of her Pounces, drop ſome hard Wax on it, and it will ſtay the Bleeding. If it be on any Part of her Body, apply a little of the ſoft Down of a Hare, or the Down of *Carduus Benedictus*, when it is full ripe; and either of theſe will not only ſtaunch the Blood, but heal the Wound. Therefore a careful *Faulconer* ſhould always have one or both of theſe in a Readineſs on Occaſion.

Of Lice, &c. in a Hawk.

IF your *Hawk* be louſie, and troubled with Mites or Vermin, which are ſoon diſcover'd by ſetting her in the Sun; for they will crawl out: For Cure, bathe her in the Juice of Fennel-Roots, or if in the Summer, blow the Powder of Orpiment all over her, within her Feathers with a Quill; and if in Winter, waſh her all over with warm Water, in which put ſome ſmall beaten Pepper; but be ſure that none touch her Eyes; then ſet her on the Perch, with her Back and Train to the Sun; or if in the Winter, towards the Fire.

Of Mewting.

SOme *Hawks* are now and then troubled with an Infirmity, that they can't mewt. If you give them ſome of a Swine's Heart, mix'd with Lard, or elſe the Quantity of two Walnuts of lean Pork newly kill'd; (and for a *Faulcon*, lap within it about the Quantity of a Tare of Aloes;) it is a preſent Help. For a *Hobby*, or a leſſer *Hawk*, uſe a leſſer Quantity. But uſe not Celandine, unleſs your *Hawk* be very ſtrong, and full of Fleſh, for that will make her Heart ſick.

If ſhe hath Caſting within her of a long Continuance, wet a Piece of Fleſh in the Juice of Celandine; give it her, and it will cauſe her to render her Caſting.

If ſhe joyeth not, but loſeth her Courage, and falls in her Fleſh, be careful to find out the Cauſe, and to remove it. And for the Raiſing her Fleſh and Courage in a ſhort time, obſerve theſe Directions: Take one Pound or more of lean Fleſh of a young Bullock; ſlice it thin, and put to it as much Claret as will cover it, with about two Ounces of Powder of Sugar-candy, diſtil it, draw her Meat thro' it, and feed her therewith.

It is neceſſary to know if your *Hawk* is ſick, to apply a timely Remedy, which may be diſcover'd by her Fundament, which will be ſwell'd, and look red.

Of the Formica.

THis Diſtemper comes on the Horn of the *Hawk*'s Beak, being there ingender'd by a poiſonous hot Worm, which fretteth the Skin, and the tender yellow Welt between the Head and the Beak. For Cure, every Morning (for about a Week) anoint the Place with a little Bull's Gall and Aloes mix'd together.

Of Fiſtula's and Ulcers.

Hawks have ſometimes Fiſtula's and Ulcers in ſeveral Parts of their Body, which will always run, and ſend forth a filthy, fretting, thin and ſaltiſh Humour at their Nares. For Cure, Syringe it to the Bottom with ſtrong Allum-water often; and, if you could conveniently, put a Tent, wet in Vinegar and Allum, into the Hole, which will quicken the Cure; but let not the Tent reach to the Bottom of the Sore.

Of itching ſalt Humours.

Hawks, beſides the ſalt itching Humour, are troubled with ſuch Rankneſs in their Feathers, which makes them put them out all bloody, and then pull 'em out with their Beaks. It is not enough in this Caſe to anoint ſuch Places with ſome kind of bitter noiſome Oils, or the like, to keep her from pulling them out; but you muſt dry up, and repel that Humour, which to effect, take a Pint of ſtrong Vinegar, boil in it two or three Raſes of beaten Ginger, and two or three Branches of Rue: When it is half waſted, put therein the Quantity of a Walnut of Allum, and a Spoonful of Honey. Let it all boil a little, and put it up for your Uſe. With this Water luke-warm anoint with a Feather the Parts afflicted, and it will ſtrengthen any Feather, though never ſo much bruiſed.

Diſeaſes in the Head.

THeſe Diſeaſes do commonly come by giving them too great Gorges, and by foul Feeding; for when ſhe has too full a Gorge ſhe cannot well put it over, and endew it; and by lying there too long, doth corrupt and ſtink, eſpecially in thoſe that are low and poor; and by reaſon of its ſo lying in the Pannel, Fumes aſcend up into the Head, and ſo cloſe and ſhut up her Ears, and the Paſſages of her Pipes and Head that, occaſions Swellings there.

Of the Apoplexy, or Falling-Evil in the Head.

THis Diſeaſe commonly befals *Hawks*, by reaſon of too much Greaſe and ſtore of Blood, or for that they have been ſet too long in the Heat of the Sun, or have made too long a Flight in the Heat of the Day; and foraſmuch as they are accuſtom'd to be full of Greaſe in the Mew. Therefore it is very good to give them, when they are empty above, a little Lard or ſweet Butter, ſoak'd in Roſe-water, with a little Sugar-candy beaten: But, above all, 'tis good to draw their Meat through Black-Cherry-Water.

Of Apoſtumes in the Head.

Hawks are troubled with Swellings in their Head, which is an ill Diſeaſe, and occaſion'd by divers ill Humours, and the Heat of the Head. It is diſcern'd by the Swelling of the Eyes, by the Moiſture that comes from their Ears, and by their Slothfulneſs. For Cure, give them three or four Mornings (when they have no Meat to put over) a Pill of Butter as big as a Nut, well waſh'd in Roſe-Water, and mix'd with Honey of Roſes and fine Sugar. They muſt be held on the Fiſt until they have made one or two Mewts: Then take four Drams of Rue-ſeed, two Drams of Aloes-Epatick, and one Scruple of Saffron; all which beat to fine Powder, and mix with the Honey of Roſes, to make a Pill; which give them, and it will purge and ſcour their Heads, and about two Hours after give them ſome good hot Meat.

When the Nares of your *Hawk* are ſtuff'd up with Filth, after a convenient Scouring, take Pepper and Muſtard-ſeed beaten to fine Powder, and put into a clean Linnen-Cloth, and ſteep it a good Space in ſtrong White wine Vinegar, and put ſome Drops thereof upon her Nares, that they may pierce in, which will much ſcour her Head.

Of the Giddineſs of the Head.

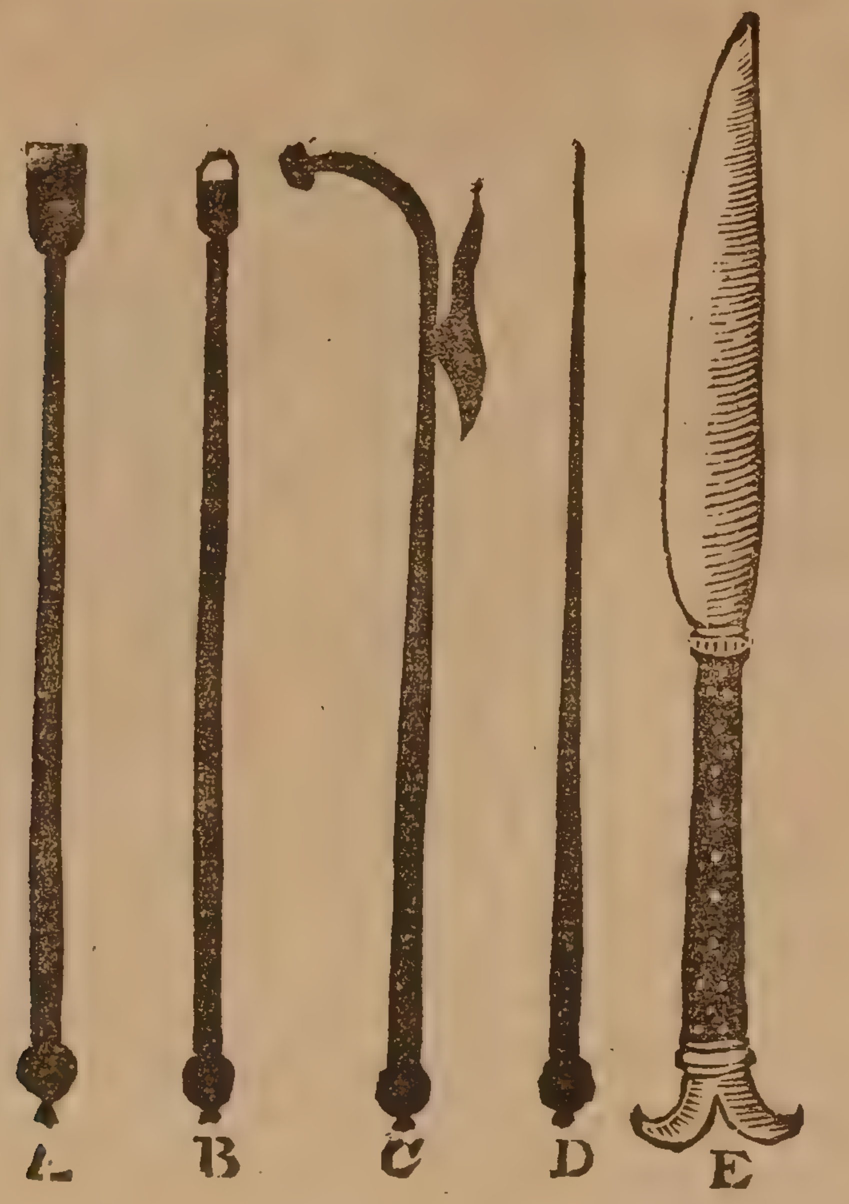
THis Diſeaſe proceeds from Foulneſs of the Pannel, or from a corrupt and naughty Liver. For Cure, give her a Caſting of Cotton, in which wrap up a Scruple of Aloes-Epatick, and two Grains of Cloves; and two Hours after her taking it, give her a young Pigeon, or ſome good Meat.

Of the Haw in the Eye.

THis Diſeaſe comes from a Blow, but moſt commonly by the Straitneſs of the Hood: It is diſcern'd by a Film, growing up from the Bending of the Beak, and covering the Eye by little and little. For Cure, take a ſmall Needle ſharp-pointed, and being finely threaded, take up the Haw, and neatly cut it with a ſharp Knife; but cut it not too much: Then waſh it with Roſe-water for three or four Days together.

Of Cauterizing Inſtruments to ſear Hawks in deſperate Cures, being the laſt Refuge.

THE Cauterizing Inſtruments are made after the Faſhion of the following Figures. That mark'd *A* is to cauterize the *Hawk*'s Head, being round and plain at the Top. That mark'd *B* is to cauterize the Nares, being alſo round and hollow at the Top. That mark'd *C* is a cauterizing Button, to burn and ſear the Head; and with that other Device on the Back-ſide, to cut the Skin under the Nares, if need require. That mark'd *D* is to cauterize and enlarge the Nares, and is therefore made ſo ſmall and ſharp at the Point, the better to enter the Nares: And that mark'd *E* is the Cauterizing Knife, uſeful for divers Occaſions.



Theſe Inſtruments ſhould be larger or ſmaller, according to the Proportion of the *Hawk*. Alſo beſides theſe Tools, a *Faulconer* ſhould have a Pair of Sciſſars, a Splatter and Cooping-Irons.

Of the Canker that breeds in the Throat and Tongue of a Hawk.

THis Diſeaſe is bred through foul Feeding, and not waſhing their Meat in cold Water in Summer, and in warm in Winter, engendring in their Guts a groſs ſlimy Matter, and being moved fumes up into the Head, and ſo diſtilling again, engenders Heat of the Liver, which breaks out in the Throat and Tongue, of which proceeds the Canker. It is eaſily diſcern'd, for ſhe hath much ado to ſwallow her Meat, and oft lets it fall. For Cure, take the Oil of Almonds or Olives, and anoint the Throat therewith two or three times a Day; then give her Sugar, Lard and Beef-Marrow for three Days together, and feed her with Mutton, Pullets, or ſuch like Fleſh, dipt in the ſaid Oil. After this, when you find the Canker white, take a very ſharp Knife, and ſlit or open it along the Side of the Tongue, and ſoftly ſcrape away the Whiteneſs; then take a little Cotton or Lint to dry up the Blood of her Tongue, and waſh her Meat in the ſaid Oil until ſhe is cured.

Of broken Wings, Legs and Thighs.

IF a *Hawk* breaks her Wing, take *Sanguis Draconis*, Bole-Armoniack, Gum-Arabick, white Frankincenſe, Maſtick and Aloes Soccotrine, of each a like Quantity, with ſome fine Meal: Of theſe make a Powder, and temper it with the White of an Egg, and make thereof a Plaiſter, and when it is right ſet, lay on the ſaid Plaiſter gently, croſs her Wings one over another, making her faſt, that ſhe cannot ſtir it, and remove not the Plaiſter in ſeven or eight Days, nor ſtir the Wing when you lay on the freſh Plaiſter, and in about fifteen or twenty Days it will be healed.

This Medicine ſerveth for her Wing, if out of Joint: Having firſt ſet it, ſplinter it up, and apply the Plaiſter as aforeſaid. The like for the Leg, or any other Limb of her, always obſerving with great Care to keep the Place firmly bound (but not too hard) that it doth not come out again in the Dreſſing, or otherwiſe, until it ſhall be well knit.

Of Imping Feathers.

IT often falls out, that a *Hawk* breaks her Wing, and Train-Feathers, ſo that others muſt be ſet in their ſteads, which is termed *Imping* them; and this is to be done ſeveral Ways.

For large *Hawks*, if the Feather is broke within a Finger's Breadth of the Quill, then ſhear it off with a Pair of Sciſſars, that it may not cleave further; then having a Feather like it, cut the Quill off, and force it together, to enter the broken Quill, anointing it with the Yolk of an Egg before you thruſt it in, or ſome kind of Cement made for that purpoſe, ſo that it may be as it were grafted into it; and that it may have the better Hold, faſten them together, by putting through them the Point of a ſmall Feather, as it were a Pin; which Hole may be made through them with a Needle.

If a Sarcel, a Flag, or a Train-Feather be broken or ſlived, ſo as an imped Feather can take no Hold, take a Juniper-Stick, or the like Wood, and make a ſmall Peg thereof, ſo as to enter the Quill; then dip one End thereof in Glew or Cement, and thruſt it into the broken Quill, placing it ſo as it may be without the Quill, and of a juſt Size to anſwer the Length of the Feather before broken; then put the other End alſo in the Glew or Cement, forcing it into the Quill of the Feather, that you have gotten, ſo cloſe, as the one Quill touch the other directly; ſo faſten and clint both the Quills to the Juniper Peg with a ſmall Feather, as aforeſaid.

If the Feathers are broken above the Quill, towards the Point of the Feather, two or three Fingers Breadth, cut them off with a ſharp Pen-knife ſlopewiſe, and cut them in the like manner as you did the other, ſo as to fit well and cloſe together.

By theſe Directions, join'd with Experience, you may not only prevent, but cure ſuch Infirmities as your *Hawk* is ſubject unto by Nature, or wherewith ſhe is troubled by Accident.

I ſhall therefore conclude this Chapter with Advice of uſing preventing Medicines; that is, Care, Diligence, Circumſpection, fair and gentle Uſage, due Feeding, and right giving Stones and Caſting, according to the Directions aforeſaid; and then you'll have little Occaſion to uſe any of the Medicines here laid down, altho' very good in their kind; whereby you will avoid much Trouble and Charge, beſides the Preſerving your *Hawk*'s Love, and your own Recreation.

CHAP. XXIII.

Concerning the Choice and Uſe of Spaniels, *their Qualities, Diſeaſes,* &c. *with their Cures.*

THough you ſhould have reclaim'd and mew'd your *Hawk* in all other Points to Perfection, and be defective in that of the making her thoroughly acquainted with your Spaniels, you have beſtow'd your Pains to little or no purpoſe; foraſmuch as Spaniels are the chief Inſtruments which you are to uſe in this Recreation, as well for the Springing and Retrieving of Fowl, as otherwiſe; for until you have reconciled that natural Averſion that *Hawks* have to Dogs, and brought them to have Boldneſs and confident Familiarity to them, as well whilſt they are in the midſt of 'em looſe, as when on the Fiſt, you may be ſaid to have a *Hawk* and no *Hawk*. Now, for the better effecting the ſame, at every Feeding-time after your *Hawk* is a little acquainted with you, and that ſhe begins to be at Command, to underſtand the Lure and your Voice, draw your Dogs together (at leaſt three Couple) to the end that afterwards ſhe may not take Offence; for ſhould you let her ſee only one or two, ſhe might be brought to be familiar with them, but ſhy and coy at the Approach of a greater Number; ſo that I hold it fit to have at leaſt three Couple, all Staunch and well commanded Dogs, ſuch as have formerly been bred with *Hawks*; and you muſt feed your *Hawk* with theſe Dogs about you, and now and then at Feeding-times have a dead Pelt of ſome Hen, Pigeon, or the like, in a ſhort Creance, which throw amongſt your Dogs, to the Intent your *Hawk* may fly from your Fiſt, chop in amongſt them, and ſeize thereon, ſuffering her to plume for ſome time; then take her to your Fiſt with ſome Stump, and ſoon after throw out the Pelt a ſecond and third time, and continue this Practice until ſhe find ſhe may boldly venture on it, and that ſhe perceive the Dogs are in more fear of her, than ſhe of them, and it will not be long e're ſhe underſtands ſhe hath got the Maſtery of them.

Should you have flown your *Hawk* without making her thus familiar and acquainted with the Dogs, 'tis poſſible you might have made her go well, and kill well, but could not expect her coming again, if there were but one Dog in the Field; for, next to a Man, ſhe fears nothing ſo much as a Dog, and of all *Hawks* the *Goſs-hawk* is the moſt coy: Therefore when you make her to the Covert at firſt Entrance, uſe but few Dogs, and thoſe at good Command.

When you have let her go, call in your Dogs behind you, until you have found her, which poſſibly may be on the Ground, and with the Prey in her Feet: If ſo, make in unto her, and let her enjoy it in ſome open ſmooth Place, where ſhe may plume thereon: Then call your Dogs, and let them ruſtle in and out amongſt the Buſhes, that ſhe may be acquainted with the Noiſe and Motion of them. You may then rend the Chaps of the Fowl, to give her Blood in the Throat of the Prey; alſo open the Brain-pan, and give her the Head in her Feet, as before directed, and be ſure let no ſtrange Dogs be amongſt them.

If your *Hawk* hath hard flown a Pheaſant, yet miſs'd, whereupon the Dogs hunting to retrieve it, find it unable to riſe, the beſt Courſe is to rebuke away your Dogs, to throw up the Pheaſant aloft, uſing your Voice, and let your *Hawk* truſs it, and then call in your Dogs as aforeſaid.

Spaniels by Nature are very loving, ſurpaſſing all other Creatures; for in Heat and Cold, Wet and Dry, Day and Night, they will not forſake their Maſter. There are many prodigious Relations made, in ſeveral grave and credible Authors, of the ſtrange Affections which Dogs have had, as well to their dead as living Maſters; but it is not my Buſineſs to take Notice of them here, but to apply my ſelf to the Subject in Hand.

The Diſeaſes of Spaniels, *and their Cures of the Mange.*

SPaniels, thro' too much Fat and Reſt, or too much Labour and Leanneſs, are oft ſubject to the Mange, eſpecially if they have not freſh Water. Now, ſince you know the Cauſe, it is not hard to prevent it; but being once infected, loſe no Time to cure them, for which uſe this following Direction: Take one Pound of Lard of a Barrow-Hog, four Ounces of Flower of Brimſtone well pulveriz'd, two Ounces of Salt well beaten, the like Quantity of Aſhes well ſifted, and three Ounces of common Oil; boil all theſe together in a Kettle very well, and with this Ointment anoint the Dog's Body all over before a good Fire, two or three times a Day; then waſh him over with good ſtrong Lye, and ſhift his Kenel often.

There is alſo a Bread to be made that is very good to cure the Mange, and that is of Wheaten Bran, mingled with the Roots, Leaves and Flowers of Agrimony, beaten or ſhred very ſmall, and baked. This give the Dog to eat, and let him eat no Meat without it, nor give him any other Bread.

If their Hair comes off, as oft it doth, then bathe them in the Water of Lupines, or Hops; and anoint them with ſtale Barrows Lard.

If theſe Medicines will not do, then uſe this that is ſtronger: Take two Quarts of ſtrong White-wine Vinegar, ſix Ounces of common Oil, three Ounces of Brimſtone, ſix Ounces of Soot, and two Handfuls of beaten Salt; boil all theſe together in the Vinegar, and bathe the Dog therewith, as before directed.

Of the Formica, *and the Cure.*

IN Summer-time Dogs are troubled with ſore Ears, occaſion'd by Flies, and their own ſcraping and ſcratching them with their Feet. For Cure, take four Ounces of Gum-Tragaganth, which infuſe in ſtrong Wine Vinegar for a Week; then bruiſe it well, and put thereto Roch-Allum, and Galls beaten to Powder, of each two Ounces. Theſe Ingredients being well mix'd, apply to the Place grieved.

Of Swelling in their Throat and Neck.

SOmetimes there falls or diſtills down a ſharp, ſalt, thin Rheum from their Brain, by which means their Throats and Necks do much ſwell. For Cure, anoint the Place with Oil of Camomile, and waſh the Throat with weak Vinegar and Salt.

Of Worms breeding in the hurt and mangy Places of Dogs.

IF your Spaniel receive Hurt, ſo as that he can but lick the Place, it will be whole without any Medicine; but if he cannot, he muſt be aſſiſted, by ſtrewing on the Place ſome Powder of Matreſilva, dry'd in an Oven, or in the Sun.

Sometimes there will engender little Worms in the Wounds, which doth much retard their Recovery; nay, rather render them worſe and worſe. To remedy this Evil, put into the Wound a little Gum of Ivy,

Ivy, and let it continue therein a Day or more, then waſh the Place with White-wine, and ſo dreſs it with an Ointment made of Bacon Greaſe, Oil of Earth-Worms, and Rue.

If they are Bit with a Mad Dog, let them three or four times eat of the Broth of Germander, alſo eating thereof it ſelf. It muſt be Sodden with Salt and Oil, and ſo given in little Pellets.

If Worms be within the Body, give them faſting the Yolk of an Egg, with about two Scruples of Saffron, keeping him faſting till the next Morning.

All Spaniels have a certain String under their Tongues, by moſt called a Worm; this muſt be taken out when they are about two Months Old, with the help of a ſharp Knife to ſlit it, and a Shoemakers Awl to raiſe it up. Be careful to take all out, elſe your Pains is to little purpoſe; for till then he will hardly be ever fat or right, in regard the Worm, or String will grow Foul and Troubleſome, and hinder his Reſt and Eating.

To recover a Spaniel's Smelling.

IT often falls out, that Spaniels through too much Greaſe and Reſt, do loſe their Smelling, ſo that they can't Retrieve or Spring their Game. In this Caſe prepare this following Purge. Take two Drams of Agarick, one Scruple of *Sal Gemma*, beat them to Powder, and mix them with Oxymel, and give a Pill about the bigneſs of a ſmall Nut; and that it may the better ſlip down, wrap it up in freſh Butter; for he will hardly take it but by force.

Several things to be obſerved in Spaniels.

THE beſt way to breed Spaniels is to let their Dams be about two Years Old, and that they may Litter about *March*; and kill all the Puppies but four or five. Your Dog ſhould be about ſix or ſeven Years Old. The firſt Litter is to be eſteemed the beſt; yet ſome prefer the ſecond and third for the beſt. The Names of your Spaniels ſhould be ſhort, and Monoſyllables, that they may be the better and quicker underſtood. It is left to your own Diſcretion to have any of the Dogs gelt, or the Bitches ſpaid: But if in caſe you do ſo, let it be done whilſt they are young; for ſuch are not apt to be loſt by ſtraggling away.

For divers Reaſons it is neceſſary to cut off the top of the Spaniel's Stern or Tail whilſt he is a Whelp, for it hinders the breeding of Worms there: Alſo if it is taken off he will be more forward to preſs into the Covert after the Game; beſides he is more graceful with a ſhort Stern, as Grey-hounds and Hounds are with theirs long.

Inſtead of cutting off their Stern, it is better to twiſt it off, which muſt be done while they are Sucking: And if thus pulled off, there is a String that comes out with it which doth much hinder their Madneſs.

Thus much concerning *Land Spaniels*; I ſhall only add a few Lines of Advice, and ſo end this Chapter.

Every Gentleman, whoſe Genius leads him to this delightful Recreation, ſhould apply and enure himſelf as well to look into the Ordering and right Managing his *Hawk*, as into their Flying. He ſhould as well obſerve them in the Houſe as in the Field: For a Gentleman to have but one *Hawk*, is to have as it were none; and to have a great many is to be a *Faulconer*, and not a Gentleman. He that keeps one, and no more, muſt be forced to leave all other Affairs to ſee her Fly at ſuch time that ſhe is in a condition to Fly, and that peradventure may not be above twice a Week, in regard of ſuch Accidents that oft-times intervene. I ſhould therefore adviſe you to keep a Caſt; for the ſame Charge that keeps one will keep two; and five or ſix couple of Spaniels are enough, which ſhould be of a middle Size, rather fat than lean, they being better for uſe, and more creditable: Beſides, the lean ones are ſubject to many Diſeaſes.

With this Equipage a Gentleman may ſo manage his Pleaſure, as to render it rather profitable than chargeable unto him.

CHAP. XXIV.

Certain Terms of Art uſed in Faulconry; *with an Explanation thereof, Alphabetically ſet down.*

A*RMS*, the Legs from the Foot to the Thigh.

Bate, or *Bateth*, a Term when a *Hawk* fluttereth with her Wings from the Perch or Fiſt, indeavouring to fly away.

Bathing, is when ſhe waſheth her ſelf.

Beak, the upper crooked part of the Bill.

The *Beam Feathers*, the long Feathers in the Wings.

Beavy, of *Quails*, a Brood of young ones.

Bewits, the Leathers with Bells button'd about her Legs.

Bowet, when a young *Hawk* draws any thing out of her Neſt, and indeavours to get on the Bows.

Bowſing, when ſhe often drinks, and yet deſires more.

Brayle, a Piece of Leather ſlit to put upon her Wing to tye it up.

Brancher, a young *Hawk* newly taken out of the Neſt, that can hop from Bough to Bough.

Cage, that on which the *Hawks* are carried, when they are expoſed to Sale.

Cancellaring, Stooping.

Carry, a Term when the *Hawk* Flies away with the Quarry.

A *Caſt* of *Hawks*, are two.

Caſting, is when you give her any thing to purge, or cleanſe her Gorge.

Cateract, a Diſeaſe in the Eyes of a *Hawk*.

Cauterizing Irons, are uſed to Sear with.

Cawking time, Treading or Coupling time.

Check, is when ſhe forſakes her proper Game, and flies at Crows, Pyes, or the like, that croſſeth her in her Flight.

Clap, the nether part of the *Beak*.

Coping, is Paring.

Coping Irons, uſed for Coping or Paring her Beak, Pounces, or Tallons, when over-grown.

Cowring, when they quiver and ſhake their Wings, in teſtimony of obedience toward the old ones.

Covey of *Partridges*, a Brood that always accompany together with the old ones until Paring time.

Crabing, is when *Hawks*, ſtanding near one another, fight.

Cray, a Diſeaſe in a *Hawk*.

Creance, a long Line of ſmall fine even Packthread that is faſtned to the *Hawk*'s Leaſe when ſhe is firſt Lured.

Crivets, the ſmall black Feathers like Hairs about the Sear, or Eye-lids.

Crock, a Diſeaſe in a *Hawk*.

Diſcloſed, is when the young ones juſt peep thro' the Shells.

Dropping, is when ſhe Mewteth downwards in ſeveral Drops, and not yerking it ſtrait forwards.

Endew, is when ſhe digeſteth her Meat, not only diſcharging her Gorge thereof, but alſo cleanſing her Pannel.

Engouteth, that is, the Feathers to have black Spots.

Enſeame, the purging her of her Glut and Greaſe.

Enter a Hawk, a Term uſed when ſhe begins firſt to kill.

Eyeſs, a young *Hawk* newly taken out of the Neſt.

Eyrie, the Place where they build and hatch their Young.

Feaking, wiping her Beak after Feeding.

Filander, a Diſeaſe in a *Hawk* ſo called.

Flags, the Feathers next the principal Feathers in her Wings.

Fly on Head, that is, miſſing her Quarry, and betaking her ſelf to the next Check, as Crows, Pyes, *&c.*

Formale, the Female *Hawk*.

Formica, a Diſeaſe ſo called.

Frownce, a Diſeaſe ſo called.

Gleam, a Term uſed after a *Hawk* hath Caſt, and *Gleameth*, or throweth up filth from her Gorge.

Glut, the ſlimy Subſtance that lies in the Pannel.

Gorge, the Craw or Crop of other Fowl.

Gurgiping, when ſhe is ſtuft up.

Hack, a place where her Meat is put.

Hack Hawk, that is, a Tackler.

Haggard, a *Hawk* that has Preyed for her ſelf, and is taken after *Lent*.

Jack, the Male *Hawk*.

Jeſſes, the ſhort Straps of Leather that are faſtned to her Legs, and ſo to the Leaſe by the Varvels.

Imp, to put in a Feather into the Wing in the place of one broken.

Juke, the Neck from the Head to the Body of any Bird that ſhe preyeth upon.

Inter-Mewing, is from the firſt Exchange of her Coat, till ſhe turn white.

Jouketh, is when ſhe ſleepeth.

Lean, is when ſhe holds in to you.

Leaſe or *Leaſh*, the ſmall long Leather Thong faſtned to the *Jeſſes* by which ſhe is held faſt on the Fiſt, as being wrapt about the Fingers.

Lure, that which the *Faulconers* caſt up to bring down the *Hawk*.

A *Make Hawk*, or *Quarry Hawk*, an old Staunch *Hawk* that is made uſe of to enter young ones.

Mails, the Breaſt Feathers.

Manning, is making a *Hawk* endure Company.

Mantleth, is when ſhe ſtretcheth one Wing after her Legs, and ſo the other.

Mew, the Place where ſhe is ſet down during the time ſhe raiſeth her Feathers.

Mewting, the Dung of long wing'd *Hawks*.

The *Nares*, little Holes in her Beak.

Pannel, the Pipe next the Fundament where ſhe digeſteth her Meat from her Body.

Pantas, a Diſeaſe ſo called.

Perch, where ſhe is ſet to reſt on.

Pelt, the dead Body of any Fowl ſhe has killed.

Pendant Feathers, thoſe behind the Thighs.

Petty Singles, the Toes of the *Hawk*.

Pill or Pelf, that which ſhe leaveth of her Prey after ſhe is relieved.

The *Pin*, a Diſeaſe ſo called.

Plume, the general Mixture of Colours and Feathers, by which the Conſtitution of a *Hawk* is known.

Plumage, the ſmall Feathers given the *Hawk* to make her Caſt.

Pluming, is after ſhe has ſeiz'd her Prey, and diſmantles it of the Feathers.

Pounces, her Claws.

Poult, that is, killing *Poultrey*.

Pride, to be in good Fleſh and Heart.

Pruneth, is when ſhe picketh her ſelf.

Putover, a Term uſed when ſhe removeth her Meat from her Gorge into her Bowels, by traverſing with her Body, but chiefly with her Neck.

Quarry, the Fowl ſhe flyeth at, either Dead or Alive.

Quarry Hawk, an old Entred and Reclaimed *Hawk*.

Rake, a Term when ſhe flies out too far from the Game.

Ramage, or *Soar*, is when ſhe can Fly, having Preyed for her ſelf.

Rangle, is when ſhe has Gravel given her to bring her to a Stomach.

Reclaim, to make her gentle and familiar.

Retrieve, is when Partridges, having been ſprung, are to find again.

Rouze, is when ſhe lifts her ſelf up, and ſhakes herſelf.

Ruff, is when ſhe hits the Prey, and doth not truſs it.

Rufter-hood, a large, wide, and eaſie Hood, open behind, being the firſt that is made uſe of.

Rye, a Diſeaſe ſo called.

Sails, the Wings of a *Hawk*.

Sear, the yellow betwixt the Beak and the Eyes.

Seeling, is when ſhe is firſt taken, is blinded with a Thread run through the Eye-lids, that ſhe ſeeth but little, or not at all, that ſhe may the better indure the Hood.

Seizing, is when ſhe gripes the Prey with her Tallons.

Setting down, is when ſhe is put into the Mew.

Slice, is the Dung of a ſhort wing'd *Hawk*.

Sliceth, is when ſhe Mewteth a good diſtance from her.

Slimeth, is when ſhe Mewteth without dropping.

Staunch Hawk, one well entred for the Game.

Stooping, is when ſhe is aloft upon the Wing, and deſcends to ſtrike the Game.

Summed, is when ſhe is in all her Plumes.

Swivel, that which keepeth a *Hawk* from twiſting.

Taſſel, the Male *Hawk*.

Tiring, is when you give her the Leg or Pinion of a Pigeon, or the like, to pluck at.

Towreth, is when ſhe lifts up her Wings.

Train, the Tail of the *Hawk*.

A *Train*, ſomething alive or dead, tyed to the Lure, to intice her to it.

Truſſing, is when ſhe raiſeth a Fowl aloft, and ſoaring with it, at length deſcends with it to the Ground.

Varvels, little ſilver Rings at the end of *Jeſſes*, on which the Owner's Name is engraven.

Unreclaimed, is when ſhe is Wild.

Unſtrike the Hood, to draw the Strings, that it may be in a readineſs to pull off.

Unſummed, is when the Feathers are not fully grown.

Urives, Nets to catch *Hawks* with.

Weathering, the Airing your *Hawk*.

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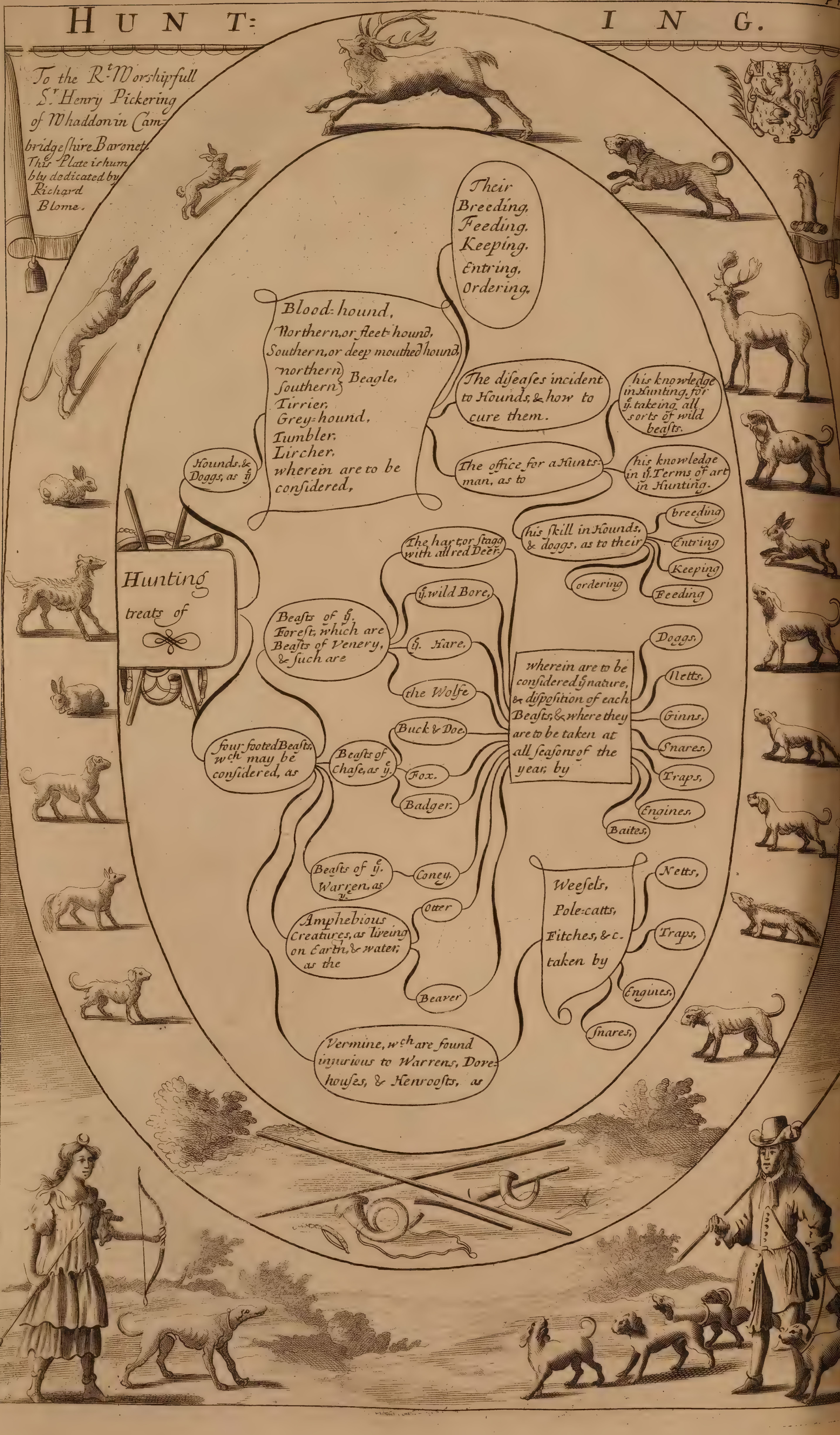
HUNTING

HUNTING.

To the R^{t} Worſhipfull
Sr Henry Pickering
of Whaddon in Cambridgeſhire Baronet.
This Plate is humbly dedicated by
Richard Blome.


Hunting treats of
Hounds, & Doggs, as ye
Blood-hound,
Northern, or fleet-hound,
Southern, or deep mouthed hound,
northern / ſouthern Beagle,
Tirrier,
Grey-hound,
Tumbler,
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his knowledge in ye Terms of art in Hunting.
his ſkill in Hounds, & doggs, as to their
breeding
Entring
Keeping
Feeding
ordering
four footed Beaſts, wch may be conſidered, as
Beaſts of ye Foreſt, which are Beaſts of Venery, & ſuch are
The hart, or Stagg with all red Deer.
ye wild Bore,
ye Hare,
the Wolfe,
Beaſts of Chaſe, as ye
Buck & Doe.
Fox.
Badger.
Beaſts of ye Warren, as ye
Coney.
Amphebious Creatures, as liveing on Earth, & water; as the
Otter
Beaver
wherein are to be conſidered ye nature, & diſpoſition of each Beaſts, & where they are to be taken at all ſeaſons of the year, by
Doggs,
Netts,
Ginns,
Snares,
Traps,
Engines,
Baites,
Vermine, wch are found injurious to Warrens, Dovehouſes, & Henrooſts, as
Weeſels, Pole-catts, Fitches, &c. taken by
Netts,
Traps,
Engines,
Snares,

HUNTING.

PART III.

Treats of the ſeveral Sorts of Hounds, *with Directions to Breed, Manage and Enter them for the ſeveral Games: The Diſpoſal of a Dog-Kennel, for the moſt Commodiouſneſs, with Directions to feed and order them: The Diſeaſes incident to* Hounds, *with Inſtructions how to cure them: The ſeveral Sorts of Deer, with the proper Terms and Ways uſed in hunting them, with the Uſe of the* Blood-Hound: *Of the Hunting the Fox, Badger, Otter, Wild Boar,* &c. *Of the Hare, and how to Hunt or Courſe her with* Hounds, *or* Grey-Hounds, *according to the Seaſon of the Year. How to take the Fox, Otter, Badger, Hare, Coney; as alſo the Polecat, Fitchet,* &c. *with Nets, Traps, Snares, Engines, and the like. Illuſtrated with Variety of* Figures.

CHAP. I.

The INTRODUCTION.

MANY have written of this Subject, as well the Ancients as Moderns, yet but few of our Country-men to any purpoſe; and had one all the Authors on this Subject, (as indeed on any other) there would be more Trouble to paſs by than to retain, moſt Books being fuller of Words than Matter, and of that which is for the moſt part very erroneous. I ſhall endeavour to treat of ſuch Things as are experimentally found neceſſary by the moſt expert Sports-men in this Age, and with what Brevity is convenient, applying my ſelf to the Age, as well as to the Place we live in; not troubling the Reader with the *Hunting* of the Ancients, or of other Countries much different from ours; (except of the Wild Boar, which being ſo noble a Chaſe in *Germany*, and ſome other Parts, altho' we have none amongſt us, yet I ſhall give you a brief Account of the Hunting him.)

The Intent therefore of this Treatiſe ſhall be, To ſet forth the ſeveral Ways of taking Four-footed Beaſts, as well thoſe that are hurtful, as ſuch as ſerve for our Nouriſhment; and that not only by Dogs, but by Nets, Traps, Engines, Snares, and the like, not hitherto treated of by any, eſpecially in our Native Language.

To tell you, that *Hunting* is a commendable Recreation, and hath always been practiſed, and highly priz'd by all Degrees and Qualities of Men, even by Kings and Princes; that it is a great Preſerver of Health, a Manly Exerciſe, and an Increaſer of Activity; that it recreates the Mind, ſtrengthens the Limbs, and whets the Stomach; and that no Muſick is more charming to the Ears of Man, than a Pack of Hounds in full Cry is to him that delights in *Hunting*, is to tell you that which experimentally is known, and what hath been ſufficiently treated of by others; ſo that theſe and the like *Encomiums* I ſhall here omit, and proceed to that which is more material.

I ſhall firſt treat of *Dogs*, ſo far forth as they are uſed in this Exerciſe, laying down Rules how to train them up; to breed, nouriſh, heal, keep, and inſtruct them, together with many other Particulars: In all which the Table of the ſeveral Chapters at the latter End may ſerve for a Thread, to guide you thro' the many Intricacies, Windings and Turnings which are in this Treatiſe: And indeed it cannot otherwiſe be, if the Subject whereon it treats is conſider'd. However, I ſhall endeavour to lay down every thing with the greateſt Advantage for your ready Apprehenſion, and yet without Circumlocution; a ſhort Chaſe being the moſt profitable and pleaſant.

CHAP. II.

Of Dogs, *or* Hounds.

OUR Author is of Opinion, that they who undertake to diſtinguiſh Hounds by their Colours, do but trifle away their Time, it being no inherent Quality or Ingredient towards the making any thing good and uſeful; but the Proportions, Sizes and Features are to be enquired after.

But becauſe Monſ. *Liger*, of *Auxerre* in *France*, in a Modern Treatiſe of his, entituled, *The General Œconomy of the Country*, ſeems to lay ſome Streſs upon it, we ſhall briefly inſert what he ſays, beginning with White-colour'd *Dogs*, which for the moſt part are not good to run after all Sorts of Beaſts; but very excellent for the Stag, eſpecially if they are all over White, that is, pupt without any Spot upon them; and Experience hath taught us to put a Value upon ſuch *Dogs*, by reaſon of the natural Inſtinct they have to perform every thing well they are deſign'd for; they being curious *Hunters*, having admirable Noſes, and very good at Stratagems. In ſhort, theſe *Dogs* are valued, becauſe they are naturally leſs ſubject to Diſeaſes than others, by reaſon of the Predominancy of Flegm in them, which gives them a good Temperament of Body.

A Black *Hound* is not to be deſpiſed, eſpecially if mark'd with White and not Red Spots, ſeeing this Whiteneſs proceeds from a Flegmatick Conſtitution, which hinders him to forget the Leſſons he is taught, and makes him obedient: Whereas thoſe *Dogs* that have Red Spots are for the moſt part very fiery, and hard to be managed, by reaſon of the bilious Humour that prevails, and cauſes this Irregularity within them. And therefore a Black *Dog* with White Spots is valuable, ſuch an one being uſually hardy enough, will hunt well, is ſtrong and ſwift, and holds out a long time; he will not forſake the Chaſe, and when you are beating the Water for Sport, he will not be frighted at it, as White ones are, let it be what Seaſon it will; and laſtly, he is the more liked, becauſe theſe Diſtempers that are incident to *Dogs* ſeldom befal him.

There are ſome Grey-colour'd *Dogs* that are good, and others you ought not to meddle with, I mean *Mongrels*, that come from a *Hound Bitch*, that has been lined by a *Dog* of another Kind, or from a *Bitch* of another Kind that has been lined by a *Hound*. Your *Hounds* cannot be good, if they do not entirely retain the Nature that is peculiar to them; and when they do, grey *Dogs* are to be coveted, becauſe they are cunning, never falter, and are not diſcouraged in their Queſt. It's true indeed, their Senſe of Smelling is not ſo exquiſite as that of thoſe before mention'd; but they are endued with other Qualities that make Amends for it. They are indefatigable in *Hunting*, being of a robuſter Nature than the others, and Heat and Cold, which they fear not, is alike to them.

Yellow *Dogs* are thoſe which have red Hairs, inclining to the Brown; and as Choler is the moſt predominant Humour in this Animal, ſo we find him to be of a giddy Nature, and impatient when the Beaſt he follows makes Turns, ſeeing he ſtill runs forwards to find him, which is a great Fault; and therefore they are rarely made uſe of to hunt any other than the Wolf, or ſuch black Beaſts as are rarely inclined to Turnings. They are too ſwift, open but very little, eſpecially in very hot Weather. They are naturally impatient, and therefore as hard to be taught, as they are uneaſie under Correction. They are more ſubject to Diſeaſes than the other *Dogs*, by reaſon of that Over-fierineſs of Temper, which makes them hunt beyond their Strength. *Liger*.

But to return to our Author, in reference to the Proportions, Sizes and Features of *Dogs*; he ſays, Your large, tall and big *Hounds*, call'd and known by the Name of the *Deep-mouth'd*, or *Southern-Hound*, are heavy and ſlow, and fit for Wood-lands and Hilly Countries: They are of deep Mouths, and ſwift Spenders: They are generally higher behind than before, with thick and ſhort Legs, and are generally great of Body and Head, and are moſt proper for ſuch as delight to follow them on Foot, as *Stop-Hunting*, as ſome call it; but by moſt it is term'd *Hunting under the Pole*; that is, they are brought to that Exactneſs of Command, that in their hotteſt Scent and fulleſt Chaſe, if one but ſtep before them, or hollow, or but hold up or throw before them the Hunting-Pole, they will ſtop at an Inſtant, and hunt in full Cry after you at your own Pace, until you give them Encouragement by Word of Command, which much adds to the Length of the Sport, and Pleaſure of the *Hunters*, ſo that a Courſe ofttimes laſts five or ſix Hours.

Oppoſite to the *Deep-mouth'd* or *Southern-Hound*, are the long and ſlender *Hounds*, called the *Fleet* or *Northern-Hound*, which are very ſwift, as not being of ſo heavy a Body, nor having ſuch large Ears. Theſe will exerciſe your Horſes, and try their Strength; they are proper for open, level and Champion Countries, where they may run in view and full Speed; for they hunt more by the Eye than the Noſe, and will run down the Game in an Hour, and ſometimes in leſs; that is, a Hare; but the Fox will exerciſe them better and longer.

Between theſe two Extreams, there are a middle Sort of *Dogs*, which partake of both their Qualities, as to Strength and Swiftneſs, in a reaſonable Proportion: They are generally bred by croſſing the Strains, and are excellent in ſuch Countries as are mix'd; *viz.* ſome Mountains, ſome Encloſures, ſome Plains, and ſome Wood-lands; for they will through thick and thin, neither need you help them over Hedges, as you are often forced to do by others.

A true right-ſhaped *Deep-mouth'd Hound* ſhould have a round thick Head, wide Noſtrils, open and riſing upwards, his Ears large and thin, hanging lower than his Chaps; the Flews of his upper Lips ſhould be longer than thoſe of his Nether-Chaps; the Chine of his Back great and thick, ſtreight and ſtrong, and rather bending out than inclining in; his Thighs well truſſed, his Haunches large, his Fillets round and large, his Tail or Stern ſtrong ſet on, waxing taperwiſe towards the Top; his Hair under his Belly rough and long, his Legs large and lean, his Feet dry and hard, with ſtrong Claws and high Knuckles. In the whole, he ought to be of ſo juſt a Symmetry, that when he ſtands level you may not diſcern which is higheſt, his Fore or Hinder-parts.

For the *Northern* or *Fleet-Hound*, his Head and Noſe ought to be ſlenderer and longer, his Back broad, his Belly gaunt, his Joints long, and his Ears thicker and ſhorter: In a Word, he is in all Parts ſlighter made, and fram'd after the Mould of a *Grey-hound.*

By croſſing theſe Breeds, as aforeſaid, you may bring your Kennel to ſuch a Compoſure as you think fit, every Man's Fancy being to be preferr'd; and you know the old Saying;

> *So many Men, ſo many Minds*;
> *So many* Hounds, *ſo many Kinds.*

The *Blood-Hound* is of all Colours, but for the generality of a Black-brown, and Reddiſh in ſeveral Places, eſpecially on the Breaſt and on the Cheeks: They have long thin hanging-down Ears, and differ from other *Dogs* only in their Cry and Barking. Being ſet on by the Voice or Word of their Keeper, to ſeek about for Game, and having found it, they will never leave off the Purſuit until it be tired; nor will he change it for any other freſh Game that he ſhould meet with; and they are obſerved to be very obedient to their Maſters.

Theſe *Hounds* are of that Property, that they do not only keep to their Game whilſt living, but being by any Accident wounded or dead, will find it out; and that by the Scent of the Blood ſprinkled here and there upon the Ground, which was ſhed in its Purſuit, by which means Deer-Stealers are oft-times found out.

Not much unlike theſe *Blood-Hounds* is the *Sluth* or *Suit-Hound* in *Scotland*, which hunts only by the Scent of the Footing; and theſe Sort of *Hounds* are made uſe of for the finding out Thieves, being of a very quick Scent, and eager in their Purſuit, no River obſtructing them. And theſe Sorts make the beſt and ſureſt *Blood-Hounds.*

Beagles.

THere are ſeveral Sorts of *Beagles*; *viz.* the *Southern-Beagle*, which is ſomething leſs than the *Deep-mouth'd Hound*, and ſomething thicker and ſhorter.

The *Fleet*, *Northern* or *Cat-Beagle* is ſmaller, of a finer Shape than the *Southern-Beagle*, and they are hard Runners.

Theſe two Beagles by croſſing the Strains, breed an excellent Sort, which are great Killers.

There is alſo a very ſmall Sort of *Beagle*, not exceeding the Bigneſs of a Lady's *Lap-Dog*, which makes pretty Diverſion for the Coney, as alſo for the *Hare*, if the Weather be dry; but the Smallneſs of theſe makes them not ſerviceable.

The Gaze-Hound.

MUch like unto the *Beagle*, if not of the ſame Species, is the *Gaze-Hound*, which is more beholding to the Sharpneſs of his Sight, than to his Noſe or Smelling, by virtue whereof he makes excellent Sport with the Fox and Hare; and he is alſo very exquiſite in his Choice of one that is not lank or lean, but full, fat and round; and if the Prey happen to return, and be mingled again with the Reſidue of the Herd, he will ſoon ſpy the Beaſt out, and leave the reſt untouch'd; and ſo never ceaſes, after he has ſeparated it from its Company, till he hath weary'd it to Death.

Theſe are *Dogs* much uſed in the North of *England*, and on Champion-Ground, rather than in buſhy and woody Places; and they are more uſed by Horſemen than Foot-men; and if it ſo happens at any time that this *Dog* takes a wrong Way, upon the Maſter's making ſome uſual Sign and familiar Token, he returns forthwith, and takes the right and ready Courſe, beginning his Chaſe afreſh, and with a clear Voice and ſwift Foot, follows the Game with as much Courage and Nimbleneſs as he did at firſt.

The Terrier.

THis is a very ſmall *Dog*, and uſed for the Hunting the Fox or Badger, his Buſineſs being to go into their Earths, and to bay them, that is, to keep them in an Angle (a Fox's Earth having divers) whilſt they are dug out; for by their Baying or Barking 'tis known whereabouts the Fox is, that he may be the better dug out. And for this Uſe the *Terrier* is very ſerviceable, being of an admirable Scent to find him out.

They commonly have a Couple of *Terriers*, to the end that they may put in a freſh one to relieve the firſt.

A *Dog* bred out of a *Beagle*, and a *Mongrel-Maſtiff*, generally proves a good *Terrier*, having a thick Skin and a good Courage, as partaking of the *Maſtiff*, and is well mouth'd from the *Beagle*.

The Harrier.

THis is a Sort of *Hound*, called in *Latin Leverrarius*, or *Sagax*, from his tracing or chaſing by Foot. He is endued by Nature with an admirable Gift of Smelling, and is bold and courageous in the Purſuit of his Game, of which there are ſeveral Sorts, and all differ in their Services: Some are for the Hare, Fox, Wolf, Hart, Buck, Badger, Otter, Pole-cat, Wolf, Coney, *&c.* Some for one Thing, ſome for another: Nay, among the ſeveral Sorts of theſe *Dogs*, ſome there are who are apt to hunt two divers Beaſts, as the Fox ſometimes, and other whiles the Hare: But ſuch as ſtick not to one ſort of Game, hunt not with that Succeſs and Towardneſs as others do.

The Tumbler and Lircher.

THE *Tumbler* is a ſmall-ſized *Dog*, generally white, with ſome black Spots, hath one Eye bigger than the other, and is a well truſs'd *Dog*. He is a Creature of great Craft and Subtilty: For in the Hunting of his Game, which is the Coney, he uſeth great Policy, being called *Tumblers* from their Nature and Quality of Tumbling, and winding themſelves in hunting and taking their Game.

When this *Dog* is ſent or caſt off into a Warren by his Maſter, who hath fixed his Station in ſome convenient and private Place, which the *Dog* muſt be privy to, he ſeemingly hunts not after them; but as it were not regarding them, obſerves their Burrows; and when he meeteth with a Place where there are Coneys, he coucheth down cloſe with his Belly to the Ground, and ſo ordereth his Buſineſs, that the Wind is againſt him, and that the Coneys do not diſcover him, by which means he gets the Scent of them, and gets betwixt them and their Burrows, and ſo they ſoon become his Prey; and ſo ſoon as caught, being ſo well educated, that he carrieth it to his Maſter, and returneth again to his Buſineſs, as aforeſaid; and uſing ſuch like Subtilties, in a ſhort time will catch a ſufficient Quantity, provided there be Game.

The *Lircher* is a Sort of *Dog* much like a *Mongrel Grey-hound*, with prick Ears, hath generally a ſhagged Coat, and is of a yellowiſh white Colour. They are very nimble Runners, for if they get but betwixt the Burrows and the Coneys, they ſeldom miſs; and this is their uſual Way of *Hunting:* Yet they uſe ſome other Subtilties, as the *Tumbler*. Some of theſe *Dogs* will bring their Game as the *Tumblers*, and theſe are the beſt. The *Lircher* will run down the Hare at Stretch.

The Grey-houud.

THis Sort of *Dog*, is for Swiftneſs of Foot, and Neatneſs of Shape, to be preferr'd before all others. But there being a Chapter relating only to *Grey-hounds*, I ſhall not ſay more of him here, referring you to the ſaid Chapter where he is treated of, with Rules for Courſing with him.

Thus having given you a brief Account of the ſeveral Sorts of *Hounds* and *Dogs* uſed in *Hunting*, I ſhall add a Word or two to tell you, that *Lancaſhire*, with other Wood-land and Mountanous Countries, breeds the large, tall and heavy *Hounds*; that *Bedfordſhire*, and many other Countries that have a well mix'd Soil, both of *Champion* and *Covert*, Breed a middle-ſized *Hound*, and of a more nimble Foot; and that the Northern Parts breed the *Fleet* and *Slender Hound*.

The next Thing to be treated of ſhall be the *Breeding of Hounds*, the *Diſpoſal of the Kennel*, with *Rules for Feeding and Entring them.*

CHAP. III.

Of Breeding of Hounds, *the Diſpoſal of the Kennel, with Directions for the Feeding and Entring* Hounds, *and how they ought to be order'd.*

THoſe that would have fair *Hounds*, muſt chuſe fair *Bitches*, and ſuch as are ſtrong and well proportion'd in all Parts, with great and large Ribs and Flanks.

The beſt Seaſon to let your *Hounds* couple is in *January*, *February* and *March*; for then they will litter in a good Time of the Year, (that is, in the *Spring*,) ſo that they will be fit to enter in due Courſe, without Loſs of Time, or Loſs of the Seaſon; for if they litter in the *Winter*, it is very troubleſome to bring up their Whelps, and not without a great deal of Difficulty to preſerve them from dying, eſpecially of Diſeaſes; for the Cold is a great Enemy to all young Creatures. Let not your *Dogs* exceed the Age of five Years; for if they are old, (according to the Opinion of many) the *Whelps* that they get will prove dull and heavy. And you ſhould be very careful to get good *Dogs* for your *Bitches* at their firſt growing proud; for ſome have obſerv'd, that if it be a *Maſtiff*, *Grey-hound* or *Hound* that firſt lineth her, in all her Litters, that ſhe ſhall afterwards have, ſhe is ſaid to have one of her *Whelps* to reſemble the *Dog* that firſt lined her. And altho' the firſt Litter of *Whelps* is not of ſo much Eſteem as the ſecond or third, as being more weak and ſmall, yet be ſure to have a good fair *Hound* to line her at firſt.

When a *Bitch* is proud, 'tis not good to cool her in the Water; for that doth congeal the Blood within her Veins and Arteries, and cauſes Mangineſs, alſo Gripes in the Belly, with other Diſeaſes.

When your *Bitches* begin to be pretty big with *Whelp*, let them not hunt, or uſe violent Exerciſe, whereby to occaſion the Caſting her *Whelps*; but feed them well, providing clean and private Places for them, and keep them therein for a few Days, to the end they may be accuſtom'd thereunto.

Your *Bitches* having Litter'd, 'tis good to chooſe thoſe that you intend to keep, and to drown the reſt; and in making choice of the beſt, there is ſome Difficulty; ſome are of Opinion, that thoſe that are lighteſt while they Suck, will prove the Swifteſt and Beſt, but not the Strongeſt; others ſay that the Whelp that ſeeth laſt, is the beſt; and others are of Opinion, that to remove the Whelps, and lay them in ſeveral places, and watch the *Bitch*, and that which ſhe carrieth to her Kennel firſt, is the beſt.

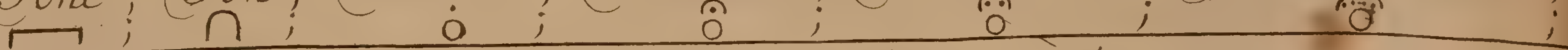
Be ſure to give good freſh Straw to them, which muſt be often changed; let them not lie in the Sunſhine, or where Rain may wet them, and 'tis good to anoint their Skins once or twice a Week with Nut-Oil mixt with Saffron beaten, which will kill all ſorts of Worms, and keep them from the biting of Flies. When the Whelps are about fifteen Days Old, Worm them, and about a Week after, cut or wind off one Joint of their Sterns; when they can ſee give them Milk to lap; and about two Months Old, 'tis time to Wean them, keeping them from their Dam; and 'tis good to keep them well, but not too high Fed; and to prevent Wind in their Bellies, put Cummin-ſeed now and then in their Bread.

Monſieur *Liger* ſays, you may let your Whelps Suck three Months, and then Weaning them, put them to be kept in Villages till they are Ten Months Old; and be ſure to charge thoſe who are entruſted with the Care of them, to ſuffer them to eat no Carrion, and to prevent their frequenting Warrens, which will do them an Injury; that they ought to be fed with Wheat Bread, becauſe that of Rye paſſes too ſoon through them, and is ſo light, that they will be Narrow-back'd; whereas a *Hound* ought to have a large one; that they are to be kept in this manner till they are Ten Months Old, and then taken up and put into the Field amongſt the others, to uſe them to live in the ſame manner: About which time they begin by degrees to Couple them with others, that they may learn to go a *Hunting:* Five or ſix Days Practice of this will do; and you ought often, to make them tractable, let them feel the Smart of your Switch, in caſe they go aſtray or open unſeaſonably.

If you would have your *Bitches* grow Proud, take half a Caſtor's Stone, two Heads of Garlick, the Juice of Creſſes, and a little Cantharides, boil theſe together with Mutton in Water, and the Broth made thereof being given twice or thrice, will work the Effect; the like it will do being given Dogs, to make them deſirous of Bitches.

The Antient Hunting Notes of England, with many new additions together with all theire severall names

Tone; Ton; Tavon; Tontavon; Tontontavon; Tontontontontavon;



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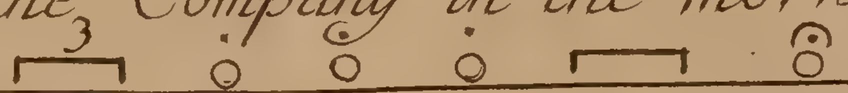

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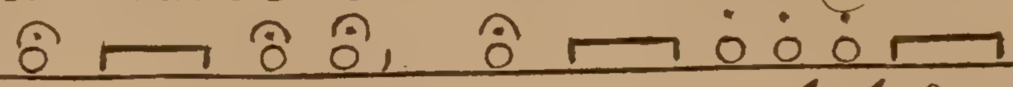

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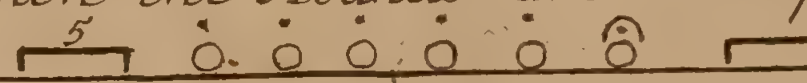
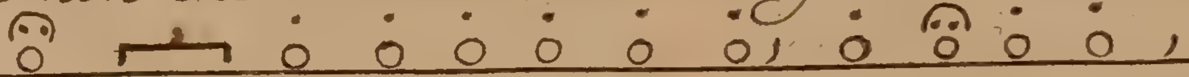
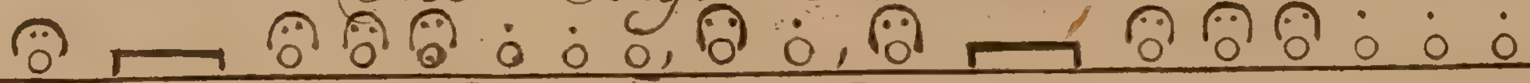


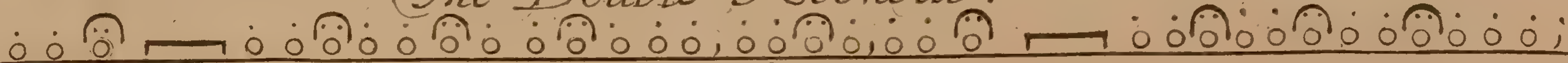
When the Hounds hunt a game unknowne.



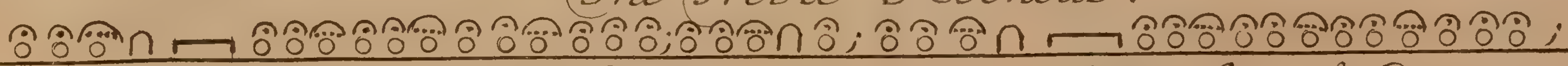
The Single Recheat.



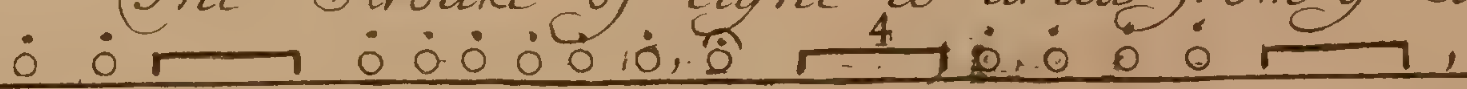
The Double Recheat.



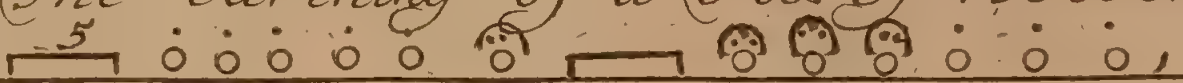
The Treble Recheat.



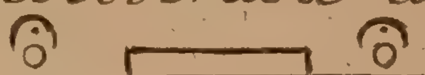
The Stroake of eight to draw from ye Covert.



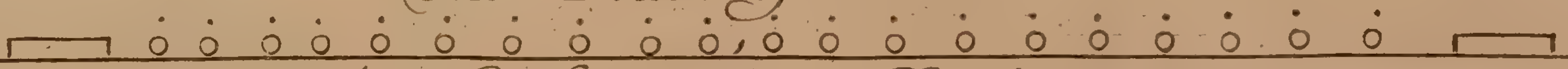
The Earthing of a Fox If recoverable.



If not Recoverable to call away.



The Death of a Hare.



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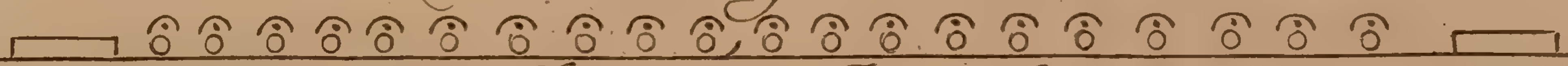
The Death of a Buck.



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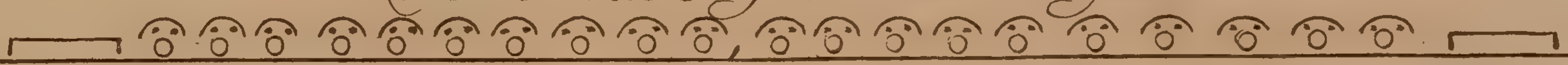
The Death of a Hart Royall.



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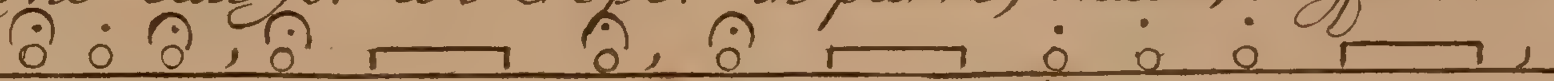
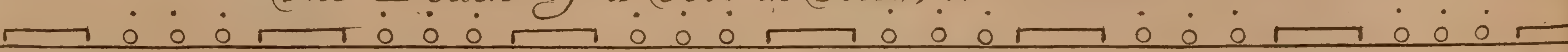
The call for a Keeper in parke, chase, or fforrest.



The Death of a Fox in Feild, or covert.



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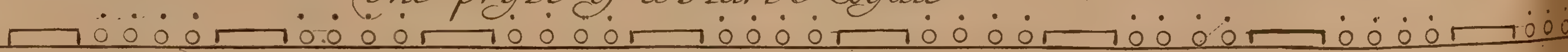
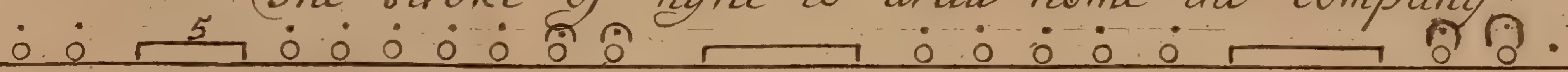
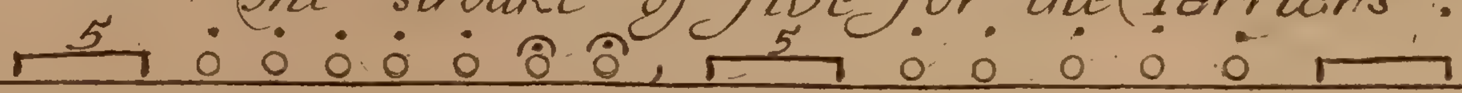
The pryze of a Hart Royall.



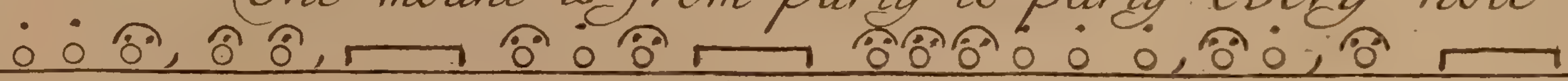
The stroke of nyne to draw home the company.



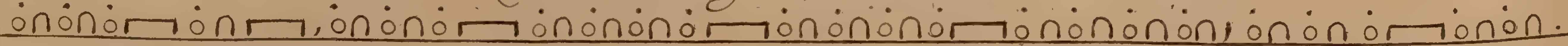
The stroake of five for the Terriers.



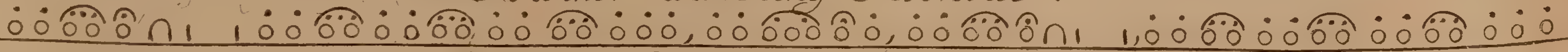
The mount is from party to party every note thryce.



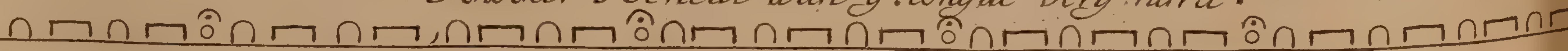
The Runing Recheat.



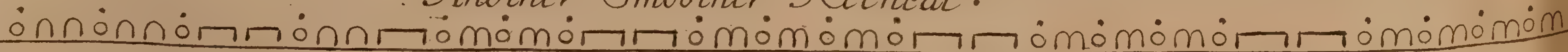
Another warbling Recheat.



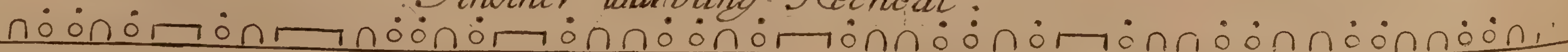
Another Recheat with ye. tongue very hard.



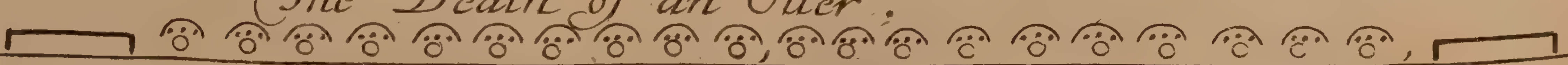
Another Smoother Recheat.



Another warbling Recheat.



The Death of an Otter.



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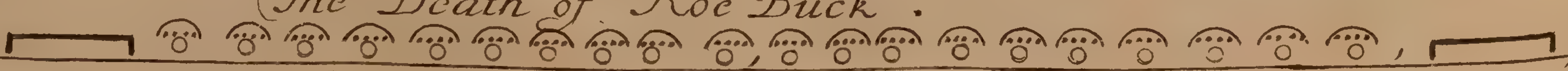
The Death of Roe Buck.



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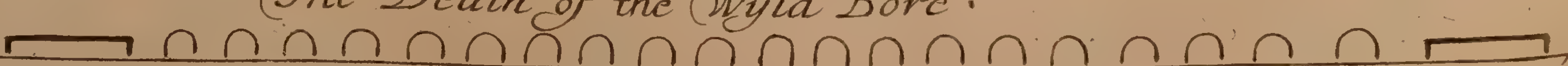
The Death of the Wyld Bore.



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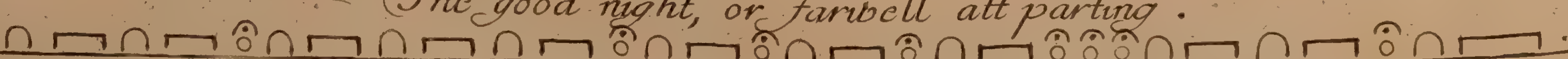
The good night, or farwell att parting.



If you would Spay a *Bitch*, 'tis good to do it after ſhe hath had Whelps, or when ſhe is Proud, but not before; and in Spaying her, be ſure take not away all the Strings or Roots of the Veins, for that will much prejudice her as to her Strength and Swiftneſs.

Of the Diſpoſal of a Kennel, and how it ought to be ſituated for the Conveniency of the Hounds, with Directions how to Feed and Order them.

TO the making a compleat Kennel, theſe three Conveniencies ought to be conſidered, *viz.* Sweet Air, freſh Water, and the Morning Sun. I ſhall lay down ſome Rules for your Inſtruction therein: Your Court ſhould be large, for the more ſpacious it is, the better it will be for the *Hounds* to refreſh them in; and it ſhould be well Walled or Fenced about to prevent their getting out, but not ſo high as to keep out the Sun or Wind. The Water, if poſſible ſhould run through ſome part of the Court or Yard; or for want thereof a Well with a large Stone Trough about a Foot and a half high, always kept with freſh Water, to the end your *Hounds* may drink when they pleaſe: And at one End of the Trough there muſt be a Hole to let out the Water for the cleanſing it. In the higheſt part of the Court let the Kennel be built, in which ſhould be two Rooms, one of which ſhould be larger than the other, with a large Chimney to make a Fire when need requires: This Room ſhould be raiſed about three Foot from the Ground, and in the Floor ſhould be two Gutters for the conveyance of the Piſs: There muſt be diſperſed up and down ſmall Bedſteads raiſed about a Foot from the Floor, with holes pierced through the Planks for the drayning away their Piſs. The other Room muſt be for the *Huntſman* to keep his Poles, Whips, Liams, Salves, and the like neceſſaries. There ſhould alſo be a Copper for the Boiling, Dreſſing, and Ordering of their Food when they come home wet and weary; for at ſuch times they ſhould be cheriſh'd as Inſtruments of your Recreation, that they may delight in your Service, and taſte of your Bounty, and then doubt not but to have credit of them in the Field.

Be careful not to give them any thing to drink in Veſſels of Copper: And as to the Proportion and Quality of your Allowance for Food, it muſt be ordered with relation to the Natures of the *Hounds*, and their Sizes. Three Buſhels of Oats, with a Buſhel and a half of Wheat Bran, will keep Ten Couple of middle ſized *Hounds* a Week, giving them ſometimes Beef-broth, Whey, Flit-milk, Chippings of Bread, Bones, and ſometimes a little Horſe-fleſh, for change of Food creates a good Appetite, and cauſeth Health. The Oats and Wheat-bran muſt be boiled and thickned with Milk or Butter-milk, with ſome Chippings or broken Meat boiled therein.

As concerning Horſe-fleſh, I approve thereof, provided it be given with diſcretion; and of all ſorts Horſe-fleſh is the beſt and hotteſt, but be ſure to Flea or Skin them, leſt your Dogs diſcerning the Hair may fall on them when living in the Field. Such Dogs that are accuſtomed to Huut the *Hare*, 'tis not good to give them any Fleſh, becauſe it is ſaid to withdraw their Scents or Affections from the Chaſe, by reaſon their Fleſh is not very ſweet, nor their Scents very ſtrong.

If your *Huntſman* perceives that through toylſome, long, and frequent Chaſes, the *Hounds* fall away, he muſt be the more careful in feeding and cheriſhing them up with ſome good Broth, boiled Oxes or Sheeps Hearts, *&c.*

On ſuch Days as your *Hounds* do not Hunt, the beſt times to feed them are early in the Morning before Sun-riſe, and late in the Evening after Sunſet: And on the Days they Hunt they ought to be Rewarded ſo ſoon as they come home, be it when it will, eſpecially at Night with a good Supper; for nothing is a greater Diſcouragement to a *Hound*, than to go to ſleep with an empty Belly after hard labour.

If your *Huntſman* hath more dead Fleſh than he hath preſent occaſion for, he may preſerve it ſweet a Week or ten Days, by ſinking it under Ground.

As concerning the entring your *Hounds*, it is not enough to have them well-bred, with promiſing Marks and handſome Proportions; but they are to be well inſtructed how to Hunt.

When your Whelps are about Seventeen or Eighteen Months Old, teach them to take the Water and ſwim: Alſo lead them abroad in the Fields in the heat of the Day, the better to endure Exerciſe: Alſo lead them through Flocks of Sheep and Warrens, to bring them to command. They muſt be alſo brought to know the *Huntſman*'s Voice, their Names, to underſtand the Horn, and to uſe their own Voices.

Hunter's Notes.

FOR your better aſſiſtance I have inſerted the ſeveral Sounds that you are to Wind upon occaſion, which are according to the Plate here annexed.

Rules for the entring your Hounds.

NOW for the very Day and Time of Entring your *Hounds*, let it be about Noon in a fair warm Day; for if you enter them in the Morning, when the Heat comes on, they will give out; and take the moſt advantage you can that your Game may not long ſtand before them, but that your *Hounds* may be Rewarded: And thus muſt you do at leaſt once a Week for about two Months, by which means they will be ſo fleſh'd and ſeaſon'd with that Game at which you firſt enter them, that they will not leave off the Purſuit. You muſt alſo be ſure to enter them with the beſt and ſtauncheſt *Hounds* you can procure, and let there not be ſo much as one barking Cur in the Field.

The *Hare* is eſteemed the beſt Game to Enter young *Hounds* at; for whatſoever Chaſe you deſign them for, they will thereby learn all Turns and Doubles, and how to come to the Hollow: They will alſo come to have a perfect Scent and hard Feet, by being uſed to High-ways, beaten Paths, and dry Hills. At firſt give them all the advantages that may be; and when you ſtart the *Hare* from her Forme, let the Scent cool a little, obſerving which way ſhe takes; and then lay on your *Hounds* with the moſt advantage and help you can, either of Wind, View, Hollow, or the Pricking in her Paſſage: Nor were it amiſs if they had the advantage of a *Hare* that had been tyred the ſame Morning by a Courſe. You muſt alſo take care that they Hunt fair and even, without lagging behind, ſtraggling on either

Hand, and running wildly on Head; and in caſe you find any committing theſe Faults, they muſt be beaten into the reſt of the Pack, and forced to take the Scent with the reſt: The like muſt be done if they refuſe to ſtrike upon a Default, but run on babling and yelping without the Scent, whereby they draw away the reſt of the Dogs, until ſome of the elder Dogs take it; then cheriſh them with Horn and Hollow.

In caſe any of your young Whelps, who truſting more to their own Scents than to the reſt of the Pack, and conſequently are caſt behind, working out the Defaults by their own Noſes, and that they Hunt juſt and true; in ſuch caſes give them all manner of Encouragement and Aſſiſtance, and let them work it out of themſelves at their own pace; for ſuch Dogs can never prove ill, if not ſpoiled by your own Haſtineſs and Indiſcretion: For a little of your Patience and their Experience, will bring them to be your chief Leaders.

When you have killed the *Hare*, permit not the *Dogs* to break her up, but beat them off; then Skin her and cut her in pieces, and Reward your young *Hounds* therewith; and by this means in a ſhort time you will find a great improvement in your Whelps.

Some are of Opinion, that the beſt way to Enter young *Hounds*, is to take a live *Hare* and Trail her after you upon the Earth, now one way and then another; and having drawn it a convenient diſtance off, hide it, and the *Dog* taking the Wind thereof, runneth to and fro until he finds it.

The *Huntſman* muſt well underſtand the Nature and Diſpoſition of his *Hounds* in the finding out the Game; for ſome are of that Nature, that when they have found the Foot-ſteps, do go forwards without any Voice, or ſhew of Tail; likewiſe others when they have found Head will ſhew the Game; ſome again having found the Footings of the Beaſt, will prick up their Ears a little, and either Bark, or wag their Stern or Ears; others there are that can't keep the Scent, but wander up and down and Hunt Counter, taking up any falſe Scent; and others there are that can't Hunt by the Foot, but only by the ſight of their Game.

For the Entring your *Hound* at the Hart or Buck, let him be in Prime of Greaſe, for then he can't ſtand up, or hold out the Chaſe ſo long. The Forreſt which you chooſe ſhould have all the Relays of equal proportion, as near as may be; then place your young *Hounds*, with five or ſix old Staunch ones to enter them, and lead them to the furtheſt or laſt Relay, and cauſe the *Hart* or *Buck* to be Hunted unto them; being come up, uncouple your old *Hounds*, and having found the *Hart*, being well entred in Cry, uncouple your young Ones, and if you find any of them lag behind, whip or beat them forwards. But for your more ready Entring them, take theſe few Inſtructions. You may bring them to *Quarry*, by taking five or ſix nimble *Huntſmen*, and each to have two Couple of your Dogs, to lead in Liams; and having unlodged the *Hart* purſue him fair and ſoftly without tyring your *Hounds*; and after two or three Hours Chaſe, and that you find him begin to ſink, then caſt off your young Ones.

Another way is, by taking a *Buck* or *Stag* in a Toil or Net, and having diſabled him by cutting one of his Feet, let him go; then about half an Hour after, gather your young *Hounds* together, and having found out the View or Slot of the *Buck* or *Hart* by your *Blood-Hound*, uncouple your young *Dogs*, and let them Hunt; and when they have killed their Game, let them be Rewarded therewith whilſt it is hot; the moſt uſual Part being the Neck Flayed.

Some Enter their young *Hounds* within a Toyl, but that is not ſo good; for the *Hart* or *Buck* doth then nothing but turn and caſt about, becauſe he can't run an end, by which means they are always in ſight of him: So that if afterwards they were to run at force, a free Chaſe, being out of ſight, your *Dogs* will ſoon give over.

How the Huntſman *ought to Dreſs, Govern and Attend his* Hounds.

A Good *Huntſman* ought to be loving to his *Hounds*, eſpecially after hard labour. His firſt Buſineſs every Morning ſhould be, to cauſe their Kennels to be cleanſed; then he ſhould take his Horn and Sound three or four times the Call, to encourage them and call them to him; and being all about him, let them be Coupled, putting ſuch together, that as near as you can will not fight with one another; and let the young *Dogs* be Coupled with the old *Bitches*, to teach them to follow. Then the Keeper muſt be provided with ſome Bones or Fragments of Meat to carry with him in a Wallet, and ſo cauſe the *Hounds* to follow him through Green Corn Fields, Meadows, and the like Places, as well to Air them, as to make them know his Voice, and train them up for Service; and if any *Dog* doth happen to run at a Sheep, or other Tame Beaſt, correct him well, that he may be afraid to commit the like Offence another time. And having thus ſpent good part of the Fore-noon, go into ſome Meadow, and calling them about you, Reward them with ſome of the Bones out of the Wallet, uſing encouraging Words; then let ſome of the Company (being at a diſtance) call them to him by Hollowing and Winding his Horn; and being about him, let them be Rewarded with the reſt; then Couple them, and ſo lead them home to their Kennel.

Sometimes it happens, that young Whelps will not take the Water; To help this, chooſe a hot Day, and about Noon Couple up your *Hounds*, and lead them to the River-ſide, and ſo cauſe them to Swim, gently putting them in the Water; and by three or four times ſo doing they will not fear the Water.

CHAP. IV.

The Common Diſeaſes incident to Hounds, *with Directions for their Cure.*

BEfore I ſhall enter upon the Diſeaſes, it will be neceſſary to teach you how to prevent them, ſeeing that thereby you may ſave your Purſe, Labour, and Credit, and keep up your Pack of Dogs for Service. Therefore when you Hunt, Feed better than when they Reſt, and let them be neither too Fat nor too Lean, but in an indifferent State; but of the two rather Fat than Lean, by which means they will preſerve themſelves from the Mange, Scabs, Madneſs, and the like, unto which they will be addicted: Which Diſeaſes they will be ſubject unto, if they want Air, Water, or Exerciſe. And if you have but the knack to keep them thus in an even Temper, they may live long and continue ſound. As for their Water, they ſhould be their own Carvers, as before noted; and as to Exerciſe and Diet, order it according to Diſcretion, obſerving a Medium.

If notwithſtanding theſe Directions you find them troubled with the Itch, take ſome Quick-ſilver, and beat it in Nerve-Oil until it be killed, and that the Compoſition become thick like a Salve, and of a pale yellow; with this anoint the affected Place before the Fire, rubbing and chafing it well in.

Of the Mange, Tetters, Ring-Worms, and Scabs in Dogs.

THere's ſaid to be four ſorts of Mange; *viz.* The Red Mange, which cauſeth the *Dogs* Legs to ſwell; the Scaly Mange, which grows in Patches as broad as a Man's Hand, and takes away the Skin where it comes; the Common Mange; and the Black Mange, which lieth under the Skin, and cauſeth the Hair to ſhed. Of theſe Manges, the Red Mange is the worſt, and hardeſt to be cured.

This Diſeaſe is occaſioned by a *Dog*'s foundring or over-heating in the Winter, and by taking cold in Swimming over Rivers when hot; alſo by lying in cold and moiſt Places before he is well dryed.

For Cure, give him a Purge thus made; Take an Ounce and an half of *Caſſia Fiſtularis*, well cleanſed; two Drahms and an half of Staves-acre in Powder, the like quantity of Scammony prepared in White-wine-Vinegar, and four Ounces of Oil of Olives; temper theſe together, and warm them a little over the Fire, and give it your *Dog* towards Night, not ſuffering him to eat any thing till the next Morning; then let him Blood in a Vein that is between the Hough-ſtring and the Bone of the Leg, and within two Days after Anoint him with this following Ointment.

Take three Pounds of Nut-Oil, one Pound and an half of Oil of Cade, two Pounds of Oil of Worms, three Pounds of Honey, and one Pound and a half of Vinegar; boil all theſe together till half is conſumed; then put to it Roſin, and Pitch or Tar, of each two Pounds and an half, and half a Pound of new Wax unwrought, melt them together; and then put thereto one Pound and a half of Brimſtone, two Pounds of Copperas well dryed, and twelve Ounces of Verdigreaſe; ſtir theſe until cold.

This Medicine will kill and heal all manner of Mange and Itch, be it never ſo ſtrong; but before you anoint your Dog therewith, waſh and rub him with Water and Salt to cleanſe his Skin; then bring him to a good Fire, and tye him there that he may ſweat. Let his Diet be warm Broth, in which put ſome Brimſtone to warm him within; and this Method taken for about a Week, will cure him.

The Common Mange oft-times is occaſion'd by reaſon of the *Dog*'s wanting fair Water to drink, as alſo for not keeping their Kennels clean.

This *Mange* is eaſily cured by a Decoction made of theſe Herbs following: Take two Handfuls of wild Creſſes, as much of Elicampane, of the Leaves or Roots of wild Sorrel, and the Roots of Frodils two Pounds: Put all theſe into Vinegar and Lye, and let them boil well; then having ſtrained the Decoction, put therein two Pounds of grey Soap, which being diſſolv'd and luke-warm, bathe the *Dog* therewith in the infected Places, and in about a Week he will be recover'd.

For Cure of this Diſtemper you may alſo uſe this Medicine: Take two Ounces of the ſtrongeſt Gunpowder, and mix it with very ſtrong White-wine Vinegar, until it become like a thick Salve, and with it anoint the Places infected until they bleed, and 'tis a certain Cure.

Some will caſt their *Dogs* into a Tan-pit, but that is not ſo good, endangering their Eye-ſight.

To kill Fleas, Lice, Ticks, and ſuch like Vermin that Dogs *are ſubject unto.*

THeſe Vermin are engender'd thro' want of clean Lodging, good Keeping and Airing. For their Cure, take about five Handfuls of Rue chopt ſmall, and boil it in a Gallon of Water, until Half be conſumed, and ſtrain it thro' a Cloth; then put to your Water two Ounces of Staveſacre in Powder, and being Blood-warm, bathe your *Dog* therewith: But if you uſe all the Art you can, and remove not the Cauſes, they will ſtill be diſeaſed; therefore to prevent this, and many other Maladies that perplex your *Hounds*, 'tis good to have always in Readineſs this following Ointment: Take three Pounds of Walnuts, and as much common Honey, of Oil of Cedar, Vinegar, Roſin, Pitch and Brimſtone, of each one Pound and an Half; of Hogs Greaſe and Copperas, of each two Pounds; of Verdigreaſe twelve Ounces, and of new Wax half a Pound. Make all theſe into an Ointment; but before you anoint your *Dogs*, waſh them in Water boil'd with Salt.

Of Madneſs.

THis Diſtemper is very common amongſt all ſorts of *Dogs*. It is eaſie to prevent, but hard to cure. There are ſeven Sorts of Madneſs, amongſt which ſome are eſteem'd incurable. I ſhall treat of each Sort; but firſt it will be neceſſary to ſhew how it comes, and what are its firſt Symptoms.

The firſt Cauſe proceeds from high Feeding, want of Exerciſe, Fulneſs of Blood, and Coſtiveneſs: For the two firſt ſomething hath already been ſaid; and for the latter give them once a Week, eſpecially in the Heat of the Year, five or ſix Spoonfuls of Sallet-Oil, which will cleanſe them. If you give them at other times the Quantity of a Hazel-nut of Mithridate, 'tis an excellent Thing to prevent Diſeaſes, and 'tis very good to bleed them under the Tongue and behind the Ears. But if this Diſeaſe have ſeiz'd them before you perceiv'd it, you muſt ſpeedily remove them from the reſt, for fear of an Infection, and go to work with the reſt.

The Symptoms of this Diſeaſe are many, and eaſily diſcern'd. When you ſee any *Dog* ſeparate himſelf contrary to his former Uſe, to become melancholy, or droop with his Head, to forbear Eating, and as he runs to ſnatch and away at every thing he meets with, if he often looks upward, and that his Stern at the Setting-on be a little erect, and the reſt hanging down, if his Eyes be red, his Breath ſtrong, his Voice hoarſe, and that he drivelleth and foameth at the Mouth, you may aſſure your ſelf he hath this Diſtemper.

The ſeven Sorts of Madneſs are as followeth, of which the two firſt that I ſhall name are incurable, *viz.*

Hot-burning Madneſs, and *Running Madneſs*: Theſe two are very dangerous, for all things they bite and draw Blood from, will have the ſame Diſtemper: They generally ſeize on all they meet with, but chiefly on *Dogs*; their Pain is ſo great, that it ſoon kills them. The five curable Madneſſes are,

Sleeping Madneſs, ſo called from the *Dog*'s great Drowſineſs, and almoſt continual Sleeping; and this is cauſed by little Worms that breed in the Mouth of the Stomach, from corrupt Humours, Vapours and Fumes which aſcend to the Head. For Cure, take five Ounces of the Juice of Worm-wood, two Ounces of the Powder of Harts-horn burnt, and two Drams of Agarick; mix all theſe together, with a little White-wine, and give it the *Dog* to drink in a Drenching-Horn.

Dum Madneſs lieth alſo in the Blood, and cauſeth the *Dog* not to feed, but to hold his Mouth always wide open, frequently putting his Feet to his Mouth, as if he had a Bone in his Throat. For Cure, take the Juice of black Hellebore, the Juice of *Spathula Putrida*, and the Juice of Rue, of each four Ounces; and having well ſtrain'd them, put thereto two Drams of unprepared Scammony; and being well mix'd together, put it down the *Dog*'s Throat in a Drenching-Horn, keeping his Head up for ſome time, leſt he caſt it out again; then bleed him in the Mouth, by cutting two or three of the Veins in his Gums.

It is ſaid, that about eight Drams of the Juice of an Herb called Harts-horn, or Dog-tooth, being given the *Dog*, cureth all ſorts of Madneſs curable; but whether ſo or not, I leave to Trial.

Lank Madneſs is ſo called, by reaſon of their Leanneſs and Pining away. For Cure, give them a Purge, as before directed, and alſo bleed them.

Rheumatick or *Slavering Madneſs*, doth occaſion his Head to ſwell, his Eyes to look yellow, and always ſlavering or drivelling at his Mouth. For Cure, take four Ounces of the Powder of the Roots of Polipody of the Oak, ſix Ounces of the Juice of Fennel-Roots, with the like Quantity of the Roots of Miſletoe, and four Ounces of the Juice of Ivy: Boil all theſe in White-wine, and give it your *Dog* in a Drenching-Horn as hot as he can take it.

Falling Madneſs is ſo called, becauſe it lieth in their Heads, making them reel as they go, and to fall down. For Cure, take four Ounces of the Juice of Briony, and the like Quantity of the Juice of Piony, with four Drams of Staveſacre pulveriz'd; mix theſe together, and give it your *Dog* in a Drenching-horn; alſo let him Blood in the Ears, and in the two Veins that come down his Shoulders; and indeed Bleeding muſt be uſed for all ſorts of Madneſs.

To prevent Dogs *from being mad, that are bitten of mad* Dogs, *by bathing them.*

FIll a Barrel or Bucking-tub full of Water, and put therein about a Buſhel and a half of Salt, which ſtir well, that it may be diſſolved; then put in the *Dog* that is bitten, and plunge him over Head and Ears ſeven or eight times therein, and it will prevent his being mad; but he ſhould be alſo blooded.

If your *Dogs* are bitten by one that is mad, there is nothing better than the licking it with their own Tongues, if they can reach the Place; if not, then waſh it with Butter and Vinegar, made luke-warm, and anoint it afterwards with Venice-Turpentine. It is alſo good to piſs often into the Wound; but above all take the Juice of the Stalks of ſtrong Tobacco boil'd in Water, and bathe the Place therewith: Alſo waſh him either in Sea-water, or in Water artificially made ſalt: Alſo give him inwardly a little Mithridate in two or three Spoonfuls of Sack, and ſo keep him apart; and if you find him after ſome time ſtill to droop, without Hopes of Recovery, the beſt way is to hang him.

Notwithſtanding all that has been ſaid concerning the Preſervation of this uſeful Creature, let me add, that Mr. *Mortimer* adviſes every one that keeps a *Dog*, to have him worm'd, which is a thing of ſmall Trouble or Charge, and what, he believes, will prevent their being mad, if they are not bit with a Dog that is mad; and if they are, he is apt to think it prevents their biting of any other Creature; for he ſays, he had three *Dogs* bit with mad *Dogs* at three ſeveral times, that were worm'd; and tho' they died mad, yet they did not bite, or do any Miſchief to any thing he had. And having a mind to make a full Experiment of it, he ſhut one of them up in a Kennel, and put a *Dog* to him that he did not value. The mad *Dog* would often run at the other to bite him, but he found his Tongue ſo big ſwell'd in his Mouth, that he could not make his Teeth meet. This *Dog* (though he kept him with the mad *Dog* till he died) did not ail any thing, though he kept him two Years afterward, and gave him no Remedies to prevent any Harm from the Biting of the mad *Dog*. But as there are ſeveral Sorts of Madneſs in *Dogs*, ſo he cannot tell whether the Effects are the ſame in all. But his *Dogs* ſeem'd to die of the *Black Madneſs*, which is reckon'd the moſt dangerous. And therefore he could not tell how far the following Receipt might be effectual in all Sorts of Madneſs, tho' it had not fail'd in curing all the *Dogs* that were bitten he had given it to, and all thoſe he gave it not to died. The Remedy is this: Take white Hellebore, and grate it with a Grater to Powder, which you muſt mix with Butter, and give it to the *Dog*. The Doſe muſt be proportion'd to the Size of the *Dog*: To a very ſmall *Lap-dog* you may give three Grains, and to a large *Maſtiff* ſixteen Grains; and ſo in Proportion to other Sizes. He adds, that the beſt way is to give but a ſmall Quantity at firſt; that you may encreaſe the Doſe as you find it to work, or not to work. But that, as it is a ſtrong Vomit, and what will make them very ſick for a little time, ſo you muſt be careful to keep them warm that Day you give it, and the next Night; and do not give them any cold Water; but when it hath done Working, towards the Afternoon, give them ſome warm Broth; and the next Morning give the ſame before you let them out: That this is an extraordinary Remedy likewiſe for the Mange: That he never knew three Doſes of it fail of curing any *Dog* that had it, except he had a Surfeit with it; which if he had, he let him Blood alſo, and anointed him two or three times over with Gunpowder and Soap, beat up well together, and it would cure him: That he had heard of a Gentleman who cured ſeveral Creatures that were bit with mad *Dogs*, with only giving them the middle yellow Bark of Buckthorn, which they muſt boil in Ale for a Horſe or Cow, and in Milk for a *Dog*; and being bit with one himſelf, he adventured to take nothing elſe, and did very well; but that you muſt boil it till 'tis as bitter as you can take it.

Gauls, Tetters, Ring-worms, Cankers and Dry Sores, with Directions to kill them.

FOR theſe Diſtempers the aforeſaid Ointment is excellent good; alſo this Medicine is very effectual: Take two Drams of Sublimate Mercury in Powder, beat it well in a Stone-Mortar with the Juice, or inward Subſtance of a Citron, without the Rind; put thereto a little Water and Vinegar, then take one Ounce of Allum, and as much Soap; all which mingle together, and let them boil until a Third part be conſumed, and with this waſh the Sores.

To kill the Canker in a Dog's *Ears.*

TAke Soap, Oil of Tartar, Sal-Armoniack, Brimſtone and Verdigreaſe, of each one Ounce; mix them well together with ſtrong Vinegar, and rub the Sore therewith: Or take Verjuice and Cherville-water, mix them together, and let them be waſh'd with it.

Of Worms.

H*Ounds* are apt to have Worms within them, eſpecially when young. It is good to give them about a Pint of warm Milk early in the Morning, with about half an Ounce of Flower of Brimſtone in it, and let them faſt at leaſt two Hours after it. This will warm and ſcour them, cauſing them to be free of all inward Filth; or, if you think good, make Pills of Aloes, Harts-horn, the Juice of Wormwood, with ſome Flower of Brimſtone: Of this give them the Quantity of a Haſel-nut, wrapt up in ſweet Butter, forcing it down his Throat by pulling out his Tongue, and ſo putting it down, and when he draws in his Tongue, it will ſlip in of it ſelf.

Concerning Dogs *that are ſurbaited in their Feet.*

D*OGS* are often ſurbaited in their Feet, occaſion'd by running long in hot Weather upon hard, dry, uneven Ways, amongſt rocky and ſharp Gravels. For preventing this, if your *Huntſ-man* be careful, he will have their Feet look'd after, as aforeſaid: But if through Careleſneſs, their Feet become ſore; then cauſe them to be waſh'd with broken Beer and freſh Butter luke-warm, and then to bind to the Soles of their Feet a Salve, made of young red Nettles, ſmall chopt, or beaten into an Ointment. Soot finely powder'd and beaten with the Yolks of Eggs, and apply'd to their Feet, is alſo very good: Alſo the Juice of the Herb Mouſe-ear is very good for the like Occaſion.

Of Bruiſes.

IF your *Dogs* chance to receive a Bruiſe through any Fall, or the Puſh of a Stag or Buck; if it appear outwardly, anoint the Swelling with a Decoction of Chickweed and Groundſel, boil'd in ſtrong Ale, and that will aſſwage the Swelling: But if it be a Wound, lay a Plaiſter thereon of the Roots of great Comfrey, Melilot and Oil of Roſes, of each a like Quantity, and cut away the Hair near the Wound for the Sticking of the Plaiſter. If you ſuſpect the Bruiſe to be inward, give them a Drench of a Pint of new Milk, and put therein a Quarter of an Ounce of *Iriſh* Slate, or *Sperma Cæti*, or for want of theſe two, take half an Ounce of Stone-Pitch, finely powder'd.

To cure the Biting and Stinging of venomous Creatures.

IT ſometimes happens that *Dogs* are bit and ſtung by venomous Creatures, as Snakes, Adders, Toads, and the like. For Cure, preſently ſqueeze out the clotted Blood, and waſh the Place with Salt and Urine; then lay a Plaiſter to it made of Calamint, beaten in a Mortar with Turpentine and yellow Wax, until it become a Salve. If you give him ſome of the Juice of Calamint to drink with Milk, it were not amiſs; or one Ounce of Treacle diſſolved in ſome ſweet Wine.

Obſtructions in the Bladder.

SOmetimes *Dogs* are troubled with Impediments in the Bladder, and can't piſs: To Cure which, give them a Decoction of Mallows, or Marſh-mallows, Brambles, the Roots of Fennel, and the Leaves or Seeds of Arch-angel that commonly grows by Vines, of each an equal Quantity; and let them boil until a third part be conſumed; and when it is luke-warm, give it the *Dog* in a Drenching-horn, and it will cauſe him to piſs,

To keep Bitches *from being proud.*

BEfore a *Bitch* hath had *Whelps*, give her every Morning, for about a Fortnight, eight or nine Corns of Pepper in her Meat, and ſhe will not become proud.

To heal Wounds on a Dog.

TAke the Juice of red Colewort, and ſqueeze into the Wound, and it will cure it in a few times dreſſing.

To dreſs a Dog *that is wounded by a Wild Boar.*

THoſe *Dogs* that hunt the Wild Boar are very ſubject to be wounded, and therefore 'tis neceſſary they ſhould be readily dreſt. They are commonly wounded in the Belly, but, provided the ſame be only ripp'd, though the Guts come out unhurt, they are eaſily cured by a dexterous Man, who is gently to put the Guts in with his Hand, which ought to be clean waſh'd before, and anointed with Oil of Olive, or ſome good tender Fat. He ſhould put a ſmall Slice of Bacon into the Wound, and ſew it up with a Chirurgeon's Needle, and fine white Thread, twiſted and knotted at the Ends, that it may not ſlip, and to prevent its ſoon rotting: You may do the ſame by other Places, and always keep the Wound moiſt, that the Dog may lick it, which is the beſt and moſt ſovereign Ointment of all: The Point of your Needle ought to be ſquare, and the reſt round, and your Dog-keepers ought always to be furniſhed with them, as well as with good Thread and Bacon.

A Receipt to cure Dogs *that are hurt by a Wild* Boar.

IT often happens that *Dogs* are hurt by *Wild Boar's*, in running over their Bellies; and tho' they have not injur'd 'em with their Tuſhes, this Animal, which is heavy, ſometimes breaks one of their Ribs, or at leaſt puts them out: In this Caſe take care to Set them: But if there be a Bruiſe or Hurt, Take Symphiton Root, the Plaiſter of Melilot, Pitch or Gum, Oil of Roſes, an equal quantity of each, mix all together, ſpread it upon Linnen Cloth, and when you have cut off the Hair in the Place affected, apply the Plaiſter to it as hot as he can eudure it. But in *Savoy* and *Piedmont*, they prepare a very Sovereign Remedy, called *Benjoin*, which they take from Fir, a Plaiſter made of which will not fall off till the Cure is perfected. *Salnove's Royal Hunting.*

CHAP. V.

Hunter's Terms of Venery.

IN *Hunting* obſerve that there are Beaſts of the *Foreſt*, which are Beaſts of *Venery*, Beaſts of *Chaſe*, and Beaſts of the *Warren*. Beaſts of *Venery* are the *Hart* and *Hind*, the *Hare*, *Boar*, and the *Wolf*. And here note, That with the *Hart* or *Stag* is included all other *Red Deer of Antler*. Beaſts of *Chaſe* are the *Buck* and *Doe*, the *Fox*, *Martern*, and the *Roe*. And Beaſts of the *Warren* is the *Coney*.

Betwixt Beaſts of *Venery* and *Chaſe*, there are great differences. Thoſe of *Venery* make their Abode all Day in great Coverts and ſecret Places in Woods, and in the Night ſeaſon ſeek for Food in Meadows, Lawns, and pleaſant Feeding Places; whereas thoſe of *Chaſe* reſide in the Day in the Fields and open Places, the better to avoid danger of ſurprizing; and in the Night ſeaſon feed as the reſt in the Meadows. But to proceed to the Terms of Art uſed in *Venery*.

The *Hart* is called the firſt year a *Calf*, or a *Hind-Calf*, the ſecond year a *Knobler*, the third a *Brocket*, the fourth a *Staggard*, the fifth a *Stag*, and the ſixth a *Hart*. If hunted by the King or Queen, and he eſcape, for ever after he is called a *Hart-Royal*: And if the King or Queen think fit to make Proclamation for his ſafe Return, as was formerly the Cuſtom, he is then called a *Hart-Royal proclaimed*.

The *Hind* is called the firſt year a *Calf*, the ſecond a *Hearſe*, and ſometimes we ſay a *Brocket's* Siſter, and the third year a *Hind*, and ſo ſhe continues.

The *Hare* is called the firſt Year a *Leveret*, the ſecond a *Hare*, and the third a great *Hare*.

The *Wild-Boar* is called the firſt year a *Pig* of the *Sounder*, the ſecond a *Hog*, the third a *Hogs-ſteer*, and the fourth a *Boar*, at which Age, if not before, he leaveth the *Sounder*.

The *Buck* is called the firſt year a *Fawn*, the ſecond a *Pricket*, the third a *Sorel*, the fourth a *Soar*, the fifth a *Buck* of the firſt Head, and the ſixth a *Buck*, or great *Buck*.

The *Doe* is called the firſt year a *Fawn*, the ſecond a *Teg*, and the third a *Doe*.

The *Badger* is called the firſt year a *Whelp* or *Pig*, and afterwards a *Badger*.

The *Roe* is called the firſt year a *Kid*, the ſecond a *Girle*, the third a *Hemuſe*, the fourth a *Roe-Buck* of the firſt Head, and the fifth a fair *Roe-Buck*.

The *Fox* is called the firſt Year a *Cub*, the ſecond a *Fox*, and afterwards an old *Fox*.

The *Otter* is called the firſt year a *Whelp*, and afterwards an *Otter*.

The *Martern* is called the firſt year a *Cub*, and the ſecond a *Martern*.

The *Coney* is called the firſt Year a *Rabbet*, and afterwards an old *Coney*.

Terms of Art uſed for Beaſts of Venery and Chaſe, as they are in Company one with another.

A Herd of *Harts*, as alſo of all other ſorts of *Deer*, is at leaſt Twenty, but ſix *Roes* make a Herd.

A Bevy of *Roes*, a *Sounder* of *Swine*, and a Rout of *Wolves*, are at leaſt Twelve in number.

A Brace or Leeſe of *Bucks*, the like of *Foxes* and *Hares*. A *Riches* of *Marterns*, and a *Couple* of *Coneys*.

Terms for Copulation.

A *Hart* or *Buck* goeth to *Rut*, the *Roe* to *Tourn*, the *Boar* to *Brim*, the *Fox* to *Clickitting*, the *Wolf* to *Match* or to *Make*; the *Otter* hunteth for his kind; and the *Hare* and *Coney* goes to *Buck*.

Terms for their Noiſe at Rutting-time.

A *Hart Belloweth*, a *Buck Groaneth* or *Twateth*, a *Roe* alſo *Belloweth*, a *Boar Freameth*, a *Fox Barketh*, a *Badger Shrickets*, an *Otter Whineth*, a *Wolf Howleth*, and a *Hare* and *Coney Beateth* or *Tappeth*.

Terms for their Ordure.

THE *Ordure* or *Excrement* of every Beaſt of *Chaſe* or *Venery* hath his proper *Terms*, for thereby their Place of *Feeding* and *Eſtate* is known, and therefore neceſſary to be underſtood. The *Ordure* of a *Hart*, and of all *Deer*, is called *Fewmets* or *Fewmiſhings*, and all *Beaſts* that live of *Browſe* ſhall have the ſame Term in that reſpect; but in *Beaſts* of *Prey*, as the *Boar* and the like, they ſhall be called the *Leſſes*. Of *Vermine* and ſtinking *Chaſes*, as the *Fox*, *Badger*, and the like, they are called the *Fuants*; of an *Otter* the *Spraynts*, and of the *Hare* and *Coney* the *Crotiles*, or *Crotiſings*.

Terms for the Footing and Treading of Beaſts of Chaſe and Venery.

FOR a *Hart* the *Slot*; for a *Buck*, and all *Fallow Deer*, the *View*. Of all *Deer*, if on the *Graſs*, or where it is ſcarce viſible, it is called *Foiling*; for a *Fox* the *Print*; for other *Vermine* the *Footing*; for an *Otter* the *Marks*; for a *Boar* the *Tract* or the *Treading*; and for a *Hare* diverſly; for when ſhe *winds* or *caſts* about to deceive the *Hounds* ſhe *doubleth*; when ſhe is in the open *Field*, ſhe *ſoreth*; and when ſhe beateth on the hard *High-ways*, and her *Footing* can be perceived, then ſhe *pricketh*; and in Snow it is called the *Trace* of a *Hare*.

Terms for Lodging of Beaſts.

A *Hart Harboureth*, a *Buck Lodgeth*, a *Roe Beddeth*, a *Fox Kennelleth*, a *Badger Eartheth*, an *Otter Watcheth*, a *Boar Coucheth*, a *Hare Seateth* or *Formeth*, a *Coney Sitteth*, and a *Martern Treeth*.

Terms for Lodging and Diſlodging of Beaſts.

YOU ſhall ſay *Harbour* and *Unharbour* a *Hart*, and he lieth in his *Layre*; *Lodge* and *Rouze* a *Buck*, and he lieth in his *Layre*; *Seek* and *Find* the *Roe-Buck*, and he *Beddeth*; *Form* and *Start* a *Hare*; *Bolt* and *Burrow* a *Coney*; and both the *Hare* and *Coney* do *ſit* and *ſquat*. *Kennel* and *Unkennel* the *Fox*; *Earth* and *Dig* out the *Badger*; *Watch* and *Vent* the *Otter*; *Couch* and *Rear* the *Boar*; *Tree* and *Bay* the *Martern*; and *Train* and *Raiſe* the *Wolf*.

Terms for the Tails of Beaſts of Chaſe.

THE *Tail* of a *Hart*, *Buck*, *Roe*, or any other *Deer* is called the *Single*; that of a *Boar* the *Wreath*; that of a *Coney* or *Hare* the *Scut*, that of a *Fox* his *Buſh*, and that of a *Wolf* his *Stern*.

Terms for the Attire of Deer.

OF a *Stag* or *Hart* if perfect, the *Burr* is next the Head; the *Pearls* are the little Knobs about it; the *Beam* is that whereon the *Antlers*, and the *Sur Antlers* are; and all the reſt until you come to the *Crown*, *Palm*, or *Croche*, which is the top, are *Royals* and *Sur-Royals*, and the little Streaks in the *Beam* are *Gutters*.

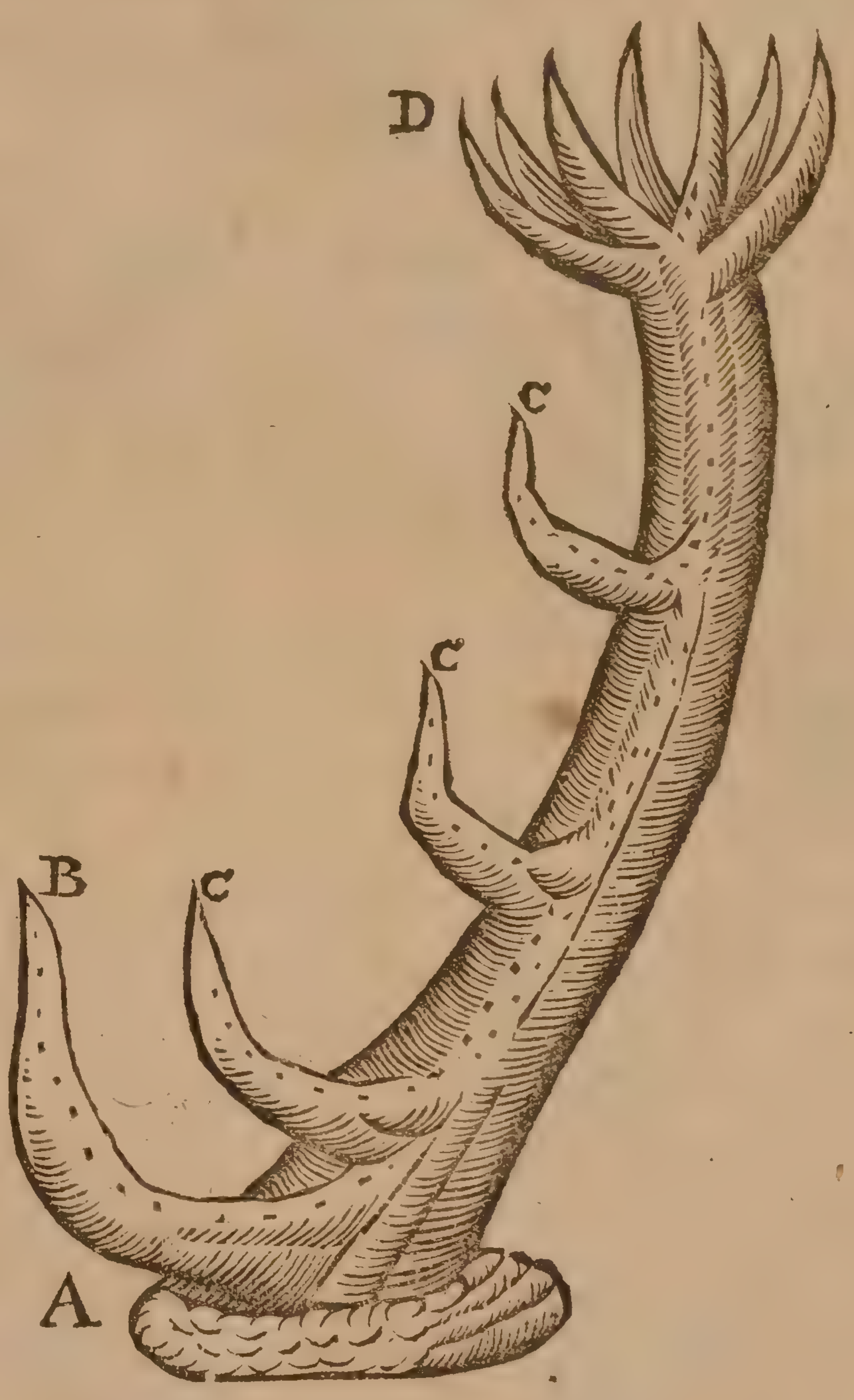
Of a *Buck*, you may ſay the *Burr*, the *Beam*, the *Brown-Antler*, the *Black-Antler*, the *Advancer*, *Palm* and *Spellers*.

If the *Croches* grow in form of a Man's Hand, it is called a *Palmed Head*. *Heads* not bearing above three or four, the *Croches* being placed above, and all at one height, are called *Crowned Heads*. And *Heads* having Doubling *Croches*, are called *Forked Heads*, becauſe the *Croches* are on the top of the Beam like *Forks*.

When you ſpeak of a *Hart's* or *Buck's Horns*, call them the *Head*; and not the *Horns*.

The *Head* or *Horns* of a *Deer* when it firſt cometh out, hath a *Ruſſet Pill* upon it, which is called *Velvet*, and his *Head* is called a *Velvet Head*; and when it is grown out to the full Bigneſs, he rubbeth off that *Pill*; and that is called the *Fraying of his Head*; and afterwards he *burniſheth* the ſame, and then his *Head* is ſaid to be full *Summed*.

I ſhall here give you the Figures of a *Hart's Head*, or *Horns*.



A is called the Burr, and that which is about the Burr is called Pearls.

B is called the Brow Antler.

C Thoſe which are the ſecond third and fourth, are called the Sur-Antlers, or Beam-Antlers; And all that grow from the Brow-Antler, until you come to the Crown, Palm, or Croche are called Royals and Sur-Royals.

D The little Buds or Broches that are about the Top, are called Croches, or generally Croches of ſo many on the Top as they are.

Fig. I.

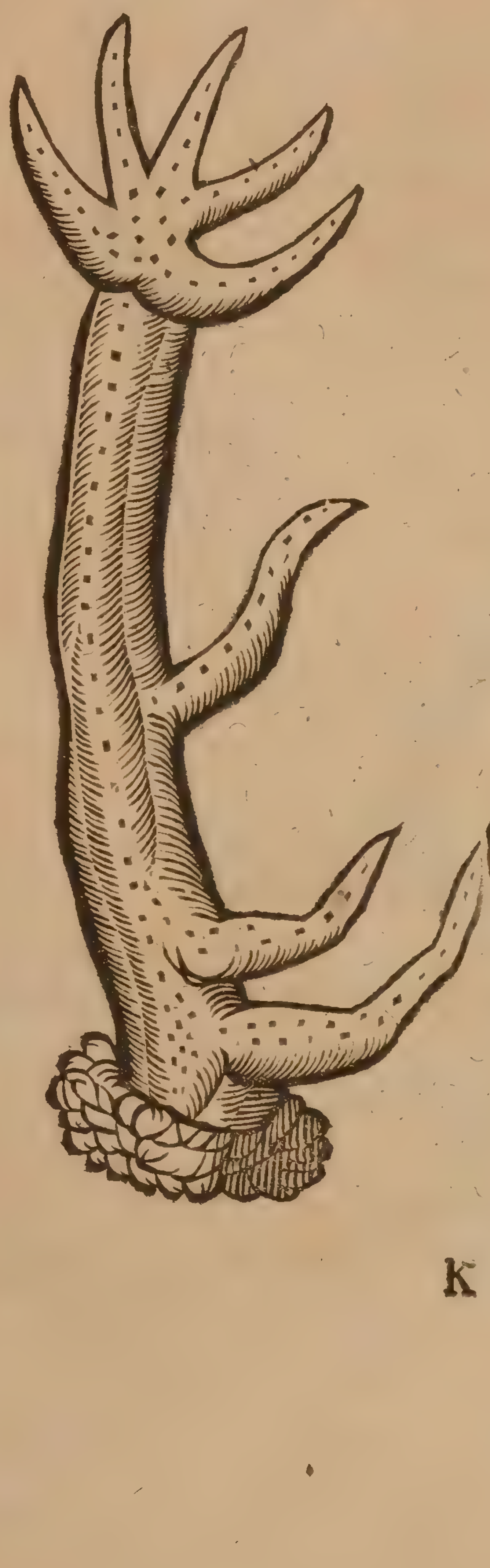


Fig. II.

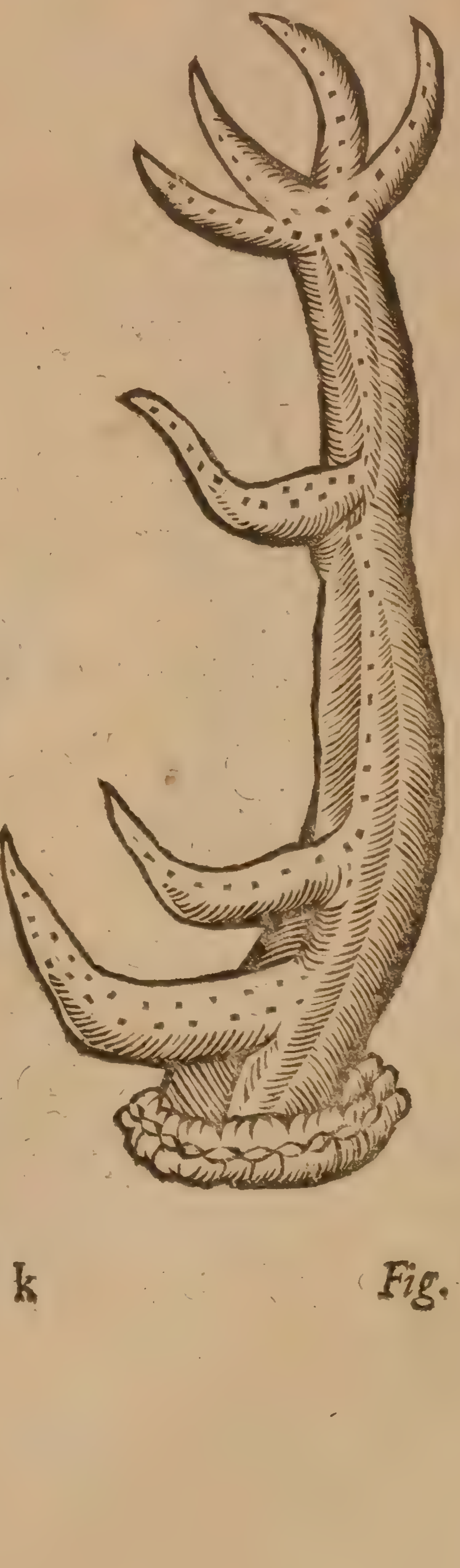
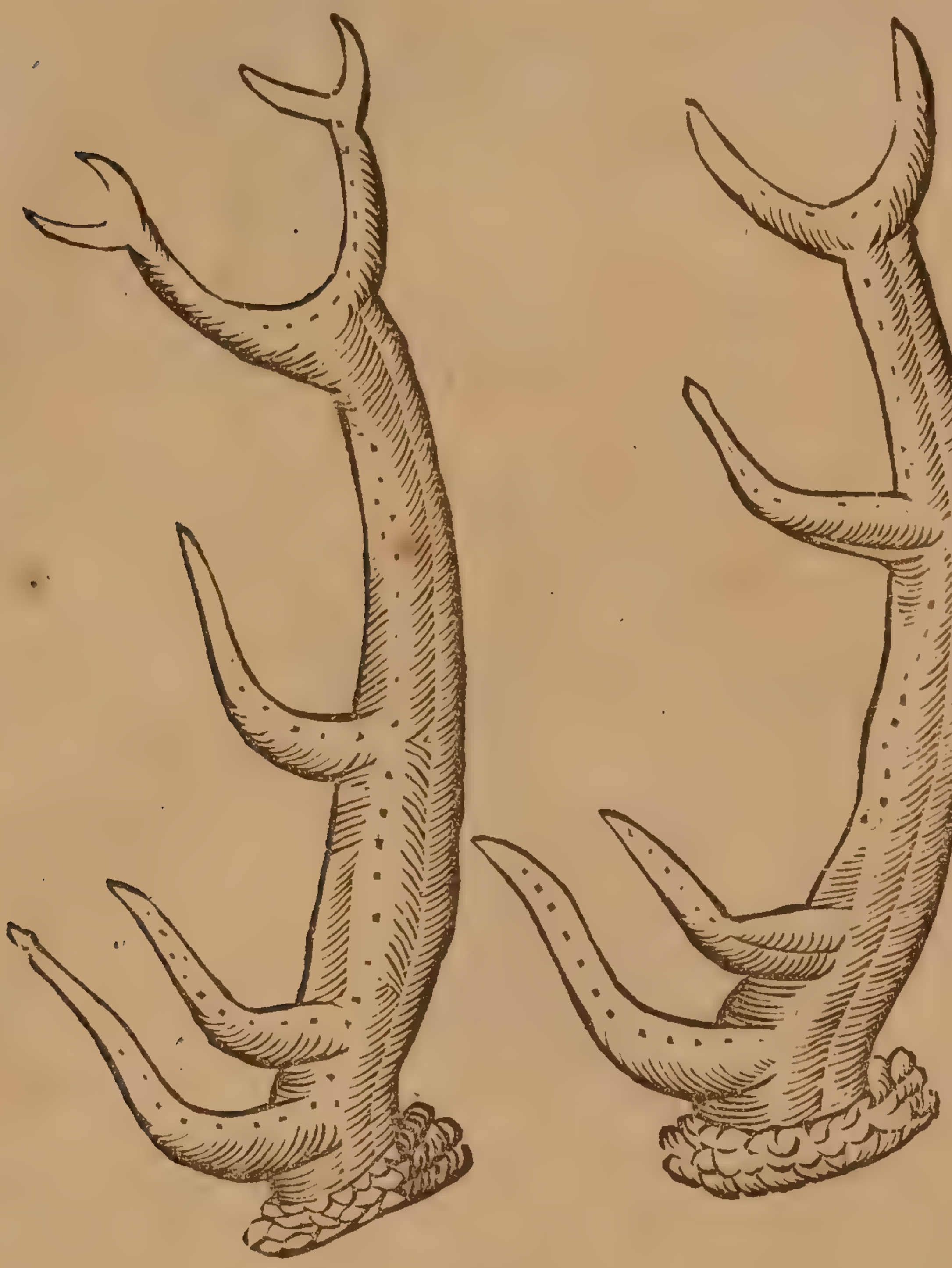
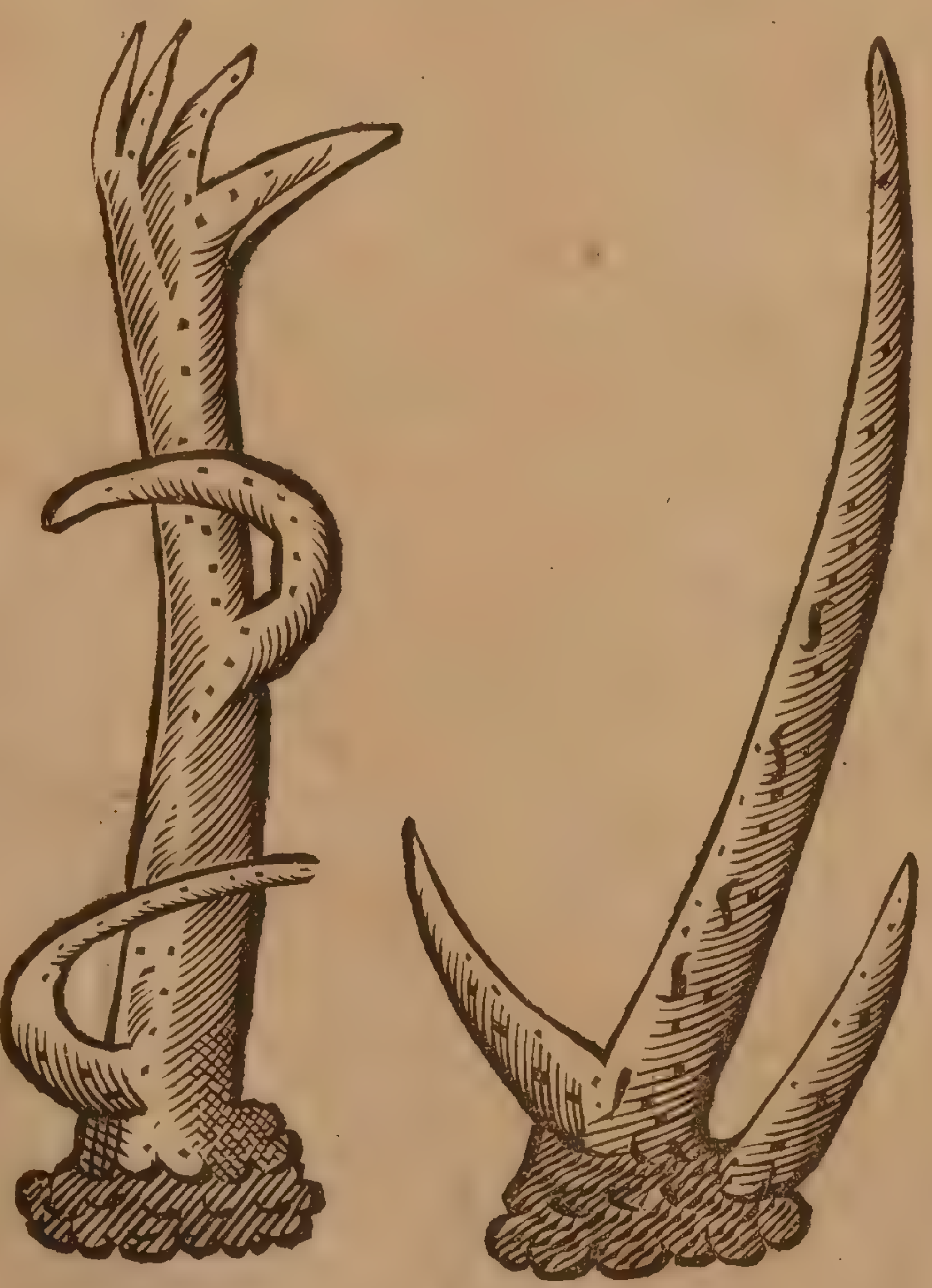


Fig. I. This Head is called a *Palmed Top*, becauſe the Croches which grow in the Top, are formed like a Man's Hand.

Fig. II. All Heads that bear not above three or four, the Croches being placed aloft, and all of one height in form of a Cluſter of Pears or Nuts, are called *Heads* of ſo many *Croches*.



All Heads which bear two in the Top, or having their Croches doubling in manner as theſe are here deſcribed, are to be called *Forked* Heads, becauſe the Croches are planted on the Top of the Beams like Forks.



All Heads that have double Burrs, or the Antlers, Royals and Croches turned downwards, contrary to the Faſhion of other Heads, according to theſe Figures, are to be called *Heads* only.

Terms of Fleaing, Stripping and Caſing of Beaſts.

THE *Hart* of all ſorts of Beaſts is Flean; and you muſt ſay, Take off the *Deer's* Skin; Strip or Caſe the *Hare*: The *Fox*, *Badger*, and all manner of *Vermine* are alſo Caſed; and you muſt begin at the Snout or Noſe of the Beaſt, and ſo turn his Skin over his Ears all along his Body, until you come to his Tail, and that muſt hang out to ſhew what Beaſt it was.

The Seaſons for Beaſts of Chaſe.

THE *Hart* or *Buck* beginneth at the end of *Fence-Month*, which is Fifteen Days after *Midſummer*, and holdeth till *Holy-rood Day*. The *Hind* and *Doe* begin at *Holy-rood Day* and laſt till *Twelfth-day* or *Candlemaſs*. The *Roe* from *Michaelmaſs* to *Candlemaſs*. The *Fox* and *Wolf* from *Chriſtmaſs* to our *Lady-day*; the *Hare* from *Michaelmaſs* to the beginning of *March*; the *Otter* from *Shrovetide* to *Midſummer*; and the *Boar* from *Chriſtmaſs* to *Shrovetide*. *Coneys* are always in ſeaſon, either young or old; but their Skins are beſt in ſeaſon from *Alhallontide* to *Shrovetide*.

The Fat of all ſorts of *Deer* is called Suet; and yet you muſt ſay, This *Deer* was a high *Deer* of Greaſe.

The Fat of a *Boar*, *Fox*, and *Badger*, is called Greaſe; and the Fat of a *Roe* is called Bevy-greaſe.

Proper Terms for the Noiſes of Hounds.

WHen *Hounds* are firſt caſt off, and find ſome Game, ſay they *Challenge* or *Call* on; but if they are too buſie before they find the Scent good, then ſay they *Bawl*: If too buſie after they have found good Scent, then they *Babble*; and if they run it end-ways orderly, making it good, and then hold it merrily together, ſay they are in *Full Cry*. When they have either Earthed a *Vermin*, or brought a *Deer*, *Boar*, or the like, to turn Head, then ſay they *Bay*; when *Hounds* hang behind and beat too much upon the Scent or Place, ſay they *Plod*; when they are earneſt in the Chaſe, or in the Earth, they *Yearn*; and when they open in the String (or a *Grey-hound* is in Courſe) then they *Lapiſe*.

Other Terms to be taken notice of.

WHEN *Hounds* or *Beagles* take freſh Scent, hunting another Chaſe until they hit it again, then they *hunt change*.

When *Hounds* hit the Scent of their Chaſe contrary, as to hit it up the Wind when they ſhould do it down, then ſay they *draw amiſs*.

When they hunt by the Heel, then they *hunt Counter*.

When the Chaſe goeth off, and cometh on again, traverſing the ſame Ground thereby to deceive the *Hounds*, then they *hunt the Foil*.

The feeding *Hounds* after they have killed their Chaſe, is called *Rewarding them*.

When *Hounds* are in readineſs, where the Game is expected to paſs by, and are then caſt off at the coming of the other *Hounds*, that is accounted a *Relay*.

When *Deer* have lately paſſed into Thickets, and then put the *Dogs* thereto for the View, ſuch Places are ſaid to be *Entries.*

When any *Deer* is hard hunted, and then takes any River paſſing through it, ſay he *Takes Soil*; when he comes out, ſay he *Breaks Water*; and when he leapeth into the Water, and cometh out again the ſame way, then ſay he *Proffereth.*

When *Hounds* or *Beagles* run long without opening, or making any Cry, it is termed *Running Mute.*

When *Hounds* run at a whole Herd of *Deer*, then they *run Riot.*

When at firſt finding the Scent of the Game they preſently open and cry, 'tis ſaid *they Challenge:* And when they draw on the Scent till they rouze the Chaſe, then they draw on the *Slot.*

When a *Roe* Croſſes and Doubles, it is called *Trajoning.*

There are different Terms betwixt *Hounds* and *Greyhounds:* As, Two makes a Brace of *Greyhounds*, and a Couple of *Hounds:* Three a Leeſe of *Greyhounds*, and a Couple and a half of *Hounds.* You muſt ſay, *Let ſlip your Greyhound*, and *Caſt off your Hound.* The String uſed to lead a *Greyhound*, is called a *Leeſe*, and for a *Hound* a *Lyame.* The *Greyhound* hath his *Coller*, and the *Hound* his *Couples.*

When Huntſmen go drawing in their Springs at Hart-hunting, they uſually make Dew-rounds, which are called *Ring-walks.*

When Deer rub and puſh their Heads againſt Trees, to cauſe the Pills or Velvet of their new Horns to come off, it is ſaid they *Fray.*

When Deer caſt their Horns, they *Mew.*

When the Huntſman endeavoureth to find a Hart by the Slot, and then minds his Step to know whether he is great or long, then ſay, He is known by his *Gate.*

When Beagles break and cry at their Prey, then they *Tearn.*

A *Rain Deer* reſembleth a *Hart*, but hath his Head full of *Antlers.*

When *Hounds* find where the Chaſe hath been, and make a proffer to enter, but return, then ſay, there is a *Blemiſh*; and when *Hounds* in readineſs expecting the Chaſe to paſs by, and then to caſt 'em off before the reſt comes in, this is termed a *Vaunt-lay.*

When a Hare takes the Ground like a Coney, which is but rarely ſeen, then ſay ſhe goeth to the *Vault*, and when ſhe is Courſed upon Rotten Ground, or in Froſty Weather, ſo that it ſticks to her Feet, then ſay *ſhe Carrieth.*

To beat the Buſhes after a Fox, is termed *Drawing.*

A *Pricker* is a Huntſman on Horſeback.

When you ſee about Twenty Deer of what ſort ſoever together, it is a ſmall *Herd*; about Forty is a middle *Herd*, and Sixty or Eighty a great *Herd*, be they Male or Female.

Upon View of a Hart, if he be a goodly Deer, do not call him fair but *great*; and ſo a great Hind, and a great Buck, but a *fair* and comely *Doe.*

When a Deer eateth in a Corn, or Graſs-field, he is ſaid to *Feed*, otherwiſe to *Browze*; and if he ſtayeth to look on any thing, he is ſaid to *ſtand at Gaze*; when he forceth by, upon force he *Trippeth*, and when he runs a pace he *Streineth.* When he is hunted and leaves the Herd, then he *Singleth*; when he Foams at Mouth he is *Emboſſed*; when he Smelleth, or Venteth any thing, then ſay he hath this or that in the *Wind*; when he holds out his Neck, at full length inclining, then ſay he is *ſpent*; and being Dead, ſay *he is done.*

The Reward to the *Hounds* is called the *Reward* or *Quarry.*

When a Huntſman beats a Wood to find a Chaſe, 'tis called *Drawing the Covert*, and when he ſeeth where any Deer hath been, ſay *here he breaketh.*

When ſome few *Hounds* are ſet in readineſs, by any Place where 'tis ſuppoſed the Chaſe will paſs, 'tis termed a *Vaunt-lay*; and when they tarry until the reſt of the *Hounds* come in, it is called *An Allay*; but if they hold till the Kennel be paſt, then 'tis called *A Relay.*

When a Hart entreth a River, or Pool, which is termed the Soil, ſay he *deſcendeth*; when you ſee him ready to enter the Water, ſay he *Proffereth*, and if he doth it the ſecond time, then he *Reproffereth*; and after he hath once deſcended, and you ſee where he hath trod, the Water filling his Foot-ſteps, then ſay here the Hart *Defouleth*, and the Slot or View that is found of ſuch a Deer, on the otherſide of the Water is to be termed as of a Deer *Defoulant the Soil.* The Hart, Buck and Boar, do oft times take *Soil* without enforcing; and all other Beaſts are only ſaid to take Water except the *Otter*, and he is ſaid to beat the *Stream.*

When they Caſt about a Grove or Wood, with the *Blood-Hound*, they *make a Ring*; when they find where the Deer hath paſſed, and break or plaſh any Bough downwards for a Mark, then ſay, they *Blemiſh*, or make *Blemiſhes.* When they hang up any Paper, Clout or Mark, it is called *Sewelling*, or ſetting of *Sewels.* When a *Hound* meeteth a Chaſe, and goeth away with it far before the reſt, then ſay, he *Foreloyneth.* When a *Hound* hunts backward the ſame way that the Chaſe is come, then he *Hunts Counter*; and if he hunts any other Chaſe than that which he firſt undertook, then he *Hunts Change.* When any Deer or other Chaſe uſeth any Subtilties to deceive the *Hounds*, then ſay they *Croſs* or *Double.*

When a Hart or Stag breaks Herd, and draweth to the Covert, ſay, he goeth to *Harbour*, or taketh his *Hold*, or he *Covereth*; and when he cometh out again, then he *diſcovereth* himſelf.

There is great difference betwixt the Feet of Preying Beaſts and thoſe of a Deer; for in thoſe of Prey they are called *Traces*; but the Tract or Footing of a Deer, is called the *Slot* or *View.*

There is alſo a difference betwixt the Frith and the Fell, the *Fells* being taken for the Valleys, green Compaſtures, and Mountains; and the *Friths* for Springs and Coppices.

There is alſo a difference betwixt the word *Ways* and *Trenches*; for by the firſt is meant the High and Beaten Ways on the Out-ſide of a Foreſt or Wood; and by the word *Trench*, is every ſmall Way not ſo commonly uſed.

There is likewiſe a difference betwixt a *Trench* and a *Path*, which is a Place where a Deer hath only left Slot or View.

Blemiſhes are the Marks left to know where a Deer hath gone in or out, and they are little Boughs plaſhed or broken, to hang downwards; for any thing that is to hang up, is called a *Sewel.*

Thus having treated of the ſeveral Terms of Art moſt uſed in *Hunting*; the next Buſineſs ſhall be, to treat of the ſeveral ſorts of Beaſts of Venery and Chaſe; and firſt of the *Hart* or *Stag*.

CHAP. VI.

Of the Hart *or* Stag.

IT is obſerved, that this Creature of all other Deer, hath the moſt Ingenuity, and yet is the moſt fearful; and by his Windings, Turnings, and other Subtilties, as running into Herds, forcing others into his Footings, and taking refuge amongſt Herds of Cattle, doth oft deceive the Huntſman, and put a Foyl upon the *Dogs*; for in his Chaſe (which often proves long) neither Hedge, Ditch or River, doth ſtay him, but he taketh all with great fierceneſs: Notwithſtanding all which he is enſnared; for the *Dogs*, who purſue him by his Scent, being animated and encouraged by the Huntſmen, he becomes their Prey.

The Hart, as alſo the Hind, are very long lived, being ſaid to live about One Hundred Years. They are bred in moſt Countries, but *England* is ſaid to breed the beſt.

This Creature doth excel all others in the Beauty of his Horns, which are very high and large; yet do they not grow to their Scalps or Bones, but to their Skin, branching forth into many Speers, being ſolid throughout, and as hard as Stones. Every Year in the Spring (as all other Sorts of Deer) they loſe or ſhed their Horns, and during the Time they are without, do abſcond all the Day in ſolitary Places, and only feed out in the Nights. Their new Horns at the firſt come out like Bunches, and by degrees grow and become hard, being cover'd with a rough Skin, which is called a *Velvet-Head*; and as the ſaid Skin drieth, they fray or rub them againſt Trees, to ſcrape off the ſaid Roughneſs; and when they find, that in thus rubbing them they feel no Pain, it is a Rule to them, that their Horns are their ſufficient Guard, and ſo they leave thoſe retiring Places.

At one Year old they have no Horns, but only Bunches; at the Age of two Years they appear more perfect, but ſtreight and ſimple; at three Years they grow into two Speers; at four, into three; and ſo increaſing every Year in their Branches, until they be Six; and above that time their Age is not known by their Heads.

In what Seaſon the Stags or Harts mew, and betake themſelves to the Thickets and ſolitary Places.

IN *February* and *March* they mew, and caſt their Heads, that is, their Horns; and generally the old ones ſooner than the young, and ſuch that have ſome Diſtemper upon them, eſpecially ſuch as have been hurt at Rut, having loſt their Piſſel or Stones, do never mew; for if you geld one before he hath an Head, he will never bear Head; and alſo, if you geld him when he hath his Head, or Antler, he will never caſt it; and if you geld him when he hath a Velvet Head, it will always remain ſo.

When Harts have mew'd, they betake themſelves to the Thickets, as aforeſaid; but young ones do never, until they have born their Third Head, which is in the Fourth Year of their Age.

In *March* and *April* they begin to thruſt forth their Buds, about *Mid-June* their Heads will be ſummed, and about the latter End of *July*, when they find them to dry, they go to the Trees to fray their Heads, and to rub off the Velvet, as aforeſaid.

Of Fraying their Heads.

HAving fray'd their Heads, then they burniſh them in the Clay, and other commodious Places they can meet with fit for that Purpoſe.

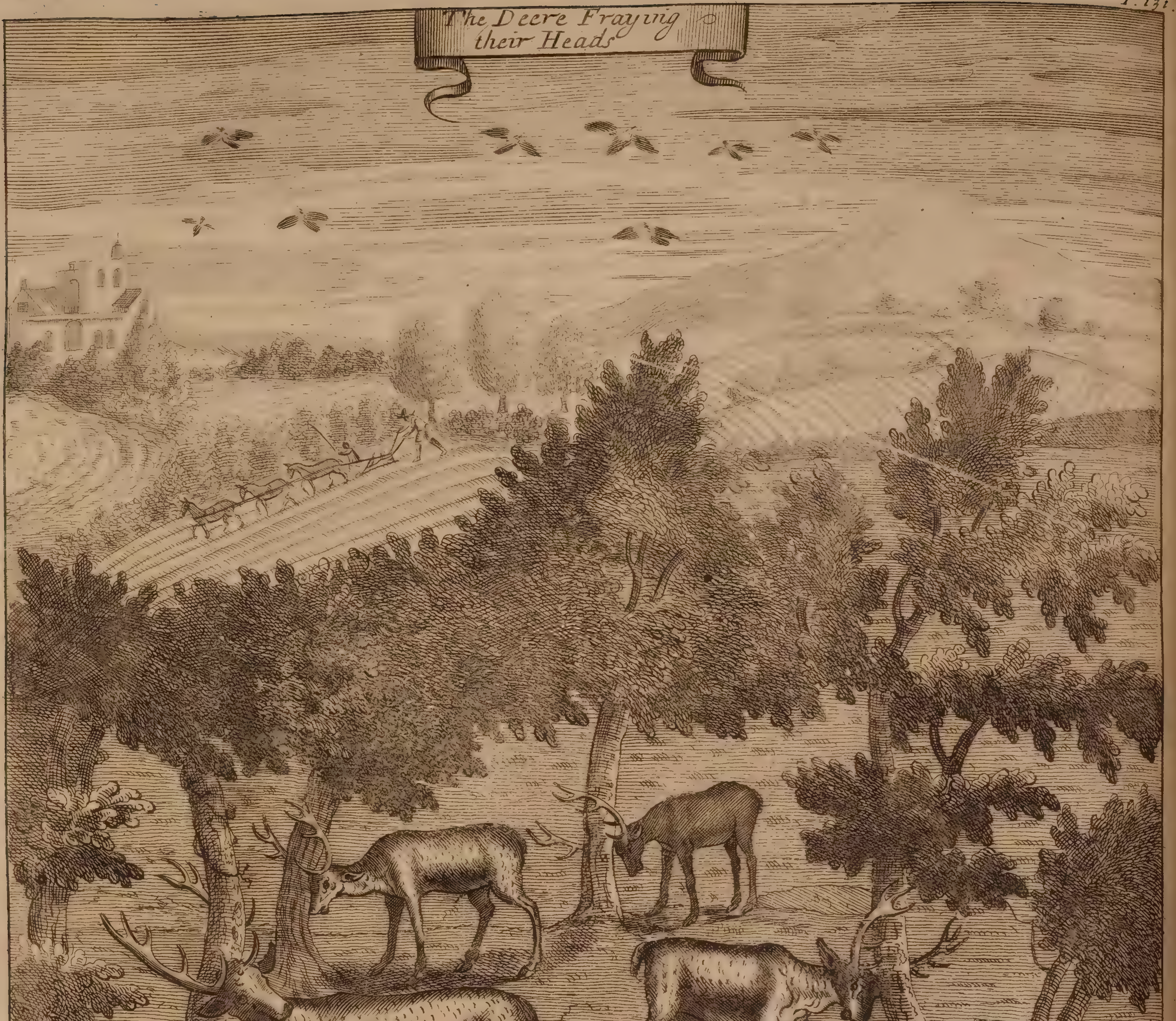
Some bear Red Heads, ſome Black, and ſome White; all which do proceed from Nature only. The Red Heads are commonly greater and fairer than the reſt, and are lighter than the Black; and the White are the worſt of all.

Rules to know an old Hart by the Slot, Fewmets, Carriage, Fraying, Poſts; and by his Gate, Head, and Branches.

IF when you would take his Slot or Treadings on the Ground, you find he hath a large Foot, a deep Printing, an open Cleft, and a long Space, you may be ſure he is old: If you find the Treadings of two, the one long and the other round, and both of one Bigneſs, yet the long Slot was of the largeſt Hart; alſo the Hinder-feet of the old Hart do never reach their former in their Going, but the young ones do. Likewiſe the old Harts are low jointed, and do never tread double, or falſly, becauſe the Sinews, that hold the Joints of their Feet and Claws, are better reinforced than the young *Harts*, who are not ſo well able to ſuſtain the weight of their *Body*, ſo that their Feet and Claws are ſometimes forced to turn away and double, by which they may be judged young.

There is a great Difference between the Slot of the Stag or Hart, and the Hind; for there is no Hart of the Second Head ſo young, that leaveth not a greater and wider Slot than the Hind; and the Bones will alſo appear greater; but when Hinds are with Calf, they open their Claws wide like a Hart.

You may alſo know an Old Hart by its Fewmiſhings, or Fewmets, though they are not at all times alike, in *April* and *May* they caſt their Fewmets, or Excrements, as it were in Cakes; and if they be long and thick, 'tis a Sign of an old Hart. In *June* and *July* they Caſt them forth in great Crotels, but ſoft; and from thence to the end of *Auguſt* they hold the ſame Form and Dimenſion, but are very hard and knotty. But altho' theſe are the general Marks to know an old Hart by, yet ſometimes it falls out contrary; for when they have been diſturb'd, or received ſome Hurt, then they make their Fewmets oft-times dry, and ſharp at one End, eſpecially at ſuch times as they fray their Heads. There is alſo a Difference betwixt the Fewmets of the Morning, and that of the Evening; for thoſe that he makes when he goeth to Relief at Night, are better digeſted, and moiſter than thoſe that he makes in the Morning, becauſe he hath taken his Reſt all Day, and ſo doth make a perfect Digeſtion, whereas in the Night he is forced to ſeek his Food.


The Deere Fraying their Heads

To the Right Honourable Claudius Hamilton &$^{c.a}$ Earle of Abercorne,
Lord Paſly, Kilpatrick, Mountcaſtle, Lord Hamilton and Baron of Strabane,
first and Legall iſsue Male from James Duke of Chaſtleherault, Earle of
Arran, Cheife of the most noble family of Hamilton, whose family is by Act
of Parliament (ſigned by al the three Eſtates) declared next Queen Mary
& her iſsue y^{e}. Rightfull heyre of the Crown of Scotland; he being Son &
heyre to the only Siſter of King James the Fourth.
This Plate^{is} humbly dedicat^{ed} by Richard Blome.

SEMPER VIRESCENS

SOLA VIRTUS NOBILITAT

The Age of a Stag or Hart may alſo be judged by his Carriage or Bearings; that is to ſay, when he paſſeth thro' any branched Wood, and with his Head bruiſeth the under Boughs, and that indifferent high, and of a good Diſtance, 'tis a Sign he is well ſpread and old. This Judgment may be given all the Year, except in the Months of *March*, *April*, *May* and *June*; at which times they mew their Heads, and bear their Velvet and Bloody Heads. His Greatneſs is alſo known by the Height of his Entries into a Wood; for the young ones creep, but the old ones are ſtiff and ſtately.

All Stags or Harts, as they are burniſh'd, beat or rub their Heads againſt ſome Tree or other, which is term'd their Fraying-Poſt, as before taken notice of; and the older the Hart is, the ſooner doth he go to fray, and the greater is the Tree that he ſeeketh to fray upon, and ſuch as he cannot bend with his Head. The Younger make uſe of weaker and lower Trees, by which their Age may be alſo known, as alſo the neareſt to their Harbour, this being the laſt Ceremony uſed by them before they enter it.

The Plate of Fraying their Heads ſhews their Age.

By the Gate or Going of an Hart, his Age may be judged; for the older he is, the longer will his Pace be, and the longer will he run or ſtand up before the *Dogs*, as being ſwifter, lighter, and better breathed. Alſo the Stag or Hart that leaveth a great Slot of his Fore-feet, doth never ſtand up long when he is chaſed; and a Hart that hath a long Foot, hath a greater Body than thoſe that are round footed. His Age is likewiſe gueſſed by the Height and Bigneſs of his Legs.

In *April*, *May* and *June*, there is no Judgment to be had from the Horns, by reaſon they caſt them in *February* or *March*, (as before noted) and are not well furniſh'd with their whole Carriage till the Beginning of *July*, and ſometimes later, if the Soil be not good, and the Seaſon fair.

By the Branches of a Stag's Horns his Age may be known. For the firſt Year they have no Head, that is Horns; the ſecond they have Prickets; the third they bear four, ſix, or eight Branches; the fourth, eight or ten; the fifth, ten or twelve; the ſixth, twelve or fourteen; and at ſeven Years old they leave their Heads beamed, branched and ſummed with as many as ever they can bear; for after that Year they encreaſe in Bigneſs, but not in Number; and yet after they are ſeven, eight, ten, twenty, thirty, or forty Years old, they may be gueſs'd at, tho' not with Certainty; for they have their *Cabage* large and thick, they are ſtrong breaſted and burr'd, and their Heads are very open.

Of Rutting of Harts.

THE Time of their Rutting or Vaulting is about *Mid-September*, and during that Seaſon they are ſuch great Lovers of the Sport, that they mind nothing elſe, and with a greedy Deſire ſeek out the Hinds, following them by their Scent; and during the Time of their Rut they eat very little. They are exceeding hot and burning with Luſt, inſomuch that where they find any Water, they lie and tumble in it to cool their Heat; and in this luſtful raging Seaſon they have a peculiar Noiſe: But the Hinds are more chaſt, not deſiring Copulation ſo often, if they were not conſtrain'd to it by the Harts; ſo that one Male will ſerve for ſeveral Females: And the older they are, the better they are, and therefore go to Rut before the young ones. Nor will they ſuffer the young ones to come near the Hinds until their Venery is over, or pretty well ſpent, which when they perceive they run upon them, forcing them away, and ſo become Maſters in their Room.

Their Luſt being over, and having ſpent ſome time in their ſolitary Retirements, they return to their Paſtures, and live in Herds as before.

The Hinds being thus filled, never keep Company with the Harts, until deliver'd of their Young, which is in eight Months; during which Time they lodge in ſome Covert, taking care of their Young, until fit to ſhift for themſelves.

During the Time of their Rut they are very eaſie to be kill'd; for they follow the Paths and Ways where the Hinds have gone, putting their Noſes to the Ground to follow them by the Scent, not regarding the Danger they are in of being taken, which at other times they are careful of.

Of the Coats and Colours of Harts.

THere are three ſeveral Sorts of Harts or Stags, *viz.* the Red, Brown, and Fallow; and of every one of theſe Coats there proceeds two Sorts of Harts, the one great, and the other ſmall. Of brown Harts, ſome are great, long and hairy, bearing a high Head, of a reddiſh Colour, which is fair and well beam'd. This Sort will hold a good Chaſe, being ſwifter of Foot, and longer of Breath, than thoſe of a ſhorter Stature, which are well ſet, are fatter and eſteem'd better Veniſon, as being in young Springs and Coppices, rather than in high Woods. They are very ſubtle, eſpecially when in their Greaſe, Nature teaching them to be then more cautious, as being ſenſible they can't hold out a Chaſe.

If they are old, and feed in good Paſtures, their Heads are black, fair, well branch'd, and generally palm'd at the Top.

Thoſe that are of a lively Red Fallow, having a black or brown Liſt down the Ridge of their Backs, and their Legs of the ſame Colour, are ſtrong, and have fair and high Heads, which are well furniſh'd and beam'd.

The Fallow-Hart, or Stag, doth bear his Head high, is of a whitiſh Colour, hath ſmall Beams, with long, ſlender, and ill grown Antlers, and hath neither Courage nor Force.

The Harts or Stags of a lively Red are commonly Young ones, and ſuch do ſtand up long, maintaining a good Chaſe.

Their Changing their Food according to the Seaſons of the Year.

STags or Harts are ſaid to change their manner of Food according to the ſeveral Seaſons of the Year, which is neceſſary to be known by every expert Wood-man. I will begin at the End of their Rutting, which is about the End of *October*.

In *November*, when they ceaſe to Rut, they frequent Broomy and Heathy Fields and Places, where they may crop off the Tops of thoſe Shrubs, which are very ſtrengthening unto them, after their Works of Nature hath exhauſted 'em: And ſometimes they lie in ſuch like Heathy and Broomy Places in the hot Months of the Year.

In *December* they herd together, and withdraw into the Foreſts to have Harbour from the cold Froſts, Snows, Wind and Rains, and do then feed or browze on Elder-Trees, Brambles, Briers, Hawthorns, Holms, and ſuch like Things that they can find green; and in the Time of Snows they feed on the Rinds, or Barks of Trees.

In *January* they leave Herding with the Raſcally Deer, and keep together in ſmall Herds near the Skirts of the Foreſts, where they may find green Corn, or good Winter-Paſture.

In *February* and *March* they mew or caſt their Heads, and then ſeek out good freſh Paſture and green Corn for their Night Food, lying cloſe in the Woods all the Day, until their Heads are grown again.

In *April* and *May* they reſt in the Thickets, and ſuch like retiring Places, ſeldom ſtirring out of their Harbours, but for Food in the Nights, much coveting green Corn: And in theſe Months they go not to Soil, by reaſon of the Moiſture of the Spring, and of the Dew that is on the Graſs or Corn.

In *June*, *July* and *Auguſt* they viſit the Coppices and Spring-Woods during the Heat of the Day; and in the Nights frequent Corn-Fields, no Grain coming amiſs; but they moſt delight to feed on Wheat, Oats and Peaſe.

In *September* and *October* they begin to leave the Thickets, and go to Rut; and in theſe Months they have no certain Harbour or Food, but follow the Tract of the Hinds, as before noted, not regarding who ſeeth them, purſuing the Hinds with ſuch Rage and Heat of Luſt, that they never mind eating any thing, but what accidentally they meet with, which for the moſt part are Muſhrooms, which is a great Provocative to Venery: And they are in this Seaſon eaſie to be kill'd, were their Fleſh good and wholſome, as it is not.

Directions how to uſe the Blood-hound, *or* Suit-hound, *for the finding out or harbouring the Hart or Stag.*

THE next Thing to be treated of, ſhall be to find out the Hart or Stag, where his Harbour or Layre is; for the effecting of which, get up early in the Morning, and be ſure not to go with the Wind; for the Hart is very quick of Scent, and will make away upon the leaſt Fault; and if you go not betimes, Cattle will be let out, and ſtirring up and down, may chance to tread out the Slot where he hath paſs'd. You muſt be provided with a *Blood-hound*, *Draught-hound*, or *Suit-hound*, which muſt be led in a Liam, according as in the Plate is repreſented; and for the quickening his Scent, 'tis good to rub his Noſe with Vinegar.

When his Harbour, or Reſting-place, is found, and that you have lodged him, all things ought to be prepared for the Hunting him the next Morning: For in thoſe Months that he is in the Pride of his Greaſe, he retires from Feeding back to his Layre, about Sun-riſing; and for the moſt part, if not always, to one and the ſame Place, unleſs he meet with ſome notable Diſturbance in the Interim.

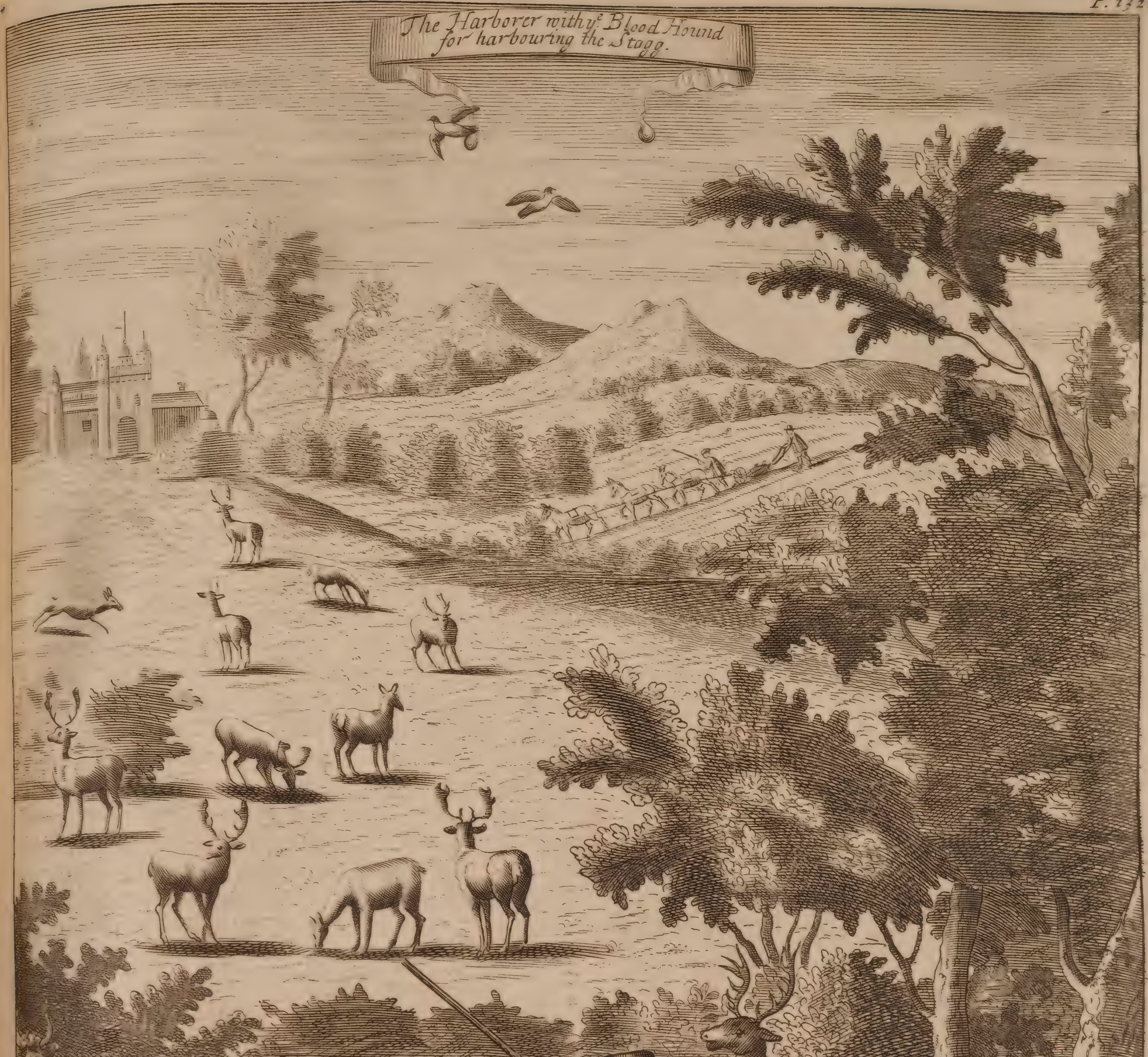
Harts do go to their Layre commonly in the Springs; and although they were drawn into ſome Strong-hold, or Thicket, yet if they be old crafty Deer, they will return ſometimes to the Sides of the Coppices, to kearken or ſpy if there be any thing to annoy them; and if they chance to vent the *Huntſman*, or his *Hound*, they will immediately diſlodge from thence, and go to ſome other Place.

When the *Huntſ-man* or *Harbinger* doth perceive that 'tis time to beat, let him put his *Hound* before him, and beat the Outſide of the Springs or Thickets; and if he find a Hart or Deer, let him ſee if the Slot be freſh or not, and he may alſo know by the Drawing of his *Hound*, although ſometimes one may be deceived by them, when the Miſt or Dew is great, which taketh off the Scent: But if the *Hound* ſtick well upon the Scent, then let him hold him ſhort, for fear leſt he Lapiſt, (that is open) for in the Morning a *Hound* will draw better when he is held ſhort, than if he were let at the Length of the Liam; and let him draw till he come to the Covert where he is, and, if poſſible, harbour him, marking all the Signs, as the Slot, his Entries, and the like, to know what manner of Deer he is.

Then let him plaſh, or bruiſe down ſome ſmall Twigs, ſome above, and ſome below, and whilſt his *Hound* is hot in the Purſuit, let him beat the Outſides, and mark his Ring-walks twice or thrice about the Wood, one while by the great and open Ways, that he may help himſelf by his Eye; another while through the Covert, for fear leſt the *Hound* ſhould over-ſhoot him; for he will have better Scent in the Covert, than in the High-ways. And if he find that the Deer be not gone out of the Ring-walk, or that he hath drawn amiſs, then let him go to his Marks, which he hath plaſh'd or bruis'd, and draw Counter, until he may take up the Fewmet, as well made in the Evening Relief, as in the Morning; and let the Place where he hath fed be mark'd.

If the *Huntſ-man* find two or three Places where he hath entred, and as many where he hath come out, in this caſe the freſheſt Entry muſt be taken notice of; for a Hart doth oft-times go in and out of his Harbour in the Night, eſpecially if he be an old crafty Deer, and will uſe great Subtilties, beating one Place to and fro divers times. In this caſe the *Huntſ-man* muſt take his Compaſs and Ring-walk the greater about the Covert, thereby to encompaſs all his Entries and Goings-out; and let him ſuffer his *Hound* to draw almoſt to the Hart's Layre, or Harbour, and being near it, then draw with more Care, checking your *Hound*, that he ſpends not when he comes ſo near, as to have him in the Wind; and having diſcover'd that you ought to draw him, retire ſome Diſtance back; and if you perceive him not diſturb'd, make your ſecond Round a little nearer, which will ſecure him in his Harbour; ſo that having broken a Bough, or plaſh'd ſome Twigs, as aforeſaid, for your Directions, leave him till the next Morning, when you intend your Chaſe.

For the finding out a Hart by the Eye in the Springs, obſerve over Night in what Part the Deer goes to feed; and if it be in a Spring, obſerve which Way to come in the Morning upon a clear Wind, and chuſe a Standing in ſome Tree on the Border of the Spring, from which all things may be diſcern'd that feed therein. In the Morning be at the Covert before Day, and being near the Deer's Harbour, leave your *Hound* with ſome one that goes with you, that you may quickly have him on Occaſion, and then get up the Tree to eſpy him, and there ſtay until he is gone to Harbour, obſerving well the Place where he entred; then deſcend the Tree, and fetch the *Hound*; but


The Harborer with ye Blood Hound
for harbouring the Stagg.

To the Right Worship: full Sr. Thomas
Bludworth of Leather: head in the County
of Surrey Kinght
This Plate is humbly dedicated by Ric Blome

but do not begin to harbour him for an Hour at leaſt after his going to Layre, for fear of his diſcovering you, and thereby you loſe him. And if in caſting about the Covert, any Pyes or Jayes make a Chattering, then withdraw and ſtand cloſe, for that is a Sign he is yet on Foot; ſo that ſtay about half an Hour before you make your Ring-walk.

Oft-times thoſe that are crafty, as being chaſed with *Hounds*, and eſcape, do afterwards betake themſelves for a long time to cloſe Thickets, and feed in ſmall Groves or Coppices, that have been lately fell'd, within large Coverts; and this they do moſt commonly in *May* and *June*, more than in any other Seaſon of the Year, by reaſon they go not much to the Water, but content themſelves with the Dew and Moiſture of the Earth; but in *July* and *Auguſt* the Drought and Heat is ſuch, that it forceth them out for Water, and when they go out, they retire into their Holds two or three Hours before Day.

For the finding out ſuch crafty Deer, obſerve this Method: When you find the Slot of a Hart in a thick Covert, that is two or three Days old, and that the Ground is broken with ſuch old Tracts, then caſt about, and beat all the Out-ſides; and if you find that he hath not gone out or in, then conclude he keepeth within. In ſuch caſe get under the Wind, and enter the Covert, holding your *Hound* ſhort, and if he hath any thing in the Wind, and that you find you are not far from the Hart, then withdraw, for fear of rouzing him, and go into the Covert at ſome other Side that is not ſo thick, and take up what Fewmiſhings you find; but go not into ſuch Places until about Nine of the Clock in the Morning, becauſe ſuch Harts do oft take Harbour within thoſe little Coppices to enjoy the Comfort of the Sun, and after Nine a Clock do withdraw to the ſhady Places. Nor muſt you be too over-haſty in entring the Thickets, becauſe that the Harts do ſometimes take Layre near thoſe privy Coppices: Therefore let it ſuffice to have ſeen the Slot freſh, and to have taken up the Fewmiſhing, and ſo retire as privately as you can.

The *Huntſman* or *Harbourer* muſt be ſtirring early to ſeek the Hart in ſuch Places, becauſe that they withdraw into their Coverts before Day, that they may not be diſturbed by Cattle or People, who oft-times break the Slot, and render it undiſcernible.

But to proceed to the Chaſe of the Hart: The *Horſeman*, *Huntſman* and *Hounds*, being all ready prepar'd in the Field by Day-break, having their *Harbinger*, *Blood-hound* or *Draught-hound* in Readineſs, they begin the Chaſe.

The Chaſe of the Hart or Stag, and firſt the Unharbouring him.

THE *Huntſmen* muſt diſperſe themſelves about the Sides of the Wood, according to the beſt Advantage, to eſpy if it be a Deer, according to the *Harbinger*'s Deſcription, and when he breaks Covert, to give notice thereof to the Company, by blowing a *Recheat*; and if the *Hounds* run Riot (that is, chaſe ſome Raſcally Deer,) then they muſt be rated; that is, ſtop them by Words of Correction, or the like.

But your *Hounds* ſhould not all be uncoupled, until the Hart is unharbour'd by the *Harbourer*, and caſt off the *Staunch-Hounds* firſt, which having undertaken the Chaſe, caſt off the reſt; and the *Hounds* being in full Cry, the *Horſemen* ſhould ſecond and encourage them with Voice and Horn, as aforeſaid, to the end the whole Field may know how, and where the Game goeth. But now-a-days few hunt the Hart as they ought; for they give not their *Hounds* Leiſure to hunt; ſo that it is more properly to be ſaid the Horſes hunt, than the *Hounds*; and there is ſo many on Horſe-back, that can neither blow, hollow, or do any thing belonging to *Hunting* as they ought, and which mingle themſelves amongſt the *Hounds*, croſſing them, and breaking their Courſe, that it is impoſſible for *Hounds* to hunt true.

As ſoon as you can get Sight of the Deer, to ſee if it was the ſame that was unharboured, or a freſh one, (for by his Subtilties, if poſſible, he will put ſuch a Sham upon the *Hounds*;) if it be a freſh one, then rate them back, and bring them to the Default.

The *Horſemen* ought all along to ſecond and encourage the *Hounds*, and to keep them to hunt cloſe, aſſiſting them at every Default, if they have either loſt the Slot, or follow not the right. They muſt alſo be careful to watch his Windings and Doublings; for when he finds himſelf cloſely purſued, he will uſe many Shifts and Endeavours to give them the Change, to preſerve himſelf: And being put to his laſt Extremity, it is almoſt incredible to believe what ſtrange Contrivances he will uſe to ſhun the Fury of his purſuing Enemies; for ſometimes he will hide himſelf cloſe to the Earth, permitting the *Dogs* to come up to him, whilſt in the mean time he puts his Feet cloſe under his Belly, and draws his Breath cloſe by the freſh Earth, Nature having taught him to know that the Scent of his Feet and his Breath are the chief Diſcoverers of his Doublings and Changes. Sometimes when he is cloſe hunted, he will run from Covert to Covert, to find out ſome others, and put himſelf in their Company. If he find himſelf not ſafe, he will directly return by his firſt Path, to break his Traces, and then ſhoot out into ſome great Road or High-way, the light Duſt keeping neither Scent nor Impreſſion; and in ſuch caſe the *Huntſmen*, both Horſe and Foot, muſt be diligent to look about, to encourage the *Hounds*, and to ſearch for his Slot, and to bring up the *Dogs* in freſh Cry. Sometimes the Stag, being cloſe hunted, will run with the Wind, thereby to leave no Scent of his Breath, and but little of his Feet behind him. Some Harts, when they are hunted, will on a ſudden make themſelves as if quite tired, and caſt themſelves on the Ground, until the *Hounds* are within Twelve-ſcore of them, and then they will ſtart up, and run more nimble than before, truſting in their Force. Sometimes he will take Soil, that is, the Water, covering himſelf all under it, except his Noſe; ſometimes ſwim down the Stream, and ſometimes croſs the River. In ſuch caſe the *Huntſmen* muſt have a ſpecial Regard to the old *Staunch-Hounds*, who will hunt leiſurely and carefully, whereas the young ones will over-ſhoot their Game. In all theſe Accidents the *Horſemen* and *Huntſmen* muſt be diligent to look out and cheriſh the *Hounds*, blowing them a *Recheat*.

The Stag may better be diſcover'd at a Diſtance, when he is ſpent, than when he is nigh and hollow'd at; for when he ſeeth no Man, he beareth down his Head, which denoteth his Wearineſs; whereas when he ſeeth any one, he raiſeth up his Head, that they ſhould think him ſtrong, ſtout and not tired.

When he is towards his Fall, the *Hounds* will hold in cloſe together, and come on ſtrongly, by reaſon that when he is almoſt emboſs'd, he caſts out of his Mouth a white Froth or Slaver, which is very ſweet and delightful to the *Hounds*. Beſides, the Sweat of his Body running down his Legs, leaves a ſtrong Scent on the Ground, which is a ſure Sign to the *Dogs* that he is ſinking. And hence it is that they are always ſo luſty and jocund towards the End of the Chaſe.

If the Hart takes into any dry Champion-Ground, and that 'tis very hot, and little or no Wind ſtirring, ſo that there is no Scent to be had, and that the *Hounds* are almoſt ſpent for want of Breath, and thro' Extremity of Labour give out; in ſuch caſe the *Huntſman* muſt blemiſh in the laſt Slot, and caſt off the *Dogs* to ſome convenient Place, to refreſh them with Bread and Water, until the Heat be paſt, and then return back to the ſame Blemiſh, putting the *Blood-hound* on it, and draw before the *Hounds*, until they have found the Hart again, and ſo follow the Chaſe as before.

The Stags taking Soil.

WHen he is quite ſpent, one of his laſt Succours is to take Soil, and when he once deſcends, he ſwims down Stream to leave no Scent behind him, and keeps in the Middle, for fear of touching the Boughs, or other Things that hang in the Water. In this caſe the *Huntſmen* muſt have an Eye to the Blemiſhes where firſt he took Soil; for 'tis eaſie to diſcover by the Breaking of the Water, that is, the Place where he took Soil, and there you may ſoon perceive which Way he makes head by the breaking down the Graſs and Weeds, better than by the Slot, which at the firſt forſaking of the Soil is generally ſpoil'd and defaced by the Water that runs down his Legs. Sometimes he will not only deſcend, but continue in the Soil, hiding himſelf all, except the Tip of the Noſe, as before taken notice of; and peradventure at a Time, and in ſuch a Place, when and where you are unwilling to hazard your *Dogs*. In ſuch Caſe procure a Boat, or elſe ſome of the *Huntſmen* muſt unſtrip, and ſee to wound him with a Sword, or elſe to throw over a Rope about his Horns to nooſe him. But this is a deſperate Attempt, and he had need be ſure that the Hart is out of his Reach of Ground, otherwiſe he will endanger his Life, or Spoiling. Nor is the leſs Skill required at the laſt, when he is ſpent, and the Dogs are at Bay on Land, for then he endangers Horſe and Man: You muſt therefore wiſely go to work, for the chief glory in a Victory is to be without Loſs or Hurt.

The Hart or Stag at Bay.

AS to the Land Bay, if the Hart be frayed, and burniſhed, then the Place is well to be conſidered of; for if it be in a Hedge ſide, or Thicket, then whilſt he is ſtaring on the *Hounds*, you may come covertly amongſt the Buſhes behind him, and ſo kill him; but if you miſs, and he turn Head upon you, it is convenient to take Refuge behind ſome Tree; or when he is at Bay, Couple up your *Hounds*; and when you ſee him turn Head to fly, Gallop in roundly and kill him with your Sword or Gun, before he can have time to turn Head upon you; But if he be at Bay in a plain and open Place, where there is no Wood, Tree nor Covert, 'tis dangerous and difficult to come to him.

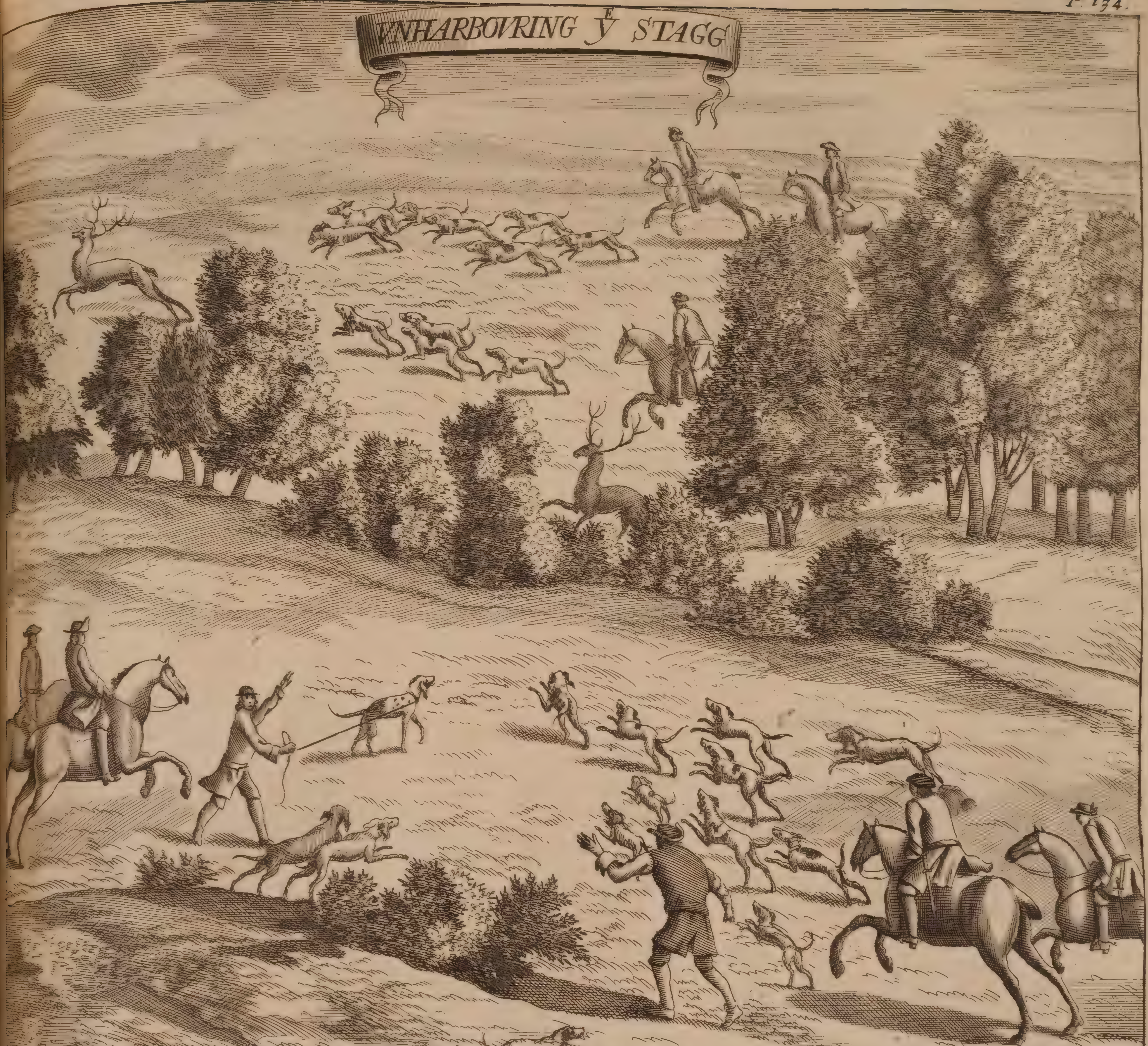
The Death of the Stag, with the Ceremonies to be obſerved therein.

HE that gives the falling Blow, ought of Right to ſound the Recheat, to aſſemble together the reſt of the Company, as alſo the *Dogs*; alſo at the Death of a Stag, there are ſeveral Ceremonies that ſhould be obſerved.

When the Huntſmen come in to the Death of the Hart, they ſhould cry Ware Haunch, that the *Hounds* may not break in to the Deer, which being ſecured, the next Buſineſs is to cut his Throat, and to Reward the young *Hounds* with the Blood, to make them in love with a Deer, and learn to keep at the Throat; then having ſounded the Mot, or Morts, he that is to break him up (that is, to *Take Say*,) firſt ſlits the Skin from the cutting of the Throat downwards, making the Arber, ſo that the Ordure may not break forth; then he is to be Paunched, and the *Hounds* to be rewarded therewith. Another Ceremony is, the Huntſman preſents the Perſon that took the Eſſay with a drawn Hanger, to have a Chop at his Head, and after him, every one hath a Chop if it is not cut off; and generally the Huntſman, or Keeper is provided with ſuch a Hanger, that is not over ſharp, that there may be the more Chops for the gaining more Fees, every one giving him a Shilling at leaſt: Which done, the Huntſman takes up the Head, and ſhews it to the *Hounds* for their Encouragement, rewarding the Young Ones with the Blood. And the concluding Ceremony is to blow a Treble Mot by one, and then a whole Recheat in Conſort by all that have Horns Bare-headed, with a general Ho-up: Upon which they depart Home; the Hart is carried away in a Cart, together with the Head, and the *Hounds* coupled up, and carried Home by the Keeper.

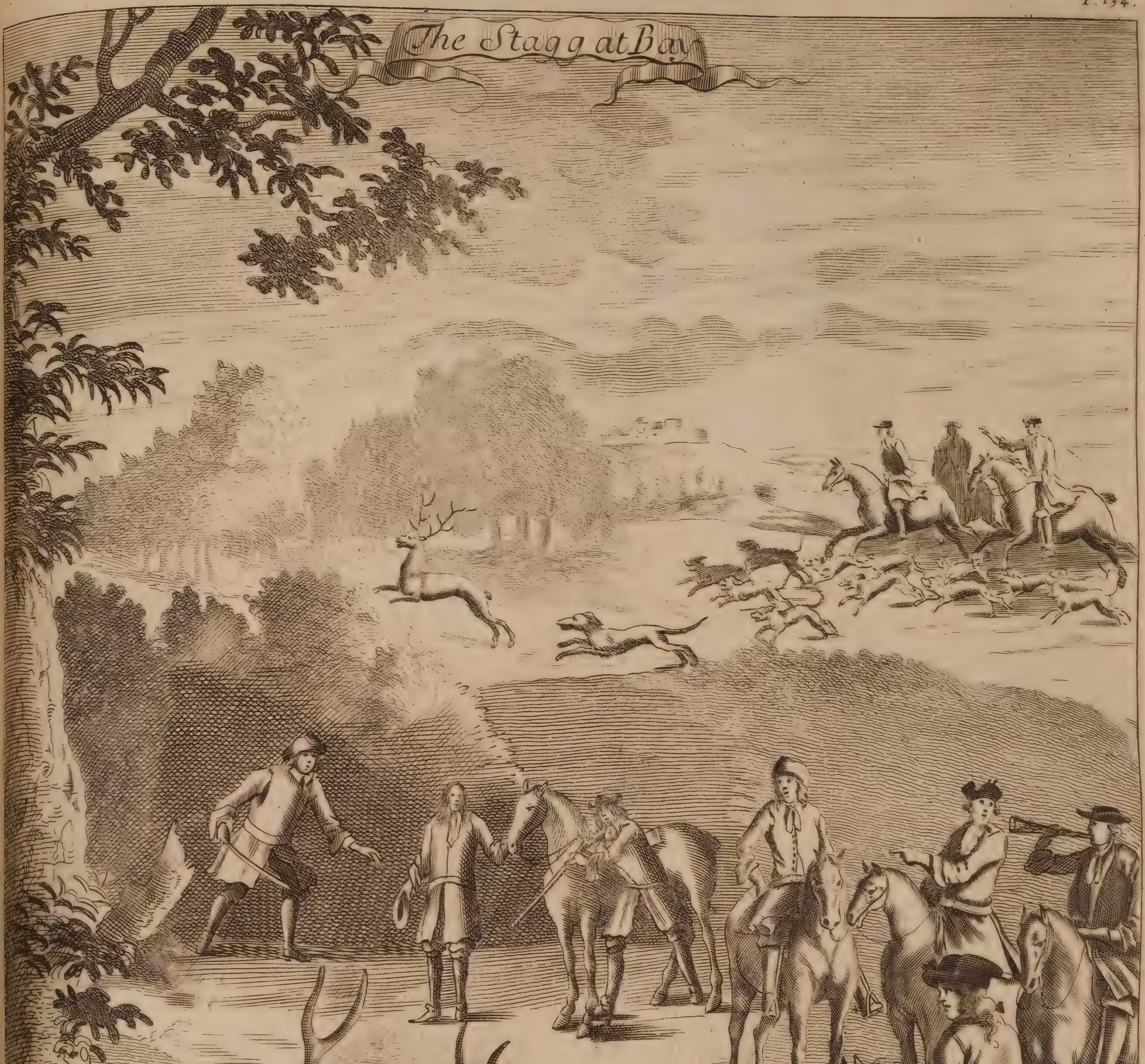
And you muſt obſerve that the *Blood-hound* muſt be firſt Rewarded, for that Honour belongs to him; and when he hath done, then reward the reſt, eſpecially the Young; and as near as you can let your Rewards be given them Hot, which is much better than Cold, which is the ill Cuſtom of many Huntſmen.

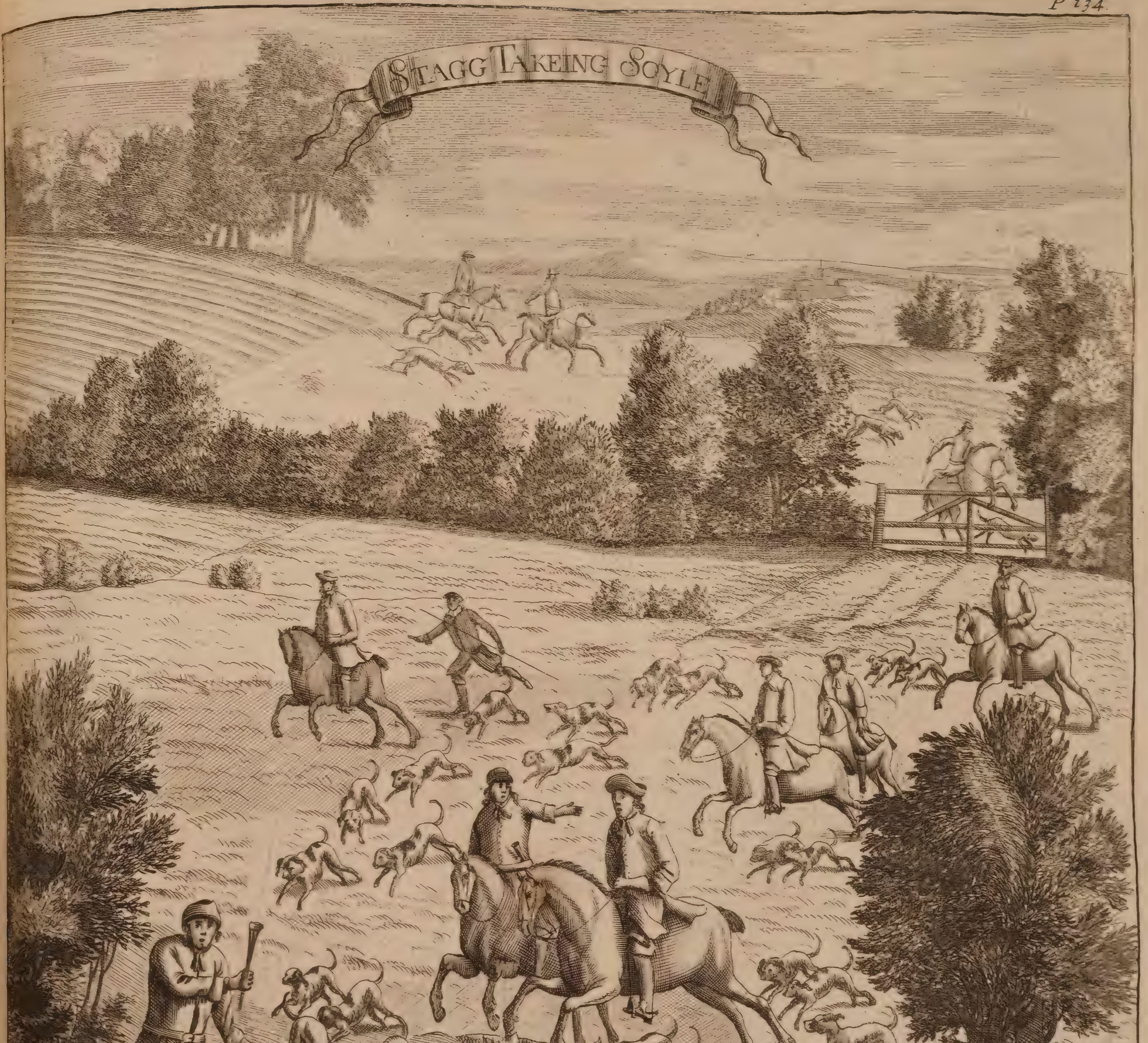
But it happeneth very often, that through ſome Accident or other the Hart eſcapeth; now for the recovering the Chaſe the next Day, let there be ſome Marks ſet, where the Chaſe is left off; and go to that Place with your *Blood-hound*, together with the Kennel of *Hounds* behind them, and let him that hath the beſt *Hound*, and moſt tender Noſed, undertake to draw endways in the Tracts and Ways that the Hart moſt probably went (for they do moſt commonly run endways, as far as they have force) and then if they find any Water or Soil, they continue ſometimes therein, which doth ſo ſtiffen their Joints at their coming out, that they can't go far, nor ſtand up long; ſo that they are conſtrained to take Harbour in any Place they can find, that is Covert where they may feed as they lie, and let ſome others draw to you out of the Coverts, by the moſt com-


VNHARBOVRING yᴱ STAGG

To the Worshipfull Henry
Wallop of Farligh in
the County of Southampton Esqr
This plate is humbly dedicated by Richard Blome.

EN SUIVANT LA VERITE


The Stagg at Bay


Stagg Takeing Soyle

To the Right Honourable George
Lord Nevill, Baron of Bergevenny &c.

This Plate is Humbly Dedicated by Richar. Blom.

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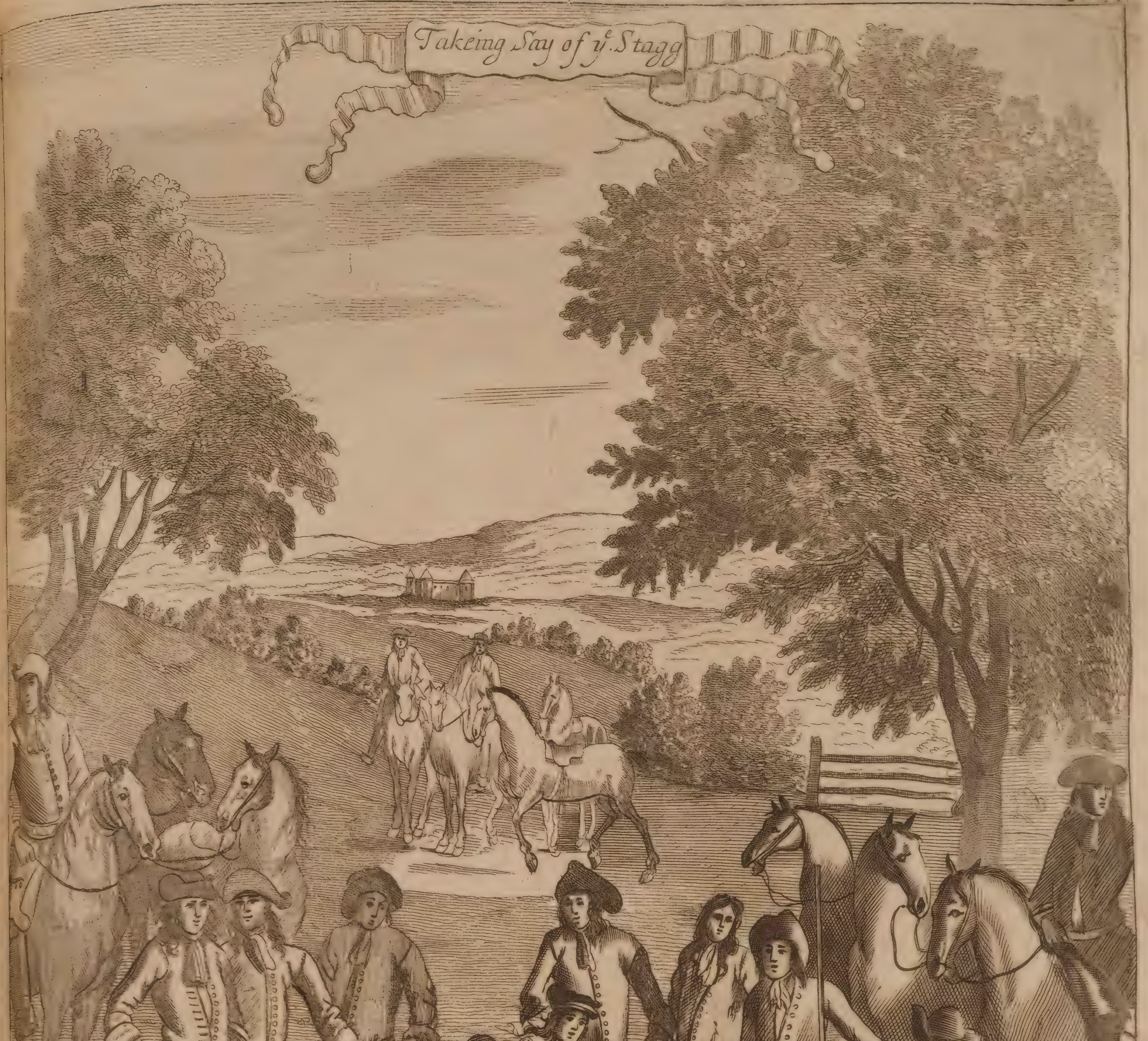
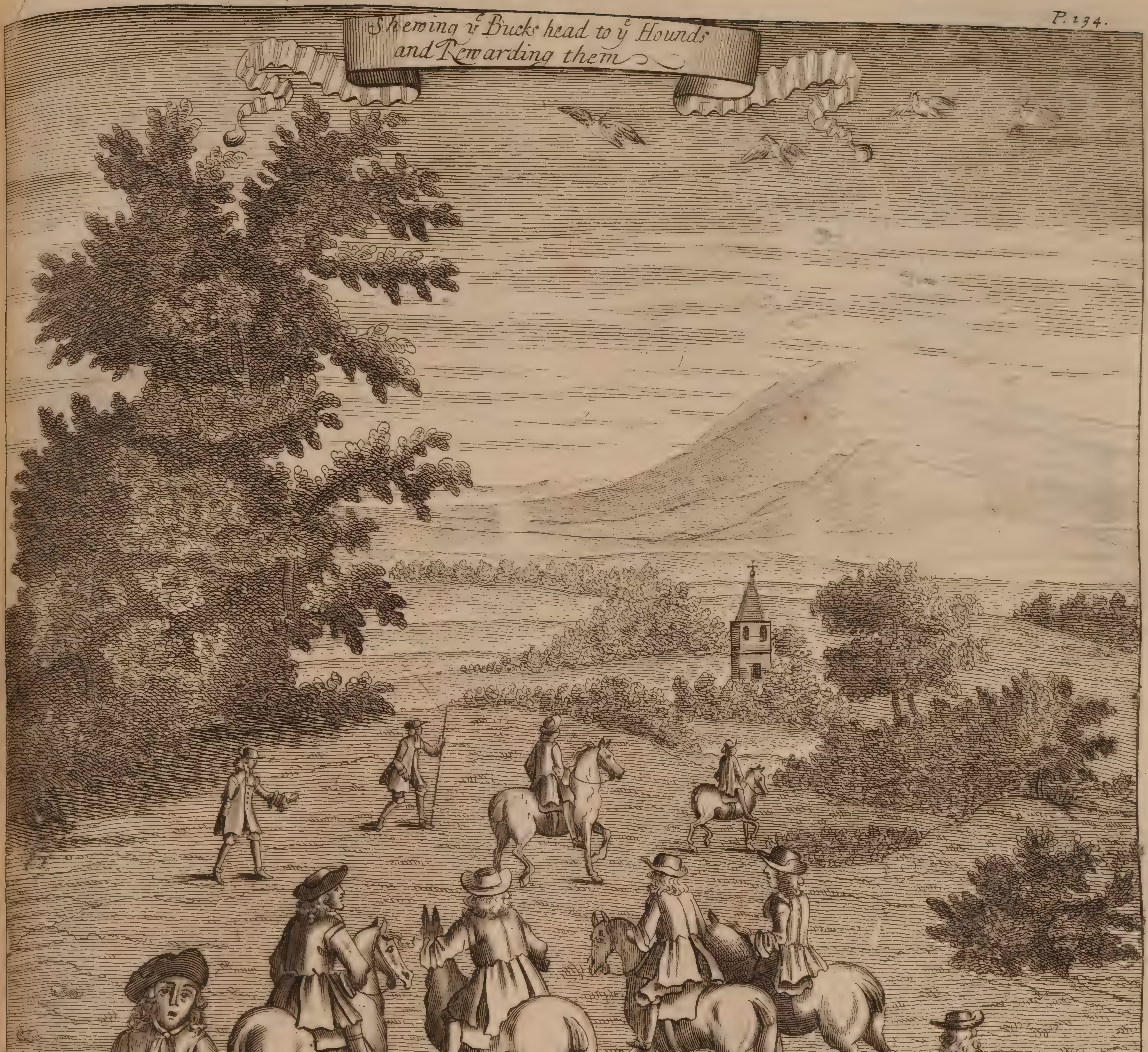

Takeing Say of ye Stagg

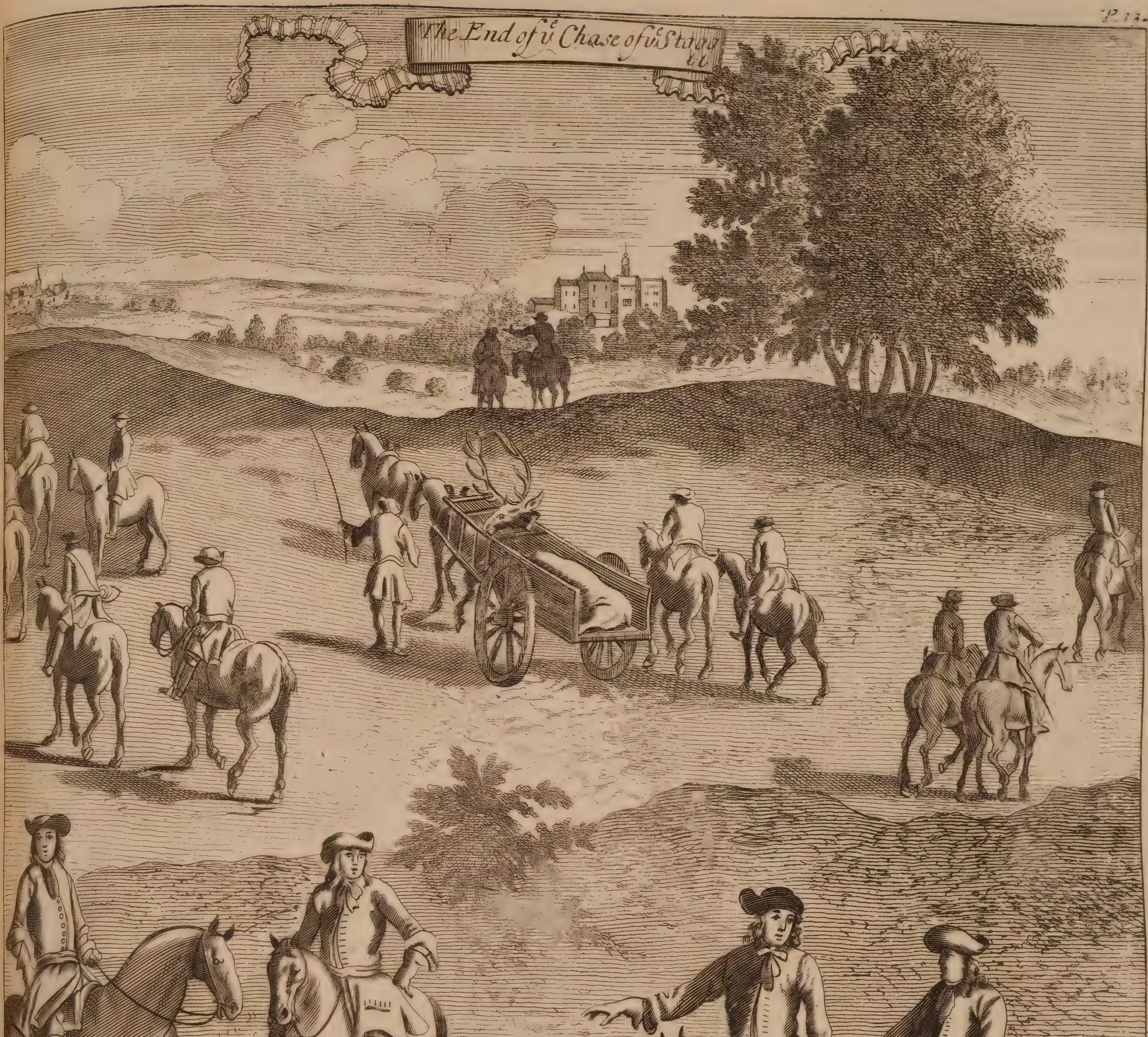
To the Rt Honble James Lord Bertie Earle of
Abington, Baron Norris of Rycot, Lord
Leiutenant of Oxford ſhire, &cw
This Plate is humbly, dedicated by Richard. Blome.


Shewing ye Bucks head to ye Hounds and Rewarding them

GANG WARRILY

To the Right Honourable Iames Earle of Perth, Lord Drummond & Stobhall, Stewart of Strathern & Baluhidder by Inheritance: Lord Iustice Generall of the Kingdome of Scotland, one of the Extraordinary Lords of the Seſsion, Anno Domin̄ 1682. & now Lord High Chancellor of ye. said Kingdome of Scotland &c.

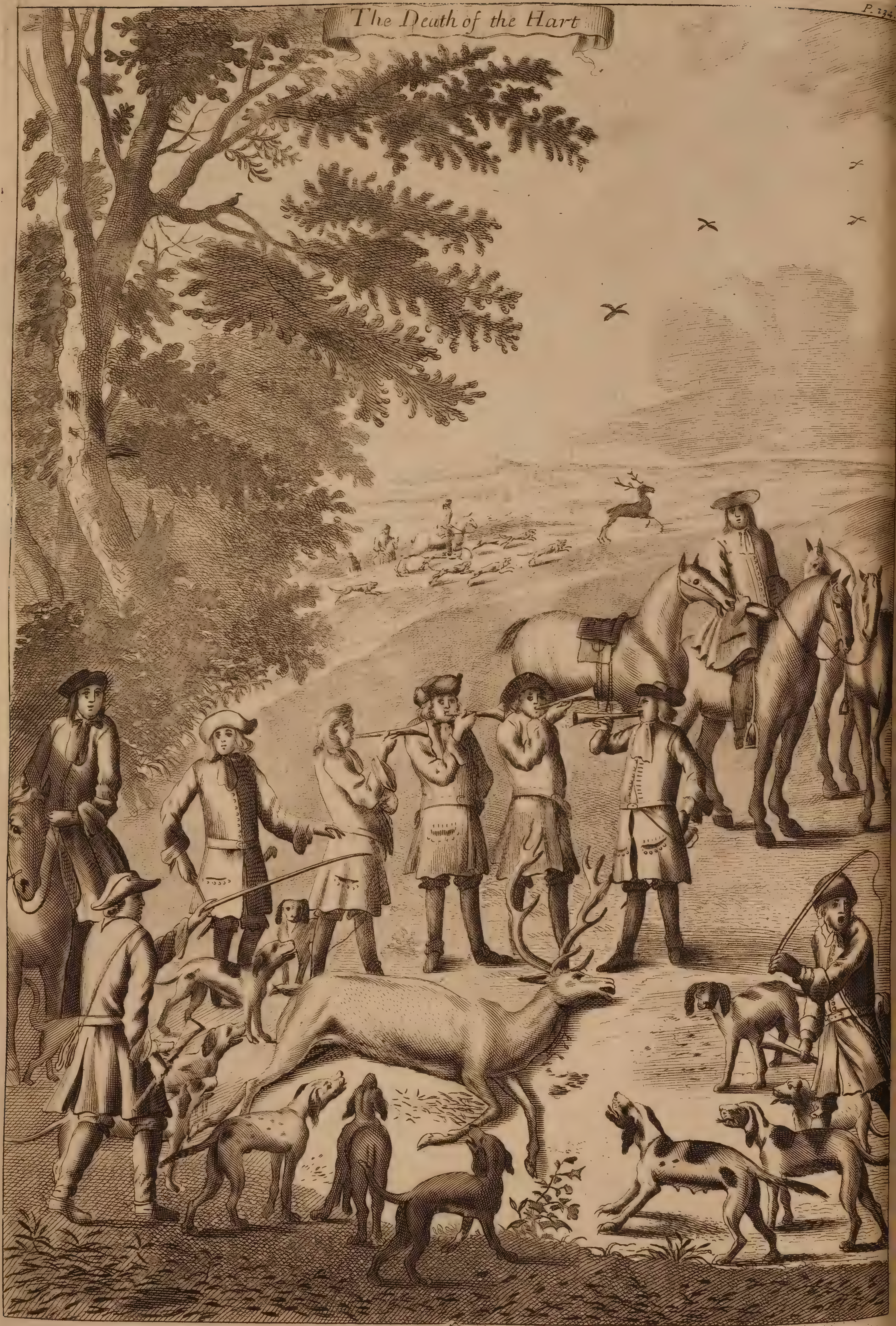
This Plate is humbly dedicated by Richard Blome.



The End of y^{e} Chase of y^{e} Stagg

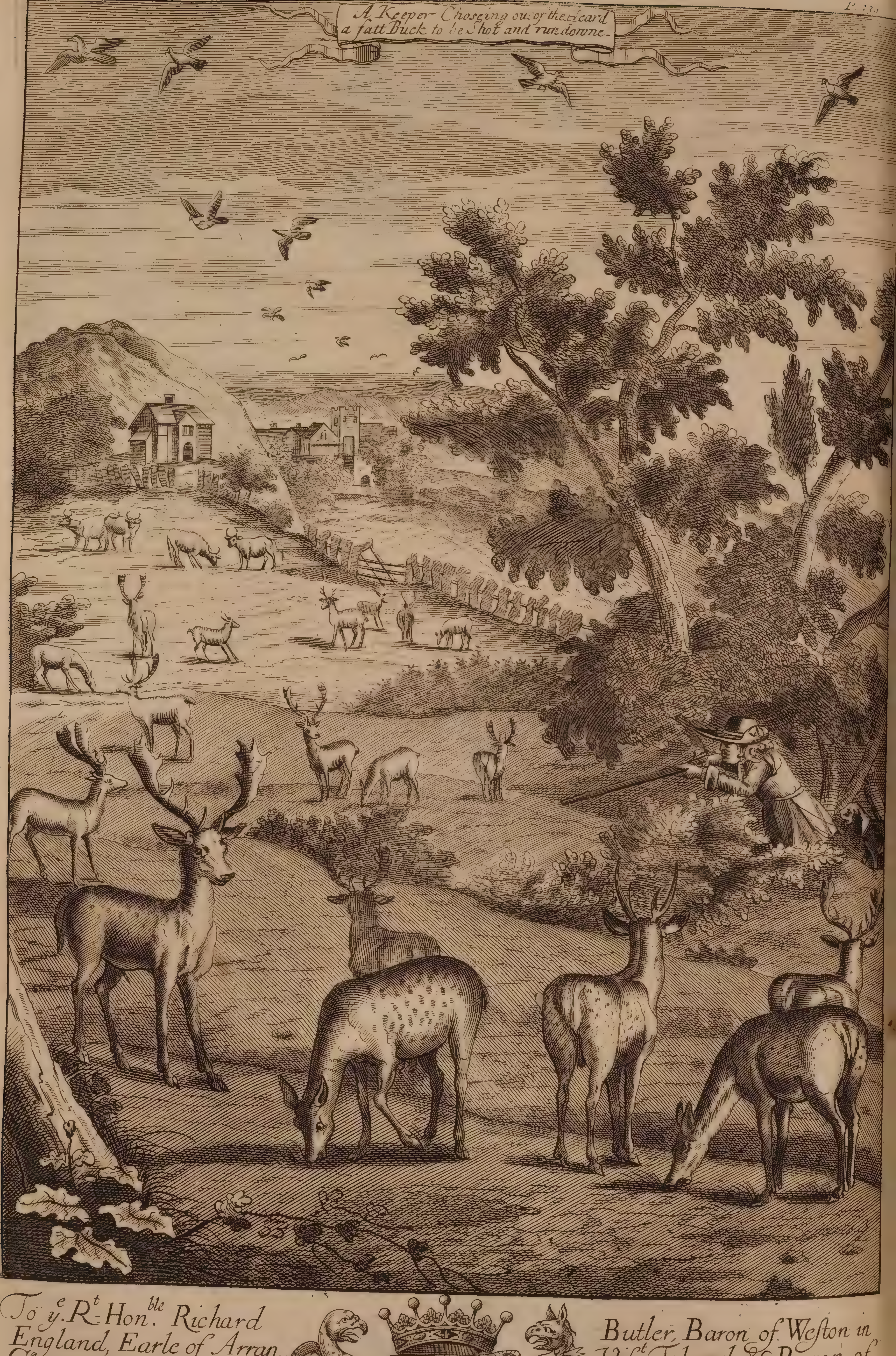
To the Honourable Sr Arthur Rawdon
of Rawdon Hall in the West Rideing of
York Shire — Baronet.

This Plate is humbly dedicated by Richard Blome.


The Death of the Hart

To ye Rt Noble Henry Duke of Beaufort, Marqueſs & Earle
of Worceſter, Baron Herbert of Chipstow, Raglan, & Gower; Ld
President, & Ld Leiwtenant of Wales, & ye Marches; Ld Leiwtenant
of ye Counties of Glocester, Hereford, & Monmouth, & of ye Citty & County of
Bristoll; Ld Warden of his Maitys forest of Dean, & Conſtable of ye Caſtle
of St Briavells, Kt of ye Garter, Gent of his Matys Bedchamber, & one of ye Lds of his
Majtys most Honble Privy Councell &ct
This Plate is humbly dedicated by R. Blome.

Soly fecit



A Keeper Choseing out of the Heard
a fatt Buck to be Shot and run downe.

To y^{e} R^{t} Honble Richard Butler, Baron of Weston in
England, Earle of Arran, Vis^{t} Tolough & Baron of
Clougrenan in Ireland, 2^{d} Son to his Grace James
Duke of Ormond, & one of ye Lords of his Ma^{tys}
most Honourable Privy Councell for Ireland &^{ct}

This Plate is humbly dedicated by Ric. Blome commodious Places for them to Mark, and for the *Hounds* to vent in; and if any chance to find where any hath leapt, or gone, he ſhall put the *Hound* to it, Hooping twice, or blowing two Mots with his Horn, to call in his Company, and the reſt of the Kennel to come in; and if it be the Hart which they ſeek, let the beſt *Hound* be put thereunto, and let the Company ſeparate themſelves, and go ſeveral ways to the outſides of the Covert, and if they find where he hath gone into ſome likely Covert or Grove, then let the *Hounds* be drawn near unto them, and beat croſs through it; and if they renew their Slot, they muſt conſider whether it be right or not; and if he that draweth perceiveth it to be right, let him blow two Mots, to call in the Company; and if he chance to find five or ſix Layres one after another together, do not take it for a Herd of Deer as many think; for when a Hart hath been long run and ſpent, he will make many Layres together, becauſe he can't well ſtand up to Feed, but Feeds lying.

For the Hunting the Hart or Stag, I ſhall not deſcend to every Particular; for 'tis an Exerciſe that requires both your Wit, Patience, and Policy, with relation to the Variations of the Ground, Situations, Woods, Rivers, and an hundred more Accidents that may intervene; this Chaſe ſeldom or never being after one and the ſame manner, but different according to the Weather, the Condition of the *Dogs*, and Strength of the Hart, with many other Conſiderations that require your Skill, or elſe you may chance to loſe the Hart by Default, which amongſt Woodmen is a Diſgrace. He ſhould be therefore wiſe and bold, good at both fore and after Game; neither ought to be diſcouraged at every little Inconveniency; for being put off from his Chaſe through any Accident of violent Storm, the Night's Approach, or the like, he ought to Blemiſh on the laſt View or Slot, and to it again in the Morning with the *Draught* or *Blood-hound*, as before directed, and fear not Succeſs; for 'tis the Nature of the Hart, when he is cloſe run and almoſt ſpent, to make forth on Head, and to deſcend at the firſt Soil, to cool and refreſh himſelf, where he uſeth to continue (if not purſued) ſo long, that his Limbs become ſtiff, and almoſt diſabled from running, and therefore he betakes himſelf to the next ſhelter he meets with, and conſequently becomes an eaſie Chaſe the next Morning, if the Huntſmen underſtand their Buſineſs, and follow the aforeſaid Inſtructions.

The Profits and Advantages of the Stag.

I Shall conclude this Chapter of the Princely Hart, with letting you know the Profits and Advantages, which are generally reputed to accompany this goodly Creature; and firſt for his Skin, which being dreſs'd is excellent for Coats, Belts, Gloves, and the like. His Fleſh ſurpaſſeth all other Veniſon, if in the pride of his Greaſe; otherwiſe it is reputed hard, dry, and melancholy: The Calfs and Hinds are eſteemed better Food than the Harts. The Marrow and Suet are excellent for all ſuch Ointments, Plaiſters and Cataplaſms, as are deſign'd for cold Gouts and hard Tumours. The Horns are ſaid to be Antidotes againſt Poyſon, being little inferiour to thoſe of the Unicorn, if there be any ſuch Beaſt; they are great Reſtoratives, and an excellent Cordial in Fevers and all Peſtilential Diſeaſes; and of Harts-horn there is made a moſt excellent Jelly, which is eſteemed veay good for Elderly Men, eſpecially if married to young Buxſom Women: The Horns of a young Hart, whilſt they are tender, being cut into little pieces, and put into an Earthen Pot with ſome Pepper and Myrrh, and ſo ſet into an Oven until they be dry (the Pot being cloſe ſtopt) makes a ſingular Powder for the Cholick, being mixt with Wine, and ſo drank.

The next is the Blood, which hath many excellent Virtues for all kind of Fluxes aud Poyſons; beſides, it is effectually good to make the Skin ſmooth, and clear from all Roughneſs and Spots; and that makes ſo many Gentlemen waſh their Hands and Faces in the Blood of the Stag after it is newly opened, being hot.

In the Heart is found a Bone, no way inferior to the *Bezoar*, being good againſt all Swoundings, Faintings, Tremblings, and other Symptoms which affect the Heart and Brain; and is approved to be moſt excellent for Women in Labour, even beyond that of the *Eagle*.

In the laſt place, his Pizzle, or Genital Member waſht in Water, and that Water being drunk doth immediately eaſe and cure the Cholick, ſtoppage of the Urine, and ſeveral Maladies incident to the Reins, Kidneys and Ureters: It is a notable *Aphrodiſial*, and uſed for that purpoſe. 'Tis alſo moſt excellent for all manner of Fluxes, for the Pluriſie, and Bitings of Venemous Creatures.

I ſhall not deſcend to give you Inſtructions, for the applying the aforeſaid Parts of the Stag to uſe, it being a Diſcourſe not ſo proper for the Subject in hand; but refer you to Books of Phyſick.

CHAP. VII.

Buck Hunting.

HAving ſaid ſo much of the Hart or Stag, as to his Nature, and the ways of Hunting him, there will remain ſo much the leſs touching the Buck, and the Rules for taking him, ſeeing that he that can hunt a Stag or Hart well, can't hunt a Buck ill; Beſides Fallow-Deer being common amongſt us, and thoſe uſually in Parks and Encloſures of divers Scituations, and ſeveral Statures different from one another, 'tis a hard Task to give Inſtructions for every particular; for in truth it is the proper Art of the reſpective Keeper of thoſe Parks or Places, to underſtand the Nature and Craft of his Deer in Hunting; all which are to be acquired by Experience more than Reading, yet the Theorick is very good for the better attaining the Practick; however I ſhall in brief tell you what relates to Buck-hunting, as now a days uſed.

The great Skill required in hunting the Buck is to keep the *Hounds* from hunting Counter, or Change, in regard of the plenty of Fallow-Deer, which are uſually in the ſame Ground; nor is there required that Skill in Lodging a Buck, as Harbouring a Stag; neither need you draw ſo much after a Buck, but you may judge by the View, and obſerve what Grove or Coppice he enters; for he will not wander up and down as the Hart, nor change his Layre ſo oft, neither uſe ſo many Croſſings, Doublings, Shifts and Devices; nor doth he flee ſo far before the *Hounds*, but avoideth the Highways and open Plains, as much as he can: He is not ſo crafty and ſtrong to beat a River, or to ſtay ſo long at Soil; neither are they ſo free to take a great River, but being cloſe hunted, they flee into ſuch ſtrong Coverts as they are accuſtomed unto; and it hath been obſerved, that ſome Bucks that have leaped over a Park-Pale, after a Ring or two, have returned of themſelves, chooſing rather to die where they are acquainted, than in a ſtrange Place.

The Buck leapeth lighter at the Rut, than the Stag; and groaneth as the Hart belloweth, but with a worſe noiſe, and rattling in the Throat.

The Buck and Hart are not at Amity together, ſhunning each other's Layres; and being of a ſweeter Scent, are more coveted by the *Hounds*.

The Does begin to Fawn about the end of *May*, and continue till *Midſummer*.

The Bucks mew or ſhed their Horns, or Heads, every Year, about or in *April*, and part of *May*; and their new Ones are burniſht about the end of *Auguſt*.

The Buck makes his Fewmiſhing in divers manners and forms, as the Hart, according to the diverſity of Food, and the time of the Day, Morning and Evening; but moſt commonly they are round.

The Buck comes in ſeaſon the Eighth of *July*, and goes out at *Holy-Rood*, which is the Fourteenth of *September*.

The Doe comes in ſeaſon when the Buck goes out, and goeth out at *Twelve-Tide*.

As to this delightful Sport of Buck-hunting, the ſame *Hounds* are uſed which run the Stag. In Foreſts and Chaſes, as they lie at Layre, ſo they are hunted.

In Parks where they are incloſed, the Sport is not ſo good, by reaſon of the greater Change and Foyl, unleſs they break out and run the Country, which they ſeldom do: But Deer that lie out, though near the Park, make generally better Chaſes than Foreſt Deer.

The Keeper Shooting a Buck to be Run down.

FOR facilitating the Chaſe, the Keeper commonly ſelects a fat Buck out of the Herd, which he Shoots to Maim him; and then he is Run down by the *Hounds*.

As to the Way of hunting them, the Company uſually goes out very Early for the benefit of the Morning; ſometimes they have a Deer ready Lodged, if not, the Coverts are drawn until one is rouzed; or ſometimes in a Park a Deer is pitched upon, and forced from the Herd, then more *Hounds* are laid on to run the Chaſe; if you come to be at a Fault, the Old Staunch *Hounds* are only to be relied upon until you recover him again; if he be Sunk, and the *Hounds* thruſt him up, 'tis called an *Imprime*, and the Company all ſound a Recheat; when he is Run down, every one ſtrives to get in, to prevent his being torn with the *Hounds*. Fallow-Deer ſeldom or never ſtanding at Bay.

He that firſt gets in, cries Hoo-up, to give Notice that he is down, and blows a Death. When the Company are all come in, they Paunch him and Reward the *Hounds*; and generally the chief Perſon of Quality amongſt them *Takes Say*; that is, cuts his Belly open, to ſee how Fat he is: This done, every one hath a Chop at his Neck, and the Head being cut off is ſhewed to the *Hounds*, to encourage them to run only at Male Deer, which they ſee by the Horns, and alſo to teach them to bite only at the Head: Then the Company all ſtanding in a Ring, one Blows a *Single Death*; which done, all Blow a double Recheat, and ſo conclude the Chaſe with a general Hallow of Hoo-up, and depart the Field to their ſeveral Homes, or to the place of Meeting; and the Huntſman, or ſome other, hath the Deer caſt croſs the Buttocks of his Horſe, and ſo carrieth him Home.

CHAP. VIII.

Hunting the Roe-Buck *and* Doe.

THE Roe, is a Deer well known in *Germany* in the *Helvetial Alps*, and in divers Parts of *Africa*, where there is Plenty of them, altho' not ſo amongſt us.

This Beaſt is ſaid to be of an exceeding quick ſight: They differ not much from the common Deer but in their Horns, which are ſet with ſix or ſeven Branches, not Palmed, but Branchy, and ſhorter than the Fallow-Deer: And whereas the Horns of others are hollow towards the Root, whereunto entreth a certain long Subſtance, the Horns of theſe, as alſo of the Fallow Deer and the Elk are ſolid, yet full of Pores. They much frequent the Mountains and Rocky Places, and are very ſwift of Foot; and when they take Soil ſwim ſtoutly, like the Hart.

In *October* they go to Rut, or to their Tourn, and continue therein about fifteen Days, and never accompany with any other beſides his own Doe; nor do they part until ſhe is ready to Fawn, and then ſhe withdraws a good diſtance, where he can't find her, it being his nature to kill the Young Ones.

The Doe generally brings forth Two, which commonly prove Buck and Doe, and ſhe keeps them out of the Buck's ſight until they are fit to ſhift for themſelves; and thoſe two being bred up together, do ſeldom part.

The Fawn the Firſt Year is called a Kid; the Second, a Girle; the Third, a Hemuſe; the Fourth, a Roe-Buck of the firſt Head, and the Fifth, a Roe-Buck.

As ſoon as the Buck comes from his Tourn he Caſts his Horns, and few of them after Two Years Old fail to Mew about *Alhallontide*: Their Heads quickly grow out again, for that in *March* they Fray them. The Buck is always in Seaſon (except in Rutting-time) but never very Fat.

You ſhould be careful of hunting the Doe while ſhe is big with Young, or indeed ſo long until her Young are fit to live without her, there being a Mercy and Compaſſion due to all Beaſts; beſides their and our Creator hath inhibited the Seething of a Kid in the Dam's Milk, whereby all ſuch Cruelty is ſuppoſed to be forbidden, which Nature abhors.

They make an exceeding good Chaſe, hold out long, and flee far Endways; they covet to run againſt the Wind for coolneſs of the Air; and therefore thoſe that hunt them, uſe to place the *Hounds* with the Wind. They are moſt eaſily taken in the Woods, the Mountains, and Rocky Places being

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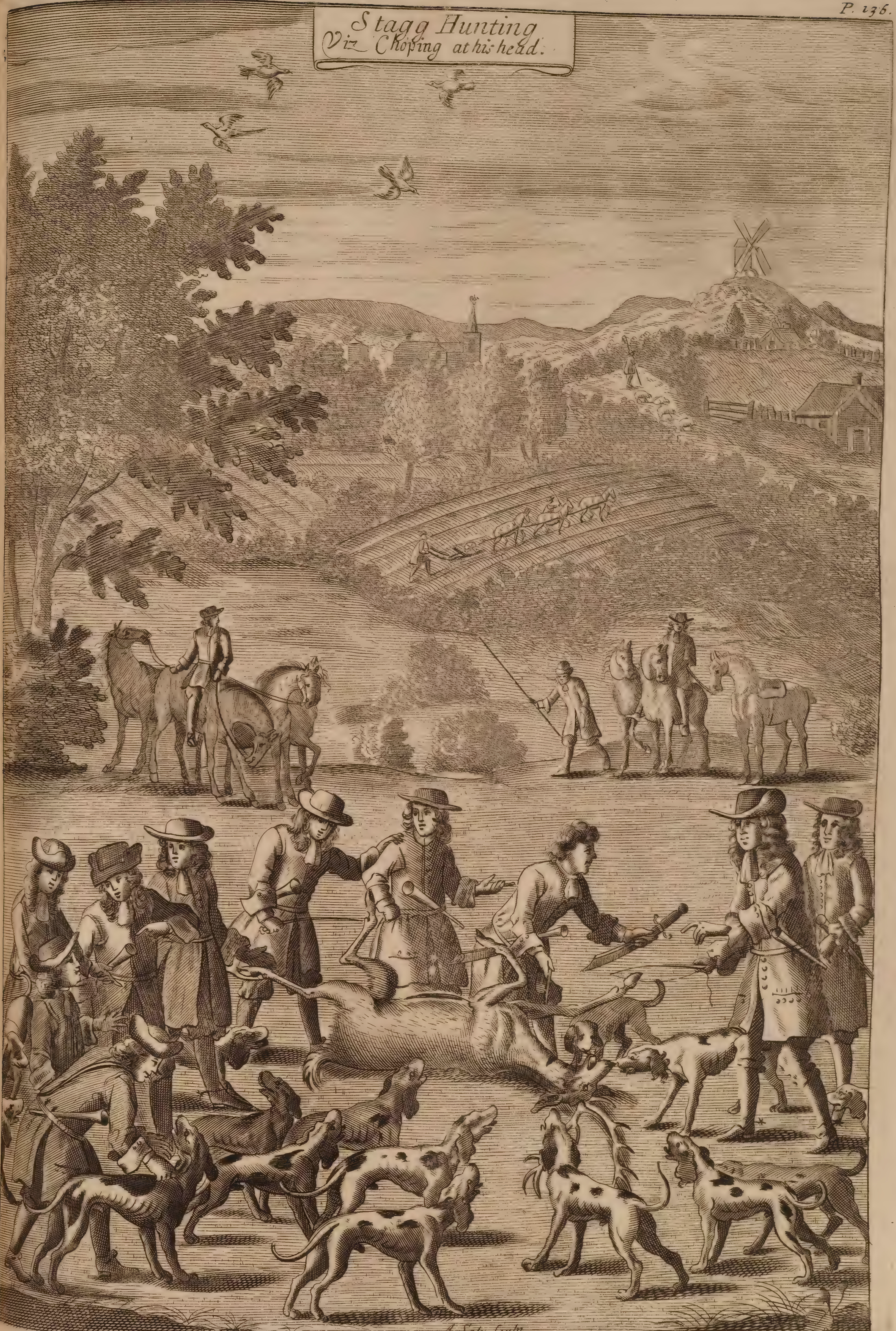

Stagg Hunting
Viz Choping at his head.
A Soly ſculp.

their ſafeſt Holds. They are hardly known by their Feet or Fewmets; being hunted they take their firſt Ring large, and afterwards hunt the *Hounds*; that is, do often come back on the *Dogs*, and being almoſt down, or can hold out no longer, they take Soil and beat it like the Hart, keeping all their Body under Water, except their Noſe to draw Air; nor will they ſtir thence, until diſturbed by the Huntſman, or the *Hounds*, coming juſt upon them. The Croſſings and Doublings before the *Hounds* are termed Traſenings; and you muſt call him a Fair, and not a great Roe-buck. The Herd is called a Bevy, of which Six is a ſmall one, between Six and Ten a middle one, and Twelve a great Bevy. The Roe, as before noted, is ſeldom Fat, ſo that unleſs you find Bevy-greaſe on his Tail upon his breaking up, he is not Veniſon, and only fit for the *Hounds*.

The Bowels, Blood and Feet, are the Reward due to the *Hounds*, and it is termed the *Dole*, and the Dreſſing him is termed the *Herlenge*.

As for the Hunting the Roe, I ſhall not give any further Inſtructions, it being not a Chaſe amongſt us.

CHAP. IX.

Hunting the Wild-Goat.

THis Animal is as big as a Hart, tho' not ſo long, or ſo long legg'd, but 'tis as Fleſhy: They have Wreaths and Wrinkles on their Horns, which ſhew what Age they are of: For according to the Number of them, ſuch is the Number of their Years; theſe Wreaths the Beaſt moves, but not his Beam, which, if it be an Old Goat, may be as big as a Man's Leg: They have a great long Beard, are of a browniſh Grey Colour, very ſhaggy, having a long black Liſt down the Ridge of the Back, the Tract is bigger than the Slot of an Hart.

They Fawn as a Hind or Doe, in *May*, bring forth but one, which they ſuckle and bring up in the ſame manner, as the Tame Goat does her Kid: But about Fawning-time the Females ſeparate from the Males, attending till Rutting-time; and in the mean while they will run at a Man or Beaſt, and fight as Harts do, one againſt another. They go to Rut about *Albollantide*, and continue therein about a Month or five Weeks, and when the Seaſon is over, they deſcend from the Mountains and Rocks, their Abode for the Summer Seaſon, and herd themſelves not only to avoid the Snow, but becauſe they can find no Food any longer; and yet they come not very low, but keep at the Foot of the Hills till about *Eaſter*, when they return again, every one chooſing ſome ſtrong Hold in the Rocks, as the Harts do in the Thickets.

The He, when he goes to Rut, has his Throat and Neck much bigger than uſual; he has a very ſtrong Back, and what is moſt ſtrange, tho' he ſhould fall from on high, Ten Poles length, he will receive no harm, and will walk as ſecurely on the ſharp Tops of the Rocks, as an Horſe in the High-way; Laſtly, this Beaſt feeds like a Deer, only, beſides Ivy, he will eat Moſs and the like Stuff: In the Spring they make their Fumets round, and afterwards broad and flat, as the Hart, when he comes to feed well.

Alhallontide is the chiefeſt Seaſon for hunting of theſe Animals; and before you go actually upon the Sport, obſerve well the Advantages of the Coaſts, the Rocks and Places where the Goat's lie: Then ſet Nets and Toils towards the Rivers and Bottoms, for it cannot be expected the *Hounds* ſhould follow a Goat down every place of the Mountains.

It will moreover be neceſſary, that ſome ſhould ſtand on the Tops of the Rocks, and throw down Stones, as occaſion ſhall require; and where the Goat goes down to the ſmall Brooks or Waters in the Bottom, there place your Relays, and let them never tarry till the *Hounds* come in that were caſt off, and this is the beſt help, for a Man can neither follow on Foot nor on Horſeback.

CHAP. X.

Hunting the Rain-Deer.

THis Country produceth few or none of this ſort, ſo that I ſhall have the leſs to ſay of Hunting him.

He is like the Hart, though not ſo tall, and his Head is fuller of Antlers, which are much bigger and wider in compaſs; he bears twenty four Branches, or more, according to his Age, having a great Palm on the Top, and his fore Antlers are alſo Palmed.

When he is hunted he flies End-ways, by reaſon of the heavy Attire on his Head, which is his only Defence, and chief Ornament. He feedeth like the Hart, and makes his Fewmets ſometimes flat, ſometimes round, and ſome ſay long. He is ſaid to be Long-liv'd, and when he is in his Pride of Greaſe is excellent Veniſon.

In thoſe Countreys where they are common, they are ſeldom hunted at force, but taken with Nets and Shot, for being aſſailed by *Dogs* and Men unarm'd, he will endanger the killing or ſpoiling them; his Cuſtom being (that after he hath ſtood up a great while, doubled, croſſed, and uſed what Subtilties he can to ſhun the *Dogs*) to betake himſelf to a Tree for his laſt Refuge, and ſo planteth himſelf with his Buttocks againſt it, that nothing can aſſault him but juſt before, and hangeth down his Head to the Ground, whereby all his Body is covered until he find his advantage of ripping up the Bellies of his Purſuers, or otherwiſe ſpoiling them; ſeeming very dreadful to the *Hounds*, ſo that they will hardly venture on him.

For the finding out the Rain-Deer, you muſt uſe a *Blood-hound*, as before treated of.

CHAP. XI.

Hunting the Fox.

AMongſt the Divertiſements uſed by the Gentry of this Kingdom, Fox-hunting is of no ſmall eſteem: What has been Wrote on this Subject, and what has likewiſe gone by Tradition, was that which was practis'd when the Land was much more Woody, and when they abounded ſo much to be a general Nuſance, as Wolves were (eſpecially in the Mountainous Parts) before they were deſtroyed; and *Wales* was freed from them by an Impoſition of Skins, to be paid to the Crown of *England*, which at large is taken notice of in our *Britiſh Hiſtory:* But Foxes, the Subject of this Diſcourſe, being then leſs conſiderable for the Miſchief they did, were the leſs taken notice of; but the Country People receiving great Damages by their deſtruction of Poultry, Rabbets, Lambs, *&c.* on which they Preyed, were not wanting in their Endeavours to deſtroy them: And the Way by them then uſed (by what I can underſtand) was by a great Company of People, with *Dogs* of all kinds, aſſembled together, to go to ſuch Woods and Coverts where they thought they were, and ſo to beſet the Place, whilſt others went in to beat and force them out with ſome of the *Dogs*, and to be either Courſed by the reſt of the *Dogs*, or taken in Nets or Hays, ſet on the out-ſides for that purpoſe. But of late Years (by Experience, the Mother of Invention) the Knowledge of this (as indeed of all other Chaſes) is arrived to far greater perfection, being now become a very healthful Recreation to ſuch as delight therein; ſo that I ſhall in a brief and clear Method give you a Modern Account of Fox-hunting, as it is at this Day uſed by the moſt Expert in this Chaſe.

Altho' this Chaſe affords great Recreation, yet it is not ſo full of Diverſity as that of the Hare; for it leaves a hotter Scent, ſo that there are but few *Dogs* but will hunt the Fox with all imaginable eagerneſs; but as his Scent is hotteſt at hand, ſo it dies ſooneſt.

The Fox doth not much truſt to his Strength of Body, or Swiftneſs of Legs, but endeavours to preſerve himſelf by Policy in Coverts and Thickets; and being hard run when he can ſtand up no longer before the *Hounds*, will draw toward thoſe Places where he uſeth to Earth, and then he makes his Caves his Places of Defence; nor can he be got out, unleſs the Ground be ſoft; but generally his Kennel is betwixt the Clifts of Rocks, in Stony or Craggy Places, or amongſt the Roots of ſtrong Trees, very deep, and of a difficult acceſs, having commonly but one Hole for entrance, which goeth very deep before it comes to his Kennel. But he ſeldom takes the pains to make any, it being the Work of the *Badger*, his buſineſs being but to find it out, and take up his Quarters therein, which he ſoon hath to himſelf; for his Stink is ſo offenſive to the Badger, that he quits it, and makes another.

As to the Nature of the Fox, he is a Beaſt of great Subtilty, as well in his Preying, and Places of Sanctuary, as in his Chaſe. To give you a particular Account thereof would be too tedious for this Diſcourſe, nor are they unknown to moſt that uſe the Chaſe.

In many Reſpects he is of the Nature of the Wolf. When a Bitch-Fox is bragged, and with Cub, ſhe is hardly to be taken; for then ſhe lieth near the Earth, and upon hearing the leaſt Noiſe, ſhe betakes herſelf to her Place of Sanctuary. When a Bitch-Fox goeth to a Clicketing, ſeeking for a Dog-Fox, ſhe crieth with a hollow Voice, not much unlike the Howling of a mad *Dog*; and in the ſame manner ſhe cries when ſhe miſſes any of her Cubs; but when they are killed ſhe crieth not, defending herſelf to the laſt Gaſp. When ſhe is ſalt, her Biting is venomous.

A Fox, being pinched with Hunger, will prey on Vermin or Carrion, for want of other Food: But his uſual Food is Poultrey, Rabbets, and the like, being found a great Enemy to Warrens and Hen-houſes; and there be ſome that are ſo crafty, as to lie lurking all Day in Ditches, and under Hedges near Houſes, to eſpy Poultrey for their Prey at Night.

The Fat of a Fox is term'd *Greaſe*, which is eſteemed good for ſhrunk Sinews, being bathed therewith. The Print of his Claws on the Ground is called his *Footing*. That which for a Hart is term'd *Harbouring*, for a *Fox* is term'd *Kennelling*.

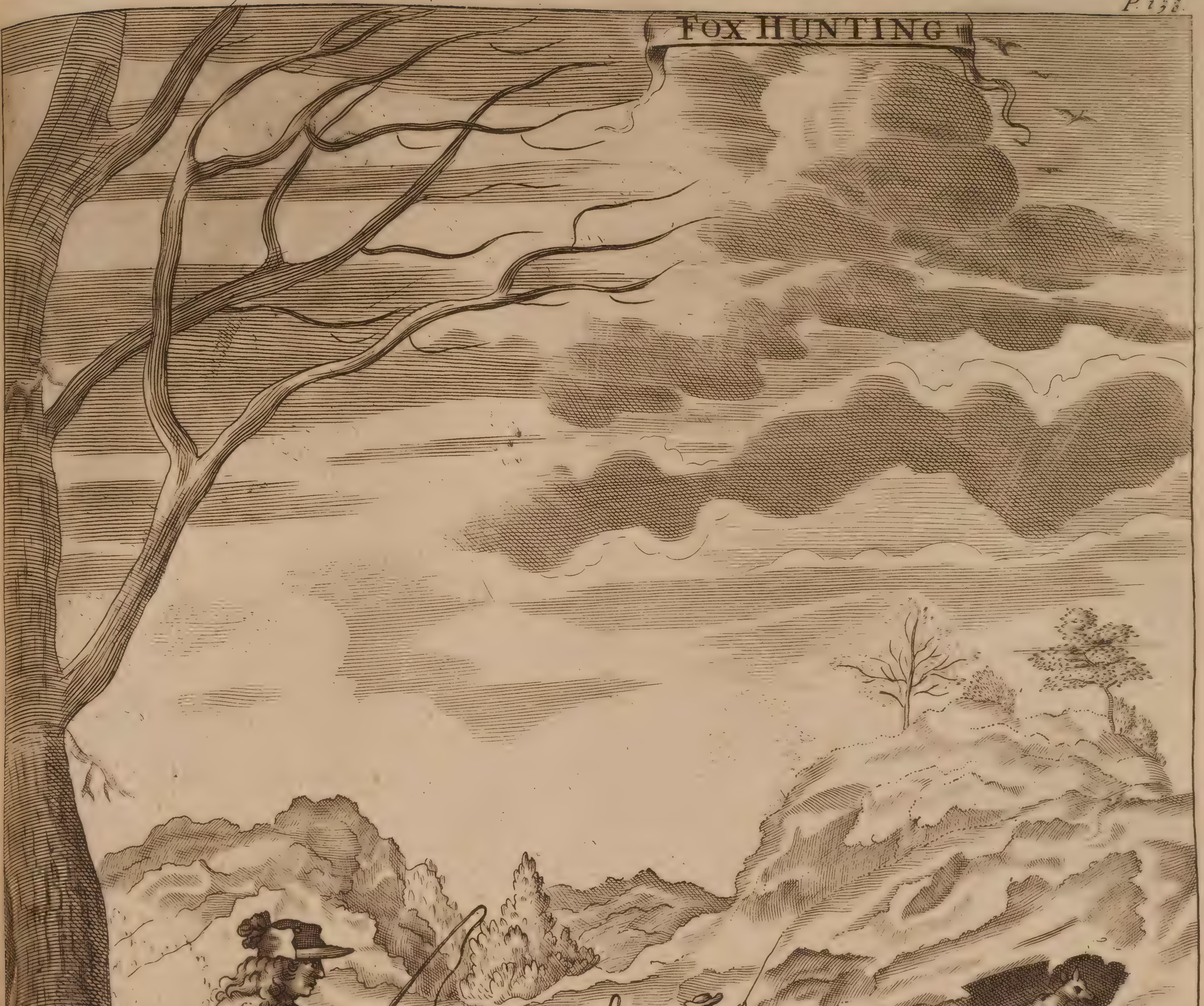
The Fox, tho' eſteem'd by all the craftieſt Beaſt that is, yet is taken ſeveral Ways, as by *Hounds*, *Grey-hounds*, *Nets* and *Gins*. For the taking him with the two laſt, I ſhall treat elſewhere, and with *Grey-hounds* the Caſe is not often; ſo that my Buſineſs will be only for the *Hounds* and *Terriers*, their Aſſiſtants, when he takes Earth, of which more anon.

The beſt Seaſon to hunt the Fox is in the Months of *November*, *December*, *January*, *February* and *March*; for before 'tis diſadvantageous to the ſcent, and the 2 firſt Months are the beſt, the Leaves then being rotten upon the Ground, which before obſtruct the Scent; alſo the *Hounds* are beſt ſeen to *Hunt*, and the Earthings are ſooner found. Again, in cold Weather the *Hounds* hunt beſt, the Fox then having the ſtrongeſt Scent; but it ſooner dieth than in a hotter Seaſon: But froſty and ſnowy Weather are altogether unfit.

For the Hunting the Fox, the *Hounds* or *Beagles*, generally made uſe of, are ſuch as have good Mettle, are ſtout and well quarter'd. But they ſhould differ according to the Country where they are hunted (as indeed in all other Chaſes;) for thoſe proper for the open Champion-Countries, are the *Northern-Hounds*, which are fleet of Foot, and being thin ſkinn'd, are not ſo proper for thick Coverts and buſhy Encloſures as the *Southern-Hounds*, which are thick ſkinn'd and ſlow footed, and are not good for long Chaſes that the Champion-Countries afford. Alſo the *Northern-Hound* and the *Southern-Beagle* make a good Strain for this Sport.

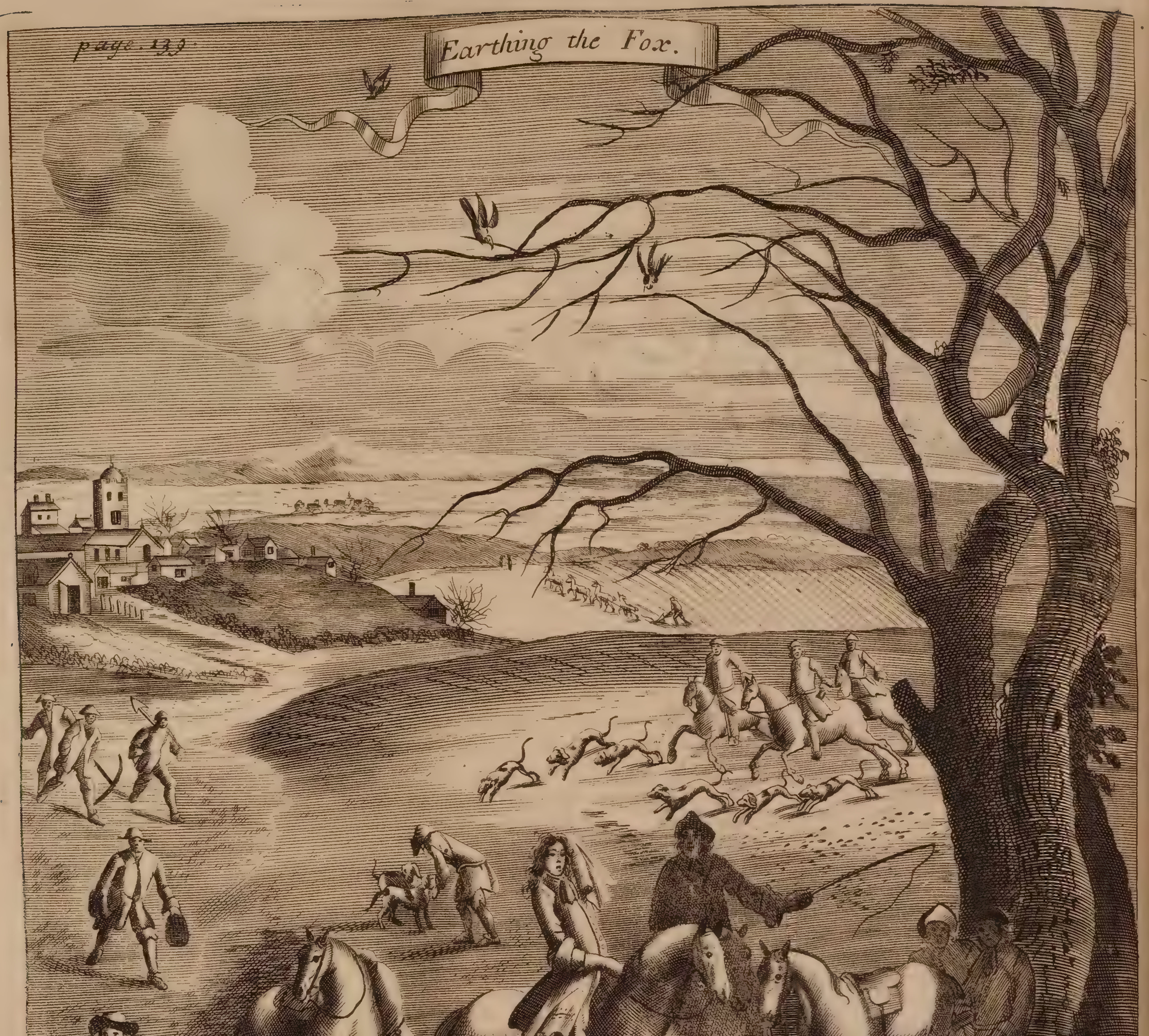
As to the Method now obſerved in hunting the Fox: Having found a Fox's Earth about Midnight, before you deſign to hunt, the next Morning, for preventing his Earthing, cauſe all his Holes to be ſtopt that you can find, except the main Hole or Eye, that is moſt beaten, which ſtop not until about Day-break, for fear of ſtopping him in; which done, let the *Huntſman* have all the *Dogs* in Couples, and being come to the Wood that you firſt deſign to try, firſt throw off your *Sure-Finders*, or *Staunch-Hounds*, being ſuch as will undertake no other Scent, but that of the Fox, (for Woods and Coverts are full of change) and when one or more of them opens, 'tis a ſure Sign that he is upon the Scent, that is, where the Fox hath paſſed that Night, which is called a *Drag*, or *Trail*. If you find the reſt of the *Hounds* that were caſt off to improve upon it, and that the Cry mends, 'tis moſt probable they are right; and as the *Drag* mends, caſt off more that you can confide in. But if the Scent fails, then 'tis ſuppoſed they run in Counter; and in ſuch caſe they muſt be taken off, and try them the other way.

Upon



To the Right Honourable Iohn Drummond, ſecond Son to Iames
Earle of Perth Lord Drummond &c.ª By right of Mariage Baron of
Lundin, & cheife of that Antient Family (which is Deſcended from
Robert Baſtard Son of William Sirnamed the Lyon King of
Scotland) Lord Treaſurer Depute, and one of his Ma.tys
moſt Honourable privy Councell in Scotland &c.ª
This Plate is humbly Dedicated by Richard Blome.

DEI DONO SUM QUOD SUM



Earthing the Fox.

To the R.t Worshipfull S.r Thomas Barnardiston
of Kediton in Suffolk Baronet:-

This Plate is humbly dedicated by R. Blome.

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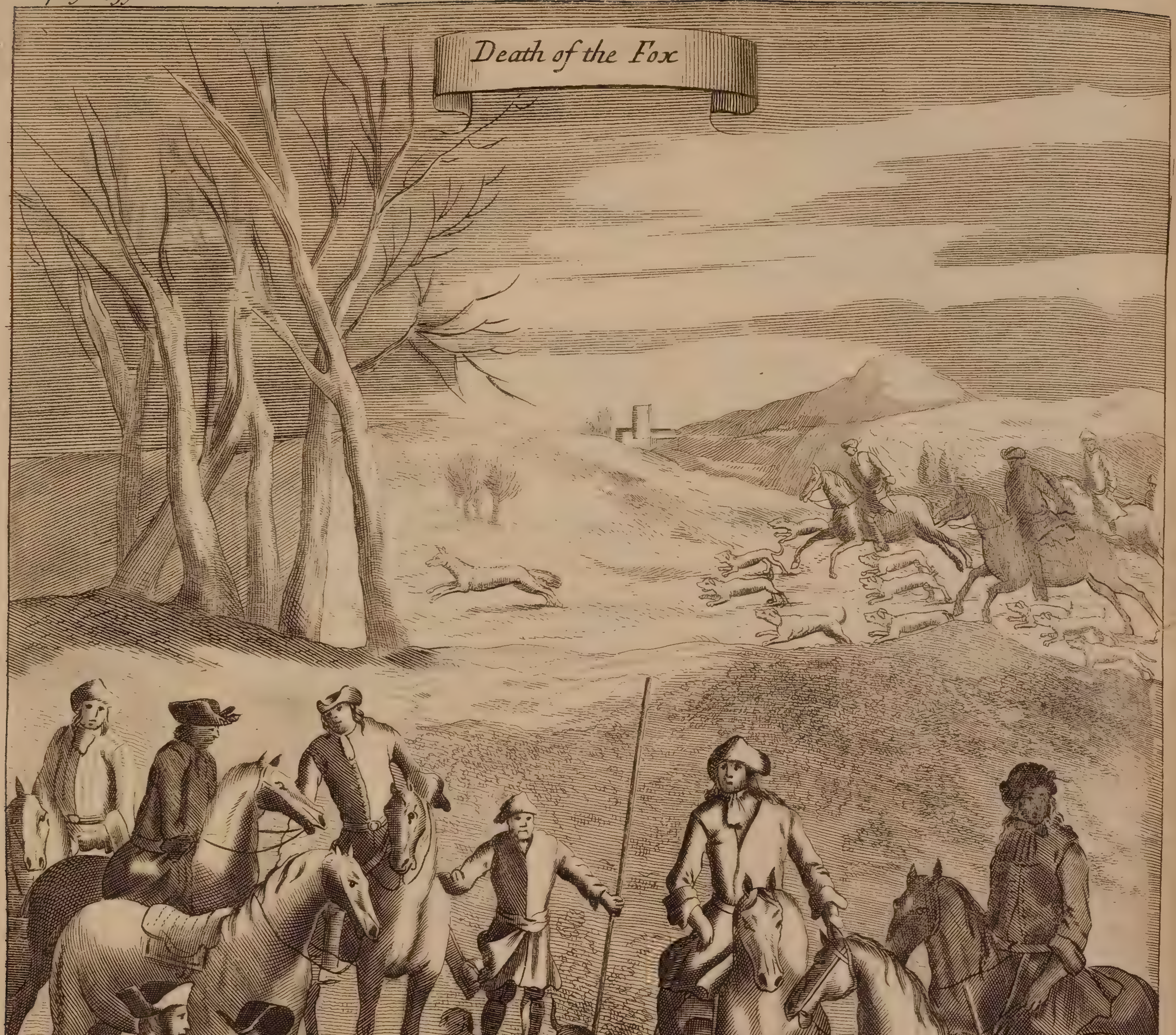
Death of the Fox
Wyck del
Soly ſculp

To the Worſhipfull Alan Bellingham
of Leaven in the County of
Weſtmoreland Eſq:
This plate is humbly Dedicated by Ric: Blome

Upon the *Hounds* improving the Scent, whether the one Way or the other, the *Huntſman* on Foot (that hath the Charge of the coupled *Hounds*, and before that muſt have *hardled* them, that is, with a Slip, for the Purpoſe ready ſecur'd, three or four Couple together, that they may not break in from him, to run into the Cry of the *Finders*) is called upon to throw in two or three Couple more of his *Stauncheſt Hounds*. During this while they are encouraged by the *Huntſman*, until they make it out to the Place where the Fox is, which is called *Kennell'd*, and is ſoon diſcovered by the *Hunters* from the Encreaſe of their Cry; then the moſt opportune time is watched to throw off the major part of the coupled *Hounds*.

The Fox, when finding himſelf ſo hotly purſued, that he cannot ſecure himſelf in thoſe Coverts and Places he is acquainted with; and that when one great Slight faileth him, which is to hunt the *Hounds* juſt as they do him, whereby they are many times at a Loſs, or great Fault, (which is chiefly prevented by their quartering of the *Hounds*) then is unwillingly forced to forſake them, and truſt wholly to his Feet, leading them from Wood to Wood, a Ring of four, ſix, or ten Miles, and ſometimes endways about twenty Miles, trying all the Earths he knows, which, as near as poſſible, ſhould be ſtopp'd the Night before the *Hunting*, as aforeſaid.

The *Huntſman* on Foot muſt croſs (with what *Hounds* he hath in Reſerve) from Wood to Wood, to be as much as poſſible in the Way, to throw them off when called upon, as an Encouragement to the reſt, (they being freſh) and at the ſame time muſt endeavour as much as he can to encourage the *Finders*, or *Staunch-Hounds*, that begin to run lag, that as Occaſion may offer to have them ready for a dead Scent, or, as is thought fit, for the latter end of the Day.

Many times they kill the Fox upon the Turf; but if he gets to an Earth, and enters it, they cry *Ho-up*, as at the Death, ſuppoſing the Chaſe ended, and blow a Horn to call in the Company.

Earthing the Fox.

HAving Earthed the Fox, the next Buſineſs is to get Country-men, with Shovels, Spades, Mattocks, Pick-axes, *&c.* to dig him out, if they think the Earth not too great; and for their facilitating the ſame, the *Huntſman* muſt be provided with one or two good *Terriers*, to put into the Earth after him, to lay him up; that is, to fix him into an Angle, (which may be ſooner done, according to the Opinion of ſome, by putting a Coller of Bells on the *Terrier*'s Neck;) for the Earth oft times conſiſts of divers Angles, and the Uſe of the *Terrier* is to know where the Fox lieth; for as ſoon as he finds him, he continues Baying or Barking; ſo that which Way the Noiſe is heard, that way dig unto him; and when he is dug up, ſometimes he is thrown amongſt the *Hounds* to bleed and encourage them; and this will make them lie at an Earth when they come to a ſtrange Wood, and to an unknown Earth; and ſometimes he is reſerved alive, and hunted another Day, which is called a *Bag-Fox*.

The Death of the Fox.

FOR rewarding your *Dogs*, when the Fox is kill'd, hollow in all the Pack to bay him, but do not reward them therewith, as being not good for them; but follow the former Directions for the rewarding them.

If the Earth proves ſo deep and rocky, that there is no Poſſibility of digging him out, uſually Steel-Traps are ſet at the Mouth of the Earth, or elſe a Hay is pitched round it; and ſo watch to take him at his going off, which will be in the Night following, and oft-times ſooner; for his Heat, and the Coolneſs of the Earth will not ſuffer him to ſtay in long; ſo that when he apprehends all Things are quiet above, he comes out.

Of Terriers.

AS concerning *Terriers*, every one that is a *Fox-Hunter* is of Opinion, that he hath a good Breed; and ſome will ſay, that the *Terrier* is of a peculiar Species of it ſelf. I ſhall not ſay any thing as to the Affirmative or Negative Part, only give me Leave to ſay, that ſuch *Terriers* that are bred out of a *Beagle* and a *Mongrel-Maſtiff* generally prove good; and indeed any ſmall thick-ſkinn'd *Dog* that hath Courage, and that will run into the Holes, and lie baying at the Fox, is one for the Purpoſe, which this Sort will do; for he hath Courage and a thick Skin, as participating of the *Cur*: and is mouth'd from the *Beagle*, as before taken notice of.

The Seaſon for entring theſe *Terriers* is at ten or twelve Months old; for if you enter them not within the Year, you will hardly bring them to take Earth: Neither muſt they be baffled or over-maſter'd at firſt Making; for then they will hardly return to it any more: Therefore be careful not to enter them upon old Foxes or Badgers, but take ſuch a time when they have their Young, and are gone abroad to ſeek Prey. You muſt alſo encourage them, by putting in an old *Staunch-Terrier* to lead the Way, that if it happen that the old Fox ſhould be there, he might be worry'd by him for their further Encouragement.

When Foxes have young Cubs, take an old *Terrier*, and put them into their Earth; and when they begin to bay, (which is called *Yearning*) hold the young *Terrier* at the Mouth of the Earth, to the end they may hear the old one yearn.

When you have taken the old Fox, ſo that nothing remains within but the young Cubs, then couple all your old *Terriers*, and put in the young ones in their Stead, encouraging them by crying, *To him, to him*; and if they take any young Cub within the Ground, let them alone to do what they will with him, and forget not to give the old *Terriers* their Reward, which is Blood and Livers, fry'd with Cheeſe and ſome of their own Greaſe, ſhewing them the Heads and Skins to encourage them.

Another Way is to take an old Fox or Badger, and cut his Nether-Jaw away, leaving the Upper, to ſhew the Fury of the Beaſt, though he can do no Harm with it, or elſe break out all his Teeth: Then dig an Earth in ſome convenient Place in the Ground, making it wide enough, that the *Terriers* may the better turn therein, and have Room enough for two to enter; cover the Hole with Boards and Turf, firſt putting the Fox or Badger in, and then your *Terriers*, both young and old, which, when they have bay'd ſufficiently, begin to dig with Spades and Mattocks to encourage them, againſt ſuch time as you are to dig over them; afterwards take out the Fox, or Badger, with Chumps or Pincers, killing it before them, or let a *Grey-hound* kill it in their Sight.

CHAP. XII.

Hunting the Badger.

THere are two Sorts of *Badgers*; *Dog-Badgers*, as reſembling a *Dog* in his Feet; and a *Hog-Badger*, as reſembling a *Hog* in his cloven Hoofs: Theſe latter differ from the former, being whiter and bigger, and have their Heads and Snouts thicker; and do alſo differ in their Food, the one eating Fleſh and Carrion like a *Dog*, and the other Roots and Fruits like a *Hog*: And theſe Sorts of *Badgers*, where they have their Earths, uſe to caſt their Fiants or Dung in a ſmall Hole, and cover it; whereas the *Dog-Badgers* make their Fiants at a good Diſtance from their Burrows; which are deep, with Variety of Chambers, Holes and Angles. The *Hog-Badger*, being fat and lazy, earths in open, eaſie, and light Grounds; whereas the other Sort frequents Thickets, Rocks, and mountainous Places, making their Retreats deeper and narrower.

A *Badger* is known by ſeveral other Names, as a *Gray*, a *Brock*, and a *Boreſon*, or a *Bauſon*: The young ones are called *Pigs*, the Male is called the *Bore*, and the Female the *Sow*.

The *Badger* is naturally a very ſleepy Creature, and ſeldom ſtirs out but in the Night-Seaſon to ſeek his Prey; and, above all other Food, Hogs-Fleſh is moſt grateful to his Palate; inſomuch, that if you take a Piece of Pork, and train it over the *Badger*'s Burrow, he will ſoon make his Approach out. They live to a great Age, and when their Sight faileth by old Age, they keep to their Burrows, and receive their Food from the younger.

By Nature they are very chill and cold, and when it ſnoweth they go not forth. Their Fleſh is of a ſweet rankiſh Taſte, but is eaten in many Countries. The beſt Seaſon is in *September*. They have very ſharp and venomous Teeth; their Legs are longer on their Right Side, than on their Left; ſo that when the run they chuſe the Side of a Hill, Bank, Furrow, or Cart-rout.

The *Dog-Badger*'s Ears, Snout, and Throat are yellowiſh, and they are longer legg'd than the *Hog-Badger*. They accompany not together, yet they both prey on all manner of Fowl, young Pigs, Rabbets, and the like Food, doing great Hurt in Warrens. They are ſtout and hardy in defending themſelves, and will endure good Blows; yet their Noſe and Snout is ſo tender, that a little Blow thereon will kill them.

Although the *Badger* and the *Fox* are much alike in ſeveral Qualities, yet do they often make War with one another, eſpecially on the Account of Food, ſo that it is good Sport to ſee the Conteſt betwixt them. The Hunting and Purſuing them however is much at one towards the Concluſion; for the *Badger* runs to his Earth or Burrow much ſooner than the Fox, and being earth'd, makes good and defends his Caſtle much longer; and to ſay Truth, the Pleaſure of this Chaſe doth chiefly conſiſt in the Unkennelling and Unearthing of them, which requires Skill and Labour.

You are to take notice, that although all *Hounds* will eagerly purſue and hunt both the Fox and Badger, yet there is none of them that will endure to feed on their Fleſh; and there are ſome *Dogs* more proper for this Chaſe than others, and thoſe are the *Terriers* already ſpoken of in the Chapter of *Fox-Hunting*.

The Labour and Ingenuity of the *Badgers* in making their Burrows is worth Obſervation. When they Earth, after they have entred a good Depth for the clearing the Earth out, one lieth on his Back, and another layeth Earth on his Belly; and ſo, taking his Hinder-feet in his Mouth, draweth him out of his Burrow; and having unladen himſelf of the Earth, goeth to the ſame Work; and this they do till their Chambers, or Places of Retreat are finiſhed: Then they proceed to gather in their Furniture, that is, the Materials for their Couch or Lodging, as Straw, Leaves, Moſs, and the like, which with their Feet and Head they wrap up ſo cloſe together, that they will get to their Burrows a pretty good Bundle. Some Burrows have ſeven or eight diſtinct Chambers.

In hunting the *Badger*, you muſt ſeek the Earths and Burrows where he lies, and in a clear Moonſhine Night go and ſtop all the Burrows, except one or two, and therein place ſome Sacks, faſten'd with Drawing-ſtrings, which may ſhut him in as ſoon as he ſtraineth the Bag. Some uſe no more than to ſet a Hoop in the Mouth of the Sack, and ſo put it into the Hole; and as ſoon as the *Badger* is in the Sack, and ſtraineth it, the Sack ſlippeth off the Hoop, and follows him into the Earth, ſo he lieth tumbling therein till he is taken. Theſe Sacks or Bags being thus ſet, caſt off the *Hounds*, beating about all the Woods, Coppices, Hedges and Tufts round about for the Compaſs of a Mile or two, and what *Badgers* are abroad, being alarm'd by the *Hounds*, will ſoon betake themſelves to their Burrows; and obſerve that he that is placed to watch the Sacks, muſt ſtand cloſe, and upon a clear Wind; otherwiſe the *Badger* will diſcover him, and will immediately fly ſome other Way into his Burrow. But if the *Hounds* can encounter him before he can take his Sanctuary, he will then ſtand at Bay like a Boar, and make good Sport, grievouſly biting and clawing the *Dogs*, for the manner of their fighting is on their Backs, uſing both Teeth and Nails, and by blowing up their Skins defend themſelves againſt all Bites of the *Dogs*, and Blows of Men, except on their Noſes, as aforeſaid. And for the better Preſervation of your *Dogs*, 'tis good to put broad Collars about their Necks made of Grays Skins.

When the *Badger* perceiveth the *Terriers* begin to yearn him in his Burrow, he will ſtop the Hole betwixt him and the *Terriers*, and if they ſtill continue baying, he will remove his Couch into another Chamber, or part of the Burrough, and ſo from one to another, barrocading the Way before them as they retreat, until they can go no further.

If you intend to dig the *Badger* out of his Burrow, you muſt be provided with thoſe Tools already treated of for the digging out the Fox; beſides which you ſhould have a Pail of Water to refreſh the *Terriers* when they come out of the Earth to take Breath and cool themſelves. It will alſo be neceſſary

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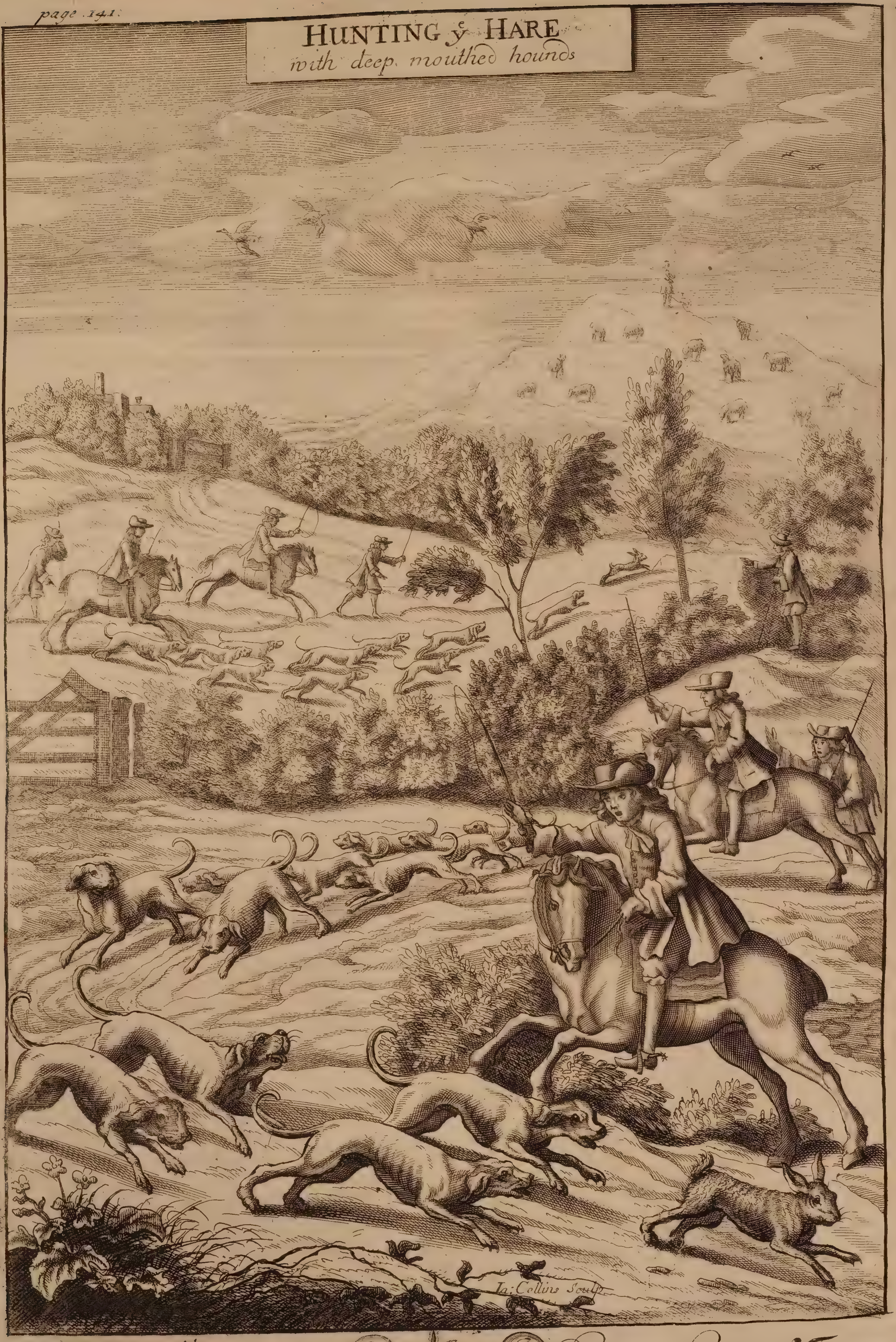

HUNTING y^{e} HARE
with deep mouthed hounds
Ja: Collins Sculp.

To y^{e} R^{t}: Honble: John Lord Robarts Baron of Truro
Viſcount Bodmyn Earle of Radnor and Lord
Preſident of his Maties: moſt Honourable Privy Councell. &c.
This Plate is humbly dedicated by Richard Blome

QVÆ SUPRA

to put about your *Terriers* Necks Collars of Bells, which making a Noiſe, may occaſion the *Badger's* bolting out.

Theſe Tools thus uſed for the digging out of the *Badger*, being troubleſome to be carried on Mens Backs, may be brought in a ſmall Cart.

In digging, you muſt conſider the Situation of the Ground, by which you may judge where the chief Angles are; for elſe inſtead of advancing the Work, you will hinder it.

In this Order you may beſiege them in their ſtrongeſt Holds or Caſtles, and may break their Platforms, Parapets, Caſmates, and work to them with Mines and Counter-mines, until you have overcome them.

Having taken a live and luſty *Badger*, if you would make Sport, carry him home in a Sack, and turn him out in your Court-yard, or ſome other encloſed Place, and there let him be hunted and worry'd to Death by your *Hounds*.

I ſhall conclude this Chapter with ſome ſhort Account of the Profits and Advantages that accrue by killing this Creature. Their Fleſh, Blood and Greaſe, though not good Food, yet is very uſeful for Phyſitians and Appothecaries for Oils, Ointments, Salves, and Powders, for Shortneſs of Breath, the Cough of the Lungs, for the Stone, ſprain'd Sinews, cold Aches, *&c.* and the Skin being well dreſt, is very warm and good for ancient People that are troubled with Paralytick Diſtempers.

CHAP. XIII.

Hunting the Hare.

THIS Chaſe affords Delight and Recreation to every Man; for none but Perſons of Eſtate and Quality have the Privileges and Conveniences of Foreſts, Chaſes, and Parks; but Men of a lower Rank may ſometimes divert themſelves with the *Hare*.

Now although *Hares* are common, and that the *Hunting* them is every Man's Sport; yet doth it not ceaſe to be an Art full of Subtilty and Craft, requiring Labour and Vigilance to carry it on to the deſign'd Purpoſe or End; nor is it without divers Delights and Varieties, that other Chaſes do not afford.

There are ſaid to be four Sorts of *Hares*, ſo term'd according to the Places of their Abode; *viz.* Some live in the Mountains, ſome have their Habitation in Coverts and Fields, others in Marſhes and Mooriſh Grounds, and others are Ramblers, as having no conſtant Abode, ſeeking their Food where they can find it beſt and ſecureſt.

Thoſe of the Mountains are the moſt ſwift of Foot, and that by their often exerciſing themſelves in the Valleys and Plains; ſo that when they are hunted in the Fields or Valleys, ſuch is their Craft, as well knowing the neareſt Ways to their Forms, or Places of Abode, that they will fool the *Huntſmen*, by ſeeming almoſt taken, but on a ſudden will give them the Go-by, and take the neareſt Way to the Mountains and inacceſſible Places, where neither *Dogs* nor *Horſes* can aſcend.

Thoſe *Hares* that frequent the Fields and Coppices, being often chaſed, are lean of Body, and taken with Difficulty. When ſhe begins her Courſe ſhe leapeth up from the Ground, as if ſhe flew; afterwards paſſeth through all Places, and that with great Swiftneſs, yet not ſo much as to ſpend her Strength, unleſs hotly purſued; for ſhe is obſerved to take her Meaſures from her Proſecutors, well-knowing that ſhe can out-run the *Dogs* at Pleaſure. When ſhe is ſome Diſtance from them, ſhe uſually gets to ſome little Hill, or Riſing-Ground, raiſing herſelf on her Hinder-feet to eſpy the *Dogs*, thereby the better to avoid them.

Thoſe *Hares* that frequent Marſhy or Mooriſh Places, are the ſloweſt on Foot, and leaſt able to endure Labour; and being hunted, will ſeldom or never uſe High-ways, or Beaten-paths, but uſe their Slights and Subtilties by the ſides of Rivers and Watery Places; nor are they able to run long before the *Hounds* for want of Breath, as being ſo Fat and Foggy through their groſs Food.

The younger *Hares*, by reaſon of their weak Members, tread heavier than the older, and therefore leave the ſtronger Scent behind them. They run very ſwift at a Year old, and their Scent is ſtronger in the Woods, than in the plain Fields.

In the Winter Seaſon their Foot-ſteps are more apparent than in the Summer; for as the Nights grow longer, ſo they Travel further; neither do they Scent in the Winter Mornings, until the Froſt is ſomewhat thawed; likewiſe their Foot-ſteps are uncertain at the Full of the Moon, for then they play together.

Every Limb of a *Hare* is made for Celerity, and therefore ſhe never travelleth, but jumpeth; her Ears lead her the way in her Chaſe, for with one of them ſhe hearkneth to the Cry of the *Dogs*, and the other ſhe ſtretcheth forth like a Sail, to haſten her Courſe.

In the hunting the *Hare*, you are principally to obſerve the Seaſon of the Year, and the Situation of the Ground where you hunt. In the Beginning of the Year, that is, about *September*, (for then the Year begins as to this Sport) *Hares* repair to Shrubs, Buſhes, and the like Shelters, that are near adjoyning to ſome Coppice, or the like. About *December* in Fallow-Grounds; and in *March* in the Green Winter-Corn. In every of theſe Places, or whereever elſe you find the Form of a *Hare*, obſerve if it be new or old, and order your ſelf accordingly. If it be ſmooth and plain within, the Path before it new and warm, ſo that you may diſcern the Pricks and perceive the Earth to be late broken, and that the *Hounds* call merrily on it, then endeavour to recover the *Hare* upon the Trail, and with good ſucceſs. But if you find reaſon to judge it an old Form, proceed not on it, though the *Dogs* call on it, but rate them back, for it will be loſt Labour.

Hares are very melancholy, and conſequently very Fearful and Crafty, inſomuch that when they go out of their Form, they endeavour the moſt they can to get dry and clean into it, to the end they may reſt warm; and in that they partake of the Nature of the Cat, that loves Fiſh, but hates Water; yet ſome *Hares*, being cloſe hunted, will take the Water, croſſing and doubling about twenty times over and over in about the ſpace of half a Mile.

They are diſtinguiſhed by the Names of Bucks and Does, and ſome call the Males *Jack Hares*. They go to Buck in *January*, *February* and *March*, and ſometimes in all the warm Months.

An expert Huntſman may diſtinguiſh *Hares*, as to their Sex, Strength, Age and Craftineſs, by theſe and other Signs. If when a *Hare* riſeth out of her Form, ſhe ſets up her Ears, and runs a little ſlowly at firſt, with her Skut caſt over her Back, 'tis a ſure ſign ſhe is an old crafty beaten *Hare*. When you hunt a *Hare* to her Form, if you find ſhe hath beaten the hard High-ways, that ſhe feedeth at a good diſtance out into the Plains, and that her Doublings and Croſſings are wide and large, you may conclude 'tis a *Jack Hare*; for the Females uſually keep cloſe to the Side of ſome Grove or Coppice, and turn and wind like a Coney in the Buſhes; and when ſhe goeth to Relief in the Corn-fields, doth ſeldom croſs over the Furrows, but follow them, feeding on the thick Tufts of Corn; and when ſhe is hunted, will uſe many Doublings and Turnings, but ſeldom makes out End-ways, or Fore-right.

But the *Jacks* after two or three Turns about his Form takes his leave, and gives the *Hounds* a breathing of four or five Miles, and ſometimes more before they can turn his Head, and then will ſquat in ſome Place where ('tis probable) he hath formerly preſerved himſelf. You may alſo know a *Jack Hare* at his riſing out of his Form by his hinder Parts, which are more whitiſh; alſo his Head is ſhorter, and better truſſed; his Ears are ſhorter and more gray; his Shoulders are redder, and the Hair on his Lips is longer than the Females; for the Doe hath her Ears long, her Head long and ſtrait, the Hair on her Back of a dark Gray, inclining to a Black, and is larger in Body than the Buck. The Croteys, or Excrements of a Buck, are leſſer, drier and ſharper at the end, than the Does.

The *Hare* is ſaid to know the change of the Weather, from Twenty four Hours to Twenty four. Some *Hares* by haunting the low Watery Places, do become Foul and Meaſled; and ſuch *Hares* do never follow the hard Ways, nor make ſuch Paths to their Forms, but uſe all their Subtilties by the Sides of Rivers, and other Waters. And by the way you muſt know, that the Females are not ſo commonly Foul and Meaſled as the Males; ſo that a Huntſman may judge by the Relief and Feed of the *Hare* what ſhe is, and which way ſhe Formeth. A *Jack Hare* will abide the Approach of the *Hounds* nearer him, when he ſitteth, than the Female; becauſe he feeleth his Body better diſpoſed, more hardy and quicker.

The Huntſman, when he perceives by his *Hounds*, that the *Hare* hath paſſed by him at Relief, upon the High-way ſide, and that ſhe hath croſſed and doubled much on dry Places, and yet not much broken out, nor Relieved in the Corn; he may be confident, that it is a Paſſenger or Stranger in thoſe Parts: The Nature and Uſe of ſuch *Hares* is this; they get them to ſome high Riſing-ground, and take a view where they may ſecure themſelves; and when perchance they are ſtarted out of their Form they double, winding about to their Forms, as unwilling to forſake them; but when they find the *Hounds* hold in with them, then they may chance to lead them a Dance of ſeven or eight Miles croſs the Country.

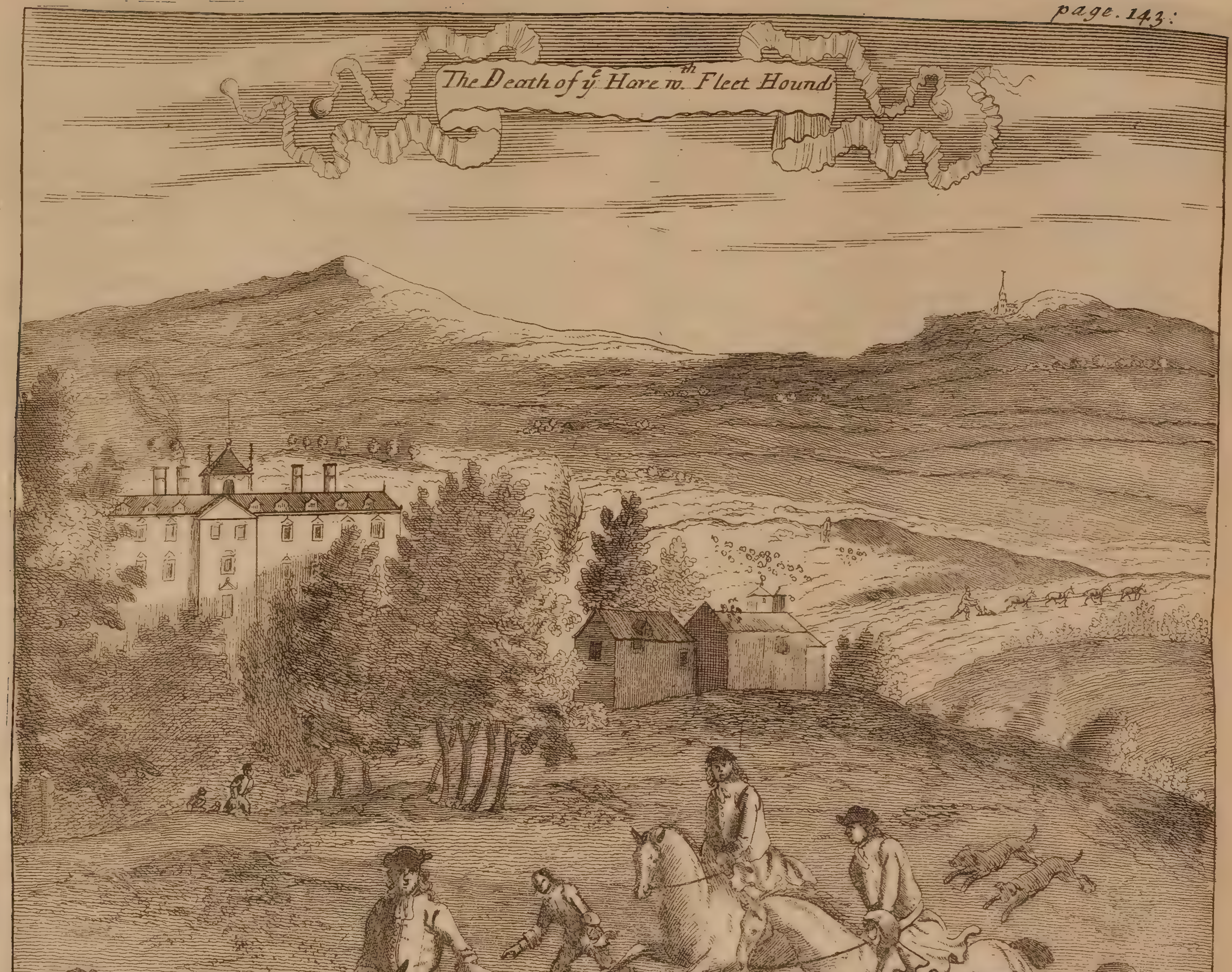
The Subtilties of the Hare *when ſhe is Hunted.*

Of all Chaſes, the *Hare* makes the beſt Diverſion, and ſheweth the moſt Cunning in Hunting, and is of greateſt uſe, for that they may be found at all times, and hunted in moſt Seaſons of the Year, with a ſmall Charge; and to add to the Pleaſure of this Chaſe, the Game is uſually in ſight, (eſpecially if hunted with your Fleet or Northern *Hounds*) ſo that her Subtilties and cunning Shifts to avoid the *Hounds*, are for the moſt part ſeen. I ſhall here take notice of ſome of them.

If a *Hare* chance to run before a Pack of *Hounds*, either in, or preſently after any Rain, ſhe will hardly take into the Woods; by reaſon of the Dew and Wet that hangs on the ſmall low Boughs, but will often ſquat under a Hedge-ſide; and when the *Dogs* have over-ſhot her, will return to her Form. To prevent which, the Huntſman ought to hang back a good diſtance from the Wood or Grove, which ſhe ſeemeth to enter, to the intent he may hallow off his *Dogs* before the *Hare* be too far gone.

Whoſoever hath hunted one and the ſame *Hare* twice, and doth not kill her the third time, deſerves not the name of a Huntſman; for generally they uſe the ſame Slights, Doublings, and Croſſings, ſo that they may eaſily be prevented in any one, which defeats them of all the reſt: And if it be Rainy-weather, ſhe will hold the High-ways more than at any other time.

The Huntſman muſt mark in what Place the *Hare* ſitteth, and upon what Wind ſhe makes her Form; for if either upon the North or South Wind, ſhe will not willingly run into the Wind, but upon a Side-wind, or elſe down the Wind. Alſo if a *Hare* Forms on the Water-ſide, 'tis a ſign ſhe is Foul and Meaſled; therefore in hunting ſuch a *Hare*, good care muſt be taken all the Day unto the Brook-ſides, for at ſuch Places ſhe will make all her Doublings and Croſſings. Some again will ſwim over great Pools and Rivers; others will put an exchange upon you, by ſtarting up a freſh *Hare* out of her Form, and ſit in it her ſelf: Sometimes they will double 20 or 30 times in about 40 Yards forwards and backwards, over a Brook; and ſometimes they will reſt themſelves in the midſt of the Water upon Weeds, or Bulruſhes. A Huntſman muſt likewiſe obſerve whether it be a Buck or a Doe, and whether ſhe be acquainted with the Place, or a Stranger; for doubtleſs a *Hare* that is wonted to a certain Place, eſpecially a Female, will all the Day that ſhe is hunted hold the ſame Ways, caſt about the ſame Coaſts, and paſs by the ſame Muſes until her Death, or Eſcape; unleſs ſhe be hard run, ſo that ſhe is forced to make out End-ways before the *Hounds*; but at firſt ſhe will do nothing but Turn, Croſs and Double, paſſing ſeveral times one way, and in the ſame Path. Some *Hares* are ſo cunning, that upon hearing the noiſe of the Huntſman's Horn (although at a good diſtance) they will leave their Form, and take Sanctuary on ſome Weeds or Bulruſhes in a River. Sometimes when they are hard hunted, they will go to *Vault*, that is, take the Ground like a Coney; others, if an Opportunity offers, will go up one Side of a Hedge, and come down the other Side; and ſome will run on the Top of a cloſe Hedge, about an hundred Yards together;


The Death of ye Hare wth Fleet Hound

To the Right Worſhipfull Sr. Robert Daſhwood
of Norbrook and Wickham in Oxford ſhire Kt.

This Plate is humbly dedicated by Richard Blome.

together; alſo ſome are ſaid to be ſo ſubtile as to get into the Windows of an old decay'd Houſe, for ſhelter from the *Hounds:* Sometimes being hard hunted they will run into a Flock of Sheep, and will continue in the midſt of them like unto the *Fox.* Sometimes ſhe will leap, and make Heading; otherwhiles will tread ſoftly, to leave the leſs Impreſſion behind her; and ſometimes ſhe will lie down, and ever and anon leap, or jump, out and in to her Form; all which doth much perplex the *Dogs* to find her Scent: For all which Cauſes, it is good to help the *Hounds* as much as poſſible with Voice, Horn, and Hand. To conclude, They uſe many Subtilties and Shifts to preſerve their poor Lives; ſo that the Huntſman had need to be very circumſpect and induſtrious, otherwiſe he may ſoon ſpoil his *Dogs*; for as in all Chaſes the *Hare* makes the greateſt diverſion, ſo it is a great delight to ſee the many Stratagems they have to ſave their Lives.

For a *Hound* that is a perfect *Haryer*, may be bold to hunt any Chaſe; but the *Hare* of all Games leaves the leaſt Scent behind her; but when once your *Dogs* have been accuſtomed to the Stag or Buck, 'tis not eaſie to bring them in love with the *Hare* again.

When *Hares* feed on Green Corn they have the greateſt Scent, and are then more eagerly purſued by the *Hounds*; and there are ſome that naturally give a greater Scent than others, as the great Wood *Hares*, and ſuch as keep the Marſhes and moiſt Grounds, being Foul and Meaſled.

Young *Hares* that have not been hunted are fooliſh, not uſing the Crafts, Subtilties, Doublings, and Croſſings, as Old ones do; but hold on End-ways before the *Hounds*, often ſquatting and ſtarting, which doth much encourage the young *Hounds* at their firſt Entring.

The Females are obſerved to be more crafty than the Males, making their Doublings and Turnings ſhorter, which is no ways pleaſing to the *Hounds*, who delight more at an End-way Chaſe; for ſuch *Hares* that croſs and double ſo often, 'tis neceſſary at default to caſt the greater compaſs about when you beat to make it out; by which means you will find out all her Subtilties, and you need not ſtick upon any of them, but where ſhe went on forwards; and thereby you will abate her force, and compel her to leave her Doublings and Croſſings.

How to enter young Hounds *to the* Hare.

FOR Entring young *Hounds*, be they Northern or Southern *Hounds*, or *Beagles*, two or three Huntſmen is ſufficient; of which let one ſerve to rate and beat on ſuch *Hounds* as keep plodding behind, and the other two may be employed to make the *Hounds* ſeek and caſt about; for if there be many Huntſmen, they will foyl the Traces and Footings of the *Hare*, or at leaſtwiſe amaze the *Hounds* with their ſeveral Voices, when they are at default; whereas they ſhould receive Aſſiſtance at ſuch time from them by Encouragement, or otherwiſe; for above all things 'tis neceſſary, that the *Hounds* know their Maſter's or Huntſman's Voice, and his Horn, for then when it cometh to the Hallow, they will ſooner come in to his Voice than to any others; therefore he muſt never Hallow them without good Cauſe; and it were not amiſs, if he gave them a bit or two of Bread when they come in, for their Encouragement.

It is not good to Enter your young *Hounds* in the Mornings, becauſe of the Dew and Moiſture of the Earth, for then when you bring them to hunt in the Heat of the Day, eſpecially in hot Weather, or at ſome time when the Wind hath dried up the Moiſture of the Earth, they will neither Hunt, nor Call on merrily, but will run to the ſhady Places to Reſt and Sleep; therefore the beſt time to enter young *Hounds* is in the Heat of the Day, and about *October* and *November*, the Weather being then temperate, and young *Hares* that have not been hunted are then fooliſh and eaſier to be taken, which doth much encourage them.

It is obſerved, that a *Hare* hath greater Scent, and is more eaſily hunted by the *Hounds* when ſhe feedeth upon Green Corn, as aforeſaid, than at any other time of the Year; and yet alſo you have ſome *Hares* which are naturally ſtronger Scented than others, and are much more eagerly hunted by the *Hounds*, and ſuch are thoſe great Wood *Hares*, and ſuch as keep in Marſhy, Watery Grounds, being Foul and Meaſled; but the little red *Hare* is neither of ſo ſtrong a Scent, nor is ſo eagerly hunted by the *Hounds*.

Alſo remember, that at the Entring your young *Hounds*, you never help them to kill the *Hare* with your *Greyhounds*; for if you accuſtom them to have *Greyhounds* to Courſe before them, they will never take Pains, nor put their Noſes to the Ground, nor beat about or hunt for the Scent of the *Hare*; but the beſt Entring them is with old Staunch *Hounds*, that underſtand how to make out a Default, and that have good Noſes for the Scent.

The beſt Seaſon of the Year for Hunting the Hare, *with Directions how to ſeek her, ſtart her, and hunt her.*

THE Seaſon for Hunting the *Hare*, is from *September* to the Beginning of *April*; for afterwards the ſweet Herbs and Flowers that grow about, as alſo the Heat takes away the Scent, together with this, that during the Summer they breed their *Leverets* and are feeble and weak; but the beſt Seaſon to enter your young *Dogs* is at the firſt Hand of the Year before they are great and ſtrong.

Your *Hounds* after Two Years Old, may be exerciſed three times a Week, for which they will be better, provided they Feed well; and keep them out the greateſt Part of the Day, to try their Stoutneſs, and to make them bold.

It is obſerved that a *Hare* leaveth a better Scent when ſhe goeth to Relief, than when ſhe cometh from her Form, by reaſon that when ſhe feedeth, ſhe coucheth low, and paſſeth oft times over one Plot to ſeek good Feeding, and thus leaveth a better Scent; for when ſhe goeth to her Form, ſhe commonly takes the Highways, Doubling and Croſſing, as lightly as ſhe can; and yet ſhe will oft times Squat by the Sides of High-ways. Now having found where a *Hare* hath Relieved, the Seaſon of the Year and the Weather muſt be conſidered; for if it be Spring, or Summer, a *Hare* will not ſit in the Buſhes, but in Corn-Fields and open Places, whereas in Winter they delight to ſit near Towns and Villages, in Brambles, and Tufts of Thorns, eſpecially when the Wind is Southernly or Northernly.

According to the Seaſon and Nature of the Place where the *Hare* is accuſtomed to ſit, there beat with your *Hounds* to ſtart her, which is much better ſport than Trailing of her from her Relief to her Form; and having Hallowed in your *Hounds*, and all of them in full Cry, then Recheat to them with your Horn, following fair and ſoftly at firſt, for fear of their over-ſhooting the Chaſe through too much Heat; but after about an Hour's Courſe, you may come in nearer with the *Dogs*: And above all things, be ſure to obſerve well her firſt Doublings, which muſt be your Directions for the whole Days Chaſe; and if the *Hounds* fall at Default, 'tis a ſign that the *Hare* hath made ſome Doublings, or Croſſings, or that ſhe hath gone and come back again the ſame way, in ſuch caſe do not over-ſhoot it, but make a ſtay, and let the *Hounds* beat about to find the Scent in the freſh green Places, and forget not to Reward the *Hounds* and to encourage them.

And if you chance to find an old Form, let the Huntſman be provided with a Piece of Bacon, and therewith anoint the end of his Hunting Pole, and whenſoever he would point his *Hounds* to a Muſe, or to any Place, let him but ſtrike his Pole on the Ground, and the *Hounds* will go through the Muſe, or come into any Place where he ſhall point them, and hunt it much better. But if the Huntſman, when he hath caſt about, find that the *Hare* is gone out beyond the compaſs he caſteth, then let him call back his *Hounds* to the Place where they firſt came at Default, and there beat with the *Hounds*, ſtill outwards on both Sides of the way; for oft times the *Hare* followeth the High-ways very far to Double, Croſs, and uſe her Policies, and will not go out of the Way for about a Mile together; and in ſuch Places the *Hounds* can have no Scent, by reaſon of the Duſt, and other Impediments; and yet they will Squat upon, or near the out-ſides of the Ways; and therefore let the Huntſman beat the ſides of the Ways very well.

There are ſome Lands in which a *Dog* can never make any Scent, and ſuch are thoſe that are of a low, fat, glutinous, and greaſy ſhining Mould, and thoſe give more Scent than they receive; therefore the Huntſman muſt help out the *Dogs* by Pricking, for generally thoſe Soils are moiſt, and apt to receive Impreſſions. In Plains and Downs there is very ſhort Graſs, and few or no Shrubs or Buſhes; ſo that the Scent drieth immediately, and in ſuch Places the Eye muſt help the Noſe.

Beware how to hunt in Froſty Weather, for then *Hares* run beſt, and *Dogs* worſt; for the *Hare* hath his Feet furred, as it were, for the ſame purpoſe; but the *Dogs* are all bare, and beſides the cutting or bruiſing their Feet, doth endanger the loſing their Claws, and conſequently the ſpoiling the *Dogs*. Likewiſe in Froſty Weather the Scent freezeth with the Earth, ſo that there is no Certainty until it Thaw, or that the Sun ſhineth to ſoften the Earth. It is likewiſe found not good to Hunt if it rains, for the Drops diſperſe the Scent of the *Hare*, ſo that it is beſt to leave off until it be fair. Likewiſe the Summer Seaſon is not good to Hunt in, for the Heat loſeth the Scent; and the Nights being but ſhort, the *Hare* goeth not far, and only Feedeth in the Evenings and Mornings.

Some are of Opinion, that according to the Places where you firſt Enter your young *Hounds*, and the Nature of the Quarry given them, they will accordingly prove for the future; as if Entred in the plain Champion Countries, they will always take greater delight to hunt there, than in Coverts, Mountains, Marſhy Grounds or the like Places; therefore it is good to uſe them to all ſorts of Grounds, it being eaſie to bring them to enjoy a Scent, from a Bleak Down to a freſh Paſture, for good *Hounds* will ſoon be Maſters of any ſort of Ground.

It is an old Saying and a true, The more *Hares* you hunt, the more you may; for when once a *Jack* and a *Doe* have accompanied together in any Place for ſome time, they will not permit any other *Hare* to frequent or uſe their Territories, but force them away, except their own Young; nor will they permit them to ſtay long after they are able to ſhift for themſelves, ſo that the more you kill, the more room you make for freſh ones.

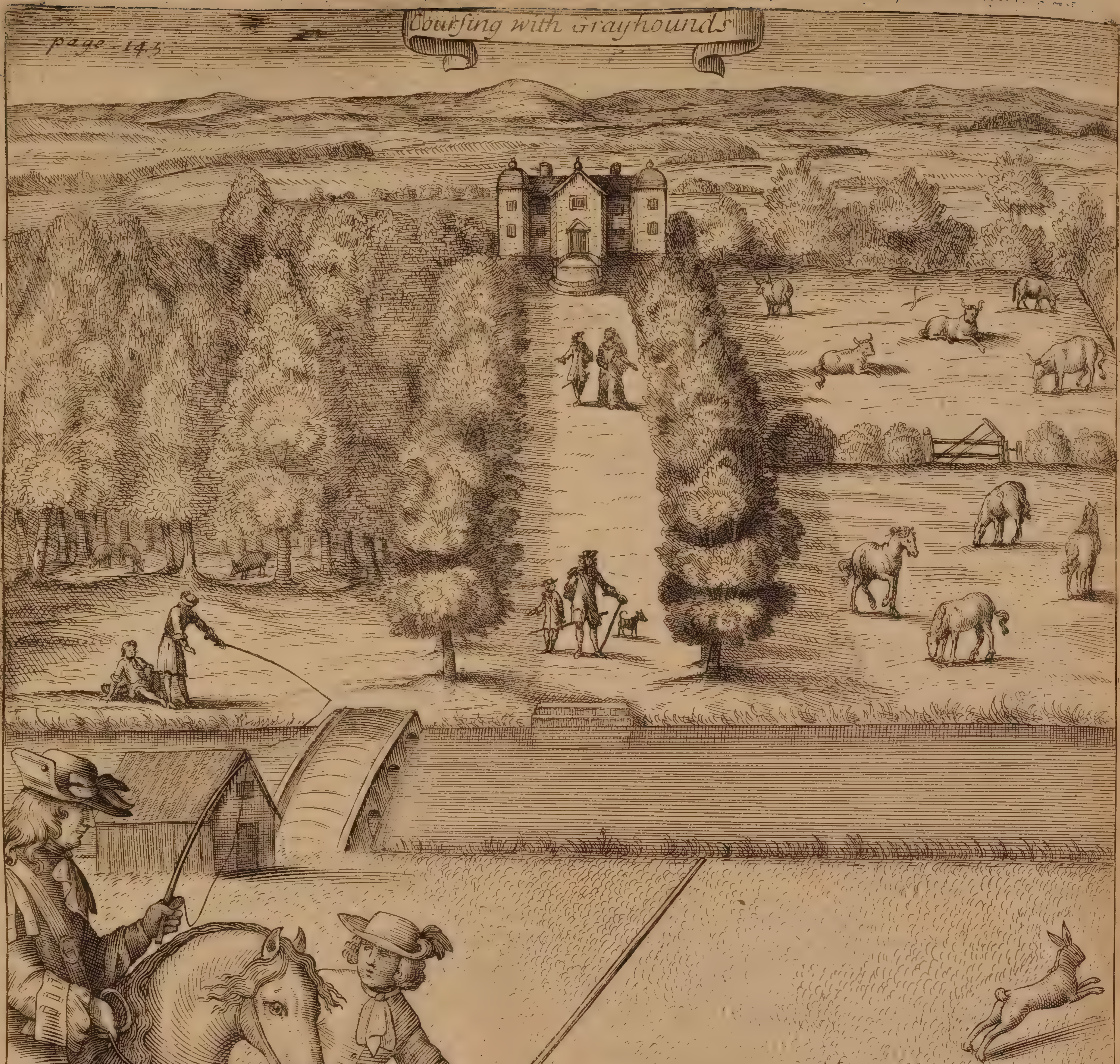
There is great Exactneſs required in the firſt Entring your young *Hounds*, never uſe to uncouple them in the ſame kind of Ground; for if you uncouple them three or four times at firſt in a plain Field, and ſo hunt to the Form, they will not know what to do, when you turn them looſe in a Covert, but let them have diverſity of Hunting, that ſo they may be perfect at all. But to return to the *Hare*: When any *Hound* hath accidentally found the Trail of a *Hare*, where ſhe hath relieved that Night, the Huntſman muſt not be too haſty to encourage him, until he hath found her out.

The Huntſman ought to obſerve how the Winds are, for when North or Eaſt, the *Hares* will be ſure to keep cloſe in the Buſhes, Tufts, Brambles, and the like Places; eſpecially in the Winter; but in Summer the Snakes, and ſuch like things that frequent ſuch Places do annoy them, ſo that they make uſe of Corn Fields, and other Places.

There are ſome that in Hunting never hallow before the *Hare*, neither help the *Hounds* by Pricking, or Laying them on in full freſh Scent, or the like, neither aſſiſt them at a Default, but ſuffer them to work it out of themſelves: This is confeſſed to be a ſure Way to try the goodneſs of your *Hounds*, but 'tis tedious and laborious: Others there are that take all the advantages they can to help them, by marking which way the *Hare* bendeth at firſt, and then they will coaſt before to meet her; and at every Default help them out, and this is eſteemed a ready way to kill all they meet with.

How to Reward the Hounds *when they have killed the* Hare.

WHen your *Hounds* have killed the *Hare*, and that you intend to give over the Sport for that time, let the Huntſman if on Horſeback alight, and blow the Death with his Horn, to call in the Company; then let him lay down the *Hare* in ſome clean Place, upon the Graſs or the like, and let the *Hounds* Bay about it, but ſuffer them not to touch it; and let them be encouraged, and made much of, clapping and ſtroaking them on the Sides, ſhewing them the *Hare*. Then take up the *Hare*, and hulk her, and ſtrip off her Skin before the *Hounds*; and being thus ordered, and the Gall and Lights taken away, which will make them ſick, proceed to Reward


page. 145.
Courſing with Grayhounds
S.G

To the Right Honourable Thomas Savage, Earle
Rivers, Viſcount Colchester and Rock-Savage, Lord
Darcy and Baron of Chich &c.ª
This Plate is humbly Dedicated by Richard Blome.

ward them after this manner; The Huntſman muſt be provided in his Wallet with Bread cut in ſmall pieces, and dipt in the Blood; which diſtribute to the *Hounds*, together with the Inwards, except the Lights; and ſometimes the whole *Hare* except the Lights, if you are provided with a Brace or Leeſh; and if there are any young *Hound* that is fearful to come in among the reſt, give him the *Hares* Head by himſelf, which will much embolden him; but fail not to give your *Hounds* Bread after it, to prevent Sickneſs; for 'tis a Meat wherein they delight not by Nature, and the Antipathy between them is improved by Art; for you muſt underſtand that the Fleſh of a *Hare* will make a *Dog* Heartſick, and cauſe him to Vomit; but it is otherwiſe with the Fleſh of a *Stag*, or any other *Deer*, for that agrees very well with them; and to ſay Truth, the Fleſh of a *Hare* is not very good for Man, being dry, and hard of Digeſtion, breeding Melancholy Blood; but *Leverets* or young *Hares* are good and nouriſhing.

There are ſome Parts of the *Hare* that are found good Medicines for ſome Diſeaſes; for Inſtance, The Brains are good for young Children in Breeding Teeth, the Fleſh well Roaſted is good for Fluxes of the Belly. For ſtopping of the Urine, take a *Hares* Skin being made clean, and put it whole into an Earthen Pot paſted over on the Top; and let it ſtand in two or three hot Ovens, until you find it parched to Powder, of which take an Ounce, and mix it with Rheniſh or White-wine, and drink it every Morning faſting two Hours after it; and in a ſhort time it is ſaid to break the Stone both in the Ureters and Bladder; but the Body muſt firſt be prepared with ſome gentle Purge; and whilſt you uſe it, keep Plates of Lead on the Patient's Reins about four Fingers broad, ſewed between two or three Linnen Cloths; the Gall is ſaid to be good for Eyes that are Filme grown. 'Tis ſaid that their Dung hinders a Woman's Conception; but though this can't be confirm'd for Truth, yet this may be ſaid, that it being made into a *Suppoſitorie*, and put up the Matrix, reſtrains the too immoderate Defluxion of the Courſes, and dries up the moiſt Humours, and Slipperineſs of thoſe Parts. The Blood is a great Dryer, and very good to kill all Tetters, Ringworms, Scabs, Morfues, *&c.* and makes the Skin ſmooth and white; and the downy Fur or Wool being burnt to Powder, is very good to ſtop Bleeding.

Warreners have a very crafty way to Fatten *Hares*, which is to ſtop their Ears with Wax, to the end they may not hear Noiſe; for being freed from the fear of Sound, for want of Hearing, they ſoon become Fat.

CHAP. XIV.

Of Greyhounds, *and Courſing with them.*

THE *Greyhound* of all *Dogs* is, for Swiftneſs of Foot, and neatneſs of Shape, to be preferred before all others.

In chooſing a Whelp, that which weigheth lighteſt, generally proves the beſt and nimbleſt; alſo thoſe that are raw-boned, lean, looſe made, and for the moſt part unlike in every Joint, do make excellent and well-ſhaped *Dogs*; whereas thoſe that after three or four Months appear round, cloſe, truſs'd, and fat, and well knit in every Part are ſcarce worth the rearing, ſeldom proving good, ſwift or comely; and it is obſerved that the *Bitches* are commonly more ſwift and nimble than the *Dogs*.

At two Years old your *Greyhound* will be at his full Growth, and for the chooſing one of an excellent Shape, he ſhould have a fine thin Skin, with ſoft thin Hair, a long, lean Head, with a ſharp Noſe, from the Eyes downwards; a full clear Eye, with large Eye-lids, little Ears, a long Neck bending like a Drake, with a looſe hanging Weezand, broad Breaſted, his Body indifferent long, and reaſonable great, with a Back ſtreight and ſquare, having a riſing in the middle, a ſmall Belly, broad Shoulders, round Ribs, with a long ſpace between his Hips, a ſtrong Stern, a round Foot with large Clefts, and his Fore-Legs ſtraight and ſhorter than his Hinder.

How to Breed and Order Greyhounds *to the beſt Advantage.*

BE ſure to Breed on a right tryed *Bitch*; for an indifferent *Dog*, may get on ſuch a *Bitch* very good *Whelps*: But the beſt and ſureſt way is to have both the *Dog* and *Bitch* good, and then there will be no fear of your *Whelps* proving excellent; and to be exact, both *Dog* and *Bitch* ſhould be of an equal Age, and not exceeding Four Years; but the *Bitch* will breed much longer, ſo that a young *Dog* Line her.

But although a *Grey-hound* have all the aforeſaid good Shapes in Perfection, and be alſo excellent in his Kind, yet thro' diſorderly Keeping he may be ſpoil'd; you muſt therefore underſtand the Art both of well feeding, and right entring him.

How to feed and order Grey-hounds.

YOur Feeding and Dieting a *Grey-hound* doth not altogether conſiſt in the Meat you give him, but alſo in his Exerciſe, Airing and Kennelling. If he be in a full State, the Chippings of Bread or Cruſt, ſteep'd in freſh Broth, is very good. The like is Milk and Bread, or Butter-milk, ſoft Bones, with ſuch like good Diet, Mornings and Evenings, which will keep him in a good State of Body.

If he be ſick, or low in State, then take Sheep's-heads or Feet, with the Wool on; chop them in ſmall Pieces, boil them with ſweet Herbs and Oat-meal, and make Broth thereof, which is very comfortable, and feed him therewith Mornings and Evenings, until he is recover'd.

Their Kennels muſt be made airy, and the Door into the Yard ſhould be towards the South for Warmneſs; and let the Benches on which they are to lie be about two Foot and a half from the Ground, with Holes bored in the Boards, for their Piſs to fall away; and on the Benches muſt be Straw, which ſhould be always freſh, and be ſure to let their Kennels be kept clean.

When any of your *Dogs* are to run a Wager, then give them Diet-Bread thus made; Take half a Peck of dry'd Oat-meal, and twice as much Wheat; let them be both ground, and bolted through a fine Sieve; then ſcatter amongſt it ſome beaten Anniſeeds and Liquorice, and knead it up with the Whites of Eggs and new Ale into ſmall Loaves, which bake pretty hard: And this Bread give them ſoak'd in Broth, as aforeſaid, Morning and Evening, after you have air'd and walk'd them; and this will bring 'em to Strength of Wind and Body.

The Exerciſe of your *Grey-hound* conſiſts in Airing and Courſing him; you muſt courſe him at leaſt twice a Week, if your Courſes be long and ſtrong, elſe every other Day; and in Courſing reward and encourage him with the Blood, that he may delight in his Courſe.

At the firſt Entring him, for once or twice let him have an Advantage of the Game, which is beſt to be a young *Hare*, and not giving her Law; but afterwards you may let him labour for it, yet not ſo much as to baffle him by giving the *Hare* too great Law. And thus you may diſcern the uttermoſt Ability and Strength of your *Dog*.

After a hard Courſe, it were not amiſs to waſh his Feet with Water and Salt, (which is far better than broken Beer and Butter made luke-warm, being the uſual Way) and ſo put him in his Kennel, and about half an Hour after feed him.

If he kills his Game, he muſt be rewarded, by giving him the Heart, Liver, and Lights; but ſuffer him not to break the *Hare*, but take her from him, otherwiſe he will be brought to an ill Cuſtom many times in tearing thoſe he kills, before you can come in to him.

Upon Courſing-Days give him in the Morning before you air him a Toaſt and Butter, or Toaſt and Oil, and nothing elſe.

Your Airing muſt be thus: Firſt rub him with a Hair-cloth in his Kennel; then take him into your Leaſh about half an Hour after Sun-riſing, and walk him out into ſome Place where no Sheep or Cattle are, ſuffering him to play with you, and to friſk about to empty himſelf; then take him into your Leaſh, and lead him home to his Kennel. The ſame Method muſt be uſed in the Evening; and in the Winter permit him once a Day to enjoy the Benefit of the Fire: And it were not amiſs if you kept him always in his Kennel, where he may neither do nor receive Hurt; and it is obſerved to breed in them Luſt, Spirit, and Nimbleneſs, and keep the Pores from ſpending, until time of Neceſſity.

Grey-hounds that are bred in low fat Grounds, and deep Vales, are ſaid to out-run thoſe that are bred in ſmooth Downs.

Courſing.

Courſing with *Grey-hounds* is a Recreation in great Eſteem with many of the Gentry. It affords greater Pleaſure than *Hunting* in ſome Reſpects: As, Firſt, In regard it is ſooner ended. Secondly, It requires leſs Toil. Thirdly, The Game is for the moſt part always in Sight. And, Laſtly, In reſpect of the delicate Shape, and Qualities of a *Grey-hound.*

There are three ſeveral Courſes with *Grey-hounds*, *viz.* at the Deer, at the Hare, and at the Fox.

For the Deer there are two Sorts of Courſes, the one the *Paddock*, and the other either in a Foreſt or Purlieu. For the *Paddock* there muſt be the *Grey-hounds* and the *Teazer*, which is a kind of a Mongrel *Grey-hound*, whoſe Buſineſs is to drive away the Deer before the *Grey-hounds* are ſlipt; and moſt uſually there is let ſlip a Brace, or a Leaſh, ſeldom exceeding two Braces.

The Paddock-Courſe, *with the Deſcription of a* Paddock.

A *Paddock* is a Piece of Ground, encompaſs'd with Pales, or a Wall, and moſt commonly taken out of a Park. It muſt be a Mile long, and about a Quarter of a Mile broad; but the further End muſt be ſomewhat broader than the near, and the Reaſon is, becauſe moſt People deſire to ſee the End of the Courſe, and who wins the Wager. At the hither End muſt be the *Dog-houſe*, where the *Dogs* are kept that are to run the Courſe, which muſt be attended by two Men, and one of them to ſtand at the Door to ſlip the *Dogs*, and the other muſt be a little without the Door to let ſlip the *Teazer*, to drive away the Deer, as aforeſaid. On the other Side muſt be made three Pens, for as many Deer as are deſign'd for the Courſe; and there muſt be alſo a Keeper or two to turn out the Deer for the Courſe. The Deer are to run all along by the Pale, and on the other Side, at ſome Diſtance, ſtand the Spectators. There muſt alſo be placed along the Courſe theſe Poſts; the firſt, which is next the *Dog-houſe* and *Pens*, is the *Law-Poſt*, which is diſtant from them 160 Yards; the ſecond is the *Quarter of a Mile Poſt*; the third the *Half Mile Poſt*; the fourth the *Pinching-Poſt*; and the fifth is the *Ditch*, which is in lieu of a Poſt, being a Place ſo made to receive the Deer, and keep them from being further purſued by the *Dogs*. Near to this Place are made Seats for the Judges to ſit, who are choſen to decide the Wager.

As ſoon as the *Grey-hounds* that are to run for the Plate, or Money, are led in to the *Dog-houſe*, they are deliver'd to the Keepers, who by the Articles of all Courſes, are to ſee them fairly ſlipt; to which Purpoſe there is put about each *Dog* a *Falling-Coller*, which they ſlip thro' the Rings. After the Owners of the *Dogs* have drawn Cuts which ſhall have the Wall, by reaſon there ſhall be no Advantage more to the one than the other. Then the *Dog-houſe* Doors are ſhut, and the Keeper order'd to turn out of the Pens the breathed Deer; and ſo ſoon as the Deer is turn'd out, and gone about twenty Yards, then he that holds the *Teazer* ſlips him to force forward the Deer: Then when the Deer is come to the *Law-Poſt*, the *Dog-houſe* Door muſt be open'd, and the *Dogs* led out and ſlipt. If the Deer ſwarve before he comes to the *Pinching-Poſt*, ſo much that his Head be judged to be nearer the *Dog-houſe* than the *Ditch*, then 'tis judged no Match; and in ſuch caſe it muſt be run again three Days after. But if there be no ſuch Swarve, but that the Deer runs ſtreight until he comes beyond the *Pinching-Poſt*; then that *Dog* that is neareſt the Deer when he ſwarves, or is blanched by any Accident, wins the Match. But if no ſuch Swarve happens, then that *Dog* that leaps the Ditch firſt wins the Match: All which is to be determin'd by the Judges, who ſit as Spectators, as aforeſaid; and if other Diſputes ariſe about the Courſe, it is referr'd to the Articles of the Courſe.

The Courſe of the Deer *in the Foreſt or Purlieu.*

There are two Ways uſed, the one is Courſing from Wood to Wood, and the other upon the Lawns by the Keeper's Lodge.

If you Courſe from Wood to Wood, firſt throw in ſome young *Hounds* into the Wood to bring out the Deer, and if any Deer come out that is not weighty, or a Deer of Antler, which is Buck, Sore or Sorel, then do not ſlip your *Grey-hounds*, that are held at the End of the Wood where the Deer is expected to come forth, which the Keepers have good Judgment to know. And if you miſtruſt that your *Grey-hounds* will not kill him, then you may way-lay him with a Brace of freſh *Grey-hounds*.

For the Courſing upon the Lawn, when you have given the Keeper notice he will lodge a Deer fit for your Courſe; then by coming under the Wind you may come near enough to ſlip your *Grey-hounds* for a fair Courſe.

Courſing the Hare.

FOR Courſing the Hare, the beſt way is to go and find out one Sitting, which is eaſily done, by walking croſs the Lands, either Stubble, Fallow, or Corn, and caſting your Eye up and down; for during the Summer-Seaſon they frequent ſuch Places for fear of Ticks, that are common in Woods; alſo the Rain and the Fall of the Leaf doth offend them. The reſt of the Year beat up and down with your Poles, to ſtart them out of their Forms and Retreats, and ſome Hares will not ſtir until they are almoſt touch'd, and 'tis a ſure Sign that ſuch Hares make an excellent Courſe.

If a Hare ſit near any Cloſe or Covert, and have her Head towards the ſame, with a fair Field behind her, you may ride with as much Company as you have between her and the Covert before ſhe be put up, and then ſhe is likely to make her Courſe towards the Champion, for ſhe ſeldom takes the ſame Way that her Head is when ſhe ſits in her Form.

When a Hare is firſt ſtarted, you give her Ground or Law, which commonly is Twelve-ſcore Yards, or more, according to the Ground where ſhe ſits; or elſe you loſe much of your Sport, by putting too ſoon an End unto it; and it is very pleaſing to ſee the Turns and Windings that the Hare will make to ſave herſelf, which ſometimes prove effectual unto her.

Courſing the Fox.

IN Courſing the Fox there is required no other Art than to ſtand cloſe, and on a clear Wind, on the Out-ſide of ſome Grove, where you expect his coming out, and then give him Head enough, otherwiſe he will turn back to the Covert; for the ſloweſt *Grey-hound* will be ſwift enough to overtake him; and all the Hazard of this Courſe is the ſpoiling your *Dog* by the *Fox*, which oft-times happens; and therefore you ſhould not run any that are worth much at this Chaſe, but ſuch that are hard-bitten *Dogs*, that wlll ſeize any thing.

The Laws obſerv'd in Courſing.

I Shall conclude this Chapter with the *Laws of Courſing*, as they were eſtabliſh'd by the Duke of *Norfolk* in the Reign of Queen *Elizabeth*, which were ſubſcribed unto by the chief Gentry, and ſo held Authentick.

That he that is choſen *Fewterer*, or that lets looſe the *Grey-hounds*, ſhall receive the *Grey-hounds* matched to run together into his *Leeſh* as ſoon as he comes into the Field, and follow next to the *Hare-finder*, or he that is to ſtart the Hare, until he come unto the Form, and no Horſe-man or Foot-man are to go before, or on any Side, but directly behind, for the Space of about forty Yards.

You ought not to courſe a Hare with above a Brace of *Grey-hounds*.

The *Hare-finder* ought to give the Hare three *Sohoes* before he put her from her Form or Seat, to the End the *Dogs* may gaze about, and attend her Starting.

They ought to have Twelve-ſcore Yards Law before the *Dogs* are looſed, unleſs there be Danger of loſing her.

That *Dog* that gives the firſt Turn, and if after that there be neither *Cote*, *Slip*, or *Wrench*, then he wins the Wager.

If one *Dog* give the firſt Turn, and the other bears the Hare, he that bears the Hare ſhall win.

A *Go-by*, or *Bearing* the Hare, is reputed equivalent to two Turns.

If neither *Dog* turn the Hare, he that leadeth laſt to the Covert wins.

If one *Dog* turns the Hare, ſerves himſelf, and turns her again, it is as much as a *Cote*; for a *Cote* is eſteem'd two Turns.

If all the Courſe be equal, he that bears the Hare ſhall win; and if he be not born, the Courſe ſhall be adjudged dead.

If a *Dog* take a Fall in a Courſe, and yet perform his Part, he may challenge the Advantage of a Turn more than he gave.

If a *Dog* turn the Hare, ſerve himſelf, and give divers *Cotes*, and yet in the End ſtand ſtill in the Field, the other *Dog*, if he turns home to the Covert, although he gives no Turn, ſhall be adjudged to win the Wager.

If by Misfortune a *Dog* be rid over in his Courſe, the Courſe is void; and to ſay Truth, he that did the Miſchief ought to make Reparation for the Damage.

If a *Dog* give the firſt and laſt Turn, and there be no other Advantage betwixt them, he that gave the odd Turn ſhall win.

A *Cote* is, when the *Grey-hound* goeth end-ways by his Fellow, and gives the Hare a Turn.

A *Cote* ſerves for two Turns, and two *Trippings* or *Jerkins* for a *Cote*; and if ſhe turneth not quite about, ſhe only wrencheth.

If there be no *Cotes* given between a Brace of *Grey-hounds*, but that one of them ſerves the other at Turning; then he that gives the Hare the moſt Turns wins the Wager: And if one gives as many Turns as the other, then he that beareth the Hare wins the Wager.

Sometimes the Hare doth not turn, but wrench; for ſhe is not properly ſaid to turn, except ſhe turn as it were round, and two Wrenches ſtand for a Turn.

He that comes in firſt to the Death of the Hare takes her up, and ſaves her from Breaking, cheriſheth the *Dogs*, and cleanſeth their Mouths from the Wool, is adjudged to have the Hare for his Pains.

Thoſe that are Judges of the Leeſh, muſt give their Judgment preſently, before they depart out of the Field.

CHAP. XV.

Of taking and Hunting the Coney *or* Rabbet, *with* Dogs, Nets *and* Ferrets; *and how to order a Warren; with Directions for Breeding and Keeping tame* Rabbets.

THE Coney, though it yield not ſo great Pleaſure in hunting as the Hare, as being endow'd with none of thoſe Slights and Cunnings; yet it is of greater Profit, both in regard of their Fleſh and their Skins, which excel thoſe of the Hare.

The Does go with Young a Month, and then they kindle; and if ſhe taketh not Buck preſently, ſhe loſeth her Month, or at leaſt a Fortnight, and often kills her Young, eating them, eſpecially the Bucks. They begin to breed at about half a Year old, commonly breeding two, three, or four times a Year, and about five, ſix or ſeven at a Litter. When the Buck goeth to the Doe, he beats and ſtamps with his Feet very hard, which (as 'tis ſaid) cauſeth Heat in him; and having ſtruck or buck'd her, falls down backwards; ſo lying for ſome time as it were in a Trance, until he hath recover'd himſelf, at which time it is eaſie to take him. The Bucks will kill the young ones, if they can come at them; and therefore Nature hath ſo decreed it, that the Does prevent them by ſtopping or covering their Stocks or Neſts with Earth or Gravel, which they cloſe up ſo artificially with their Breeches, that it is hardly to be diſcern'd; and they never ſuckle them but early in the Mornings, and late at Nights, cloſing the Holes every time after their coming out for eight or ten Days, after which time they begin to leave it a little open, and by Degrees as they grow big, which is at about three Weeks old, they leave it quite open for them to come out, they being then fit to eat Graſs.

In ſuch Places in the Warrens where the Ground is rocky and ſtony, it were not amiſs to have Artificial Burrows made; and if your Warren were encloſed with a Brick-Wall (whoſe Foundation ſhould be deep) it would be of great Advantage; for then it would obſtruct the Rabbets from ſtraggling out to be loſt; alſo it would prevent their being ſtole by idle Fellows, and likewiſe it would hinder Foxes, Badgers, Pole-cats, and the like Vermin, from getting in, being great Enemies to Warrens, by deſtroying them; therefore thoſe Warreners, that have not ſuch Conveniences and ſecure Places, muſt be the more diligent to hunt and beat them in three or four times a Week, or daily, to prevent their ſtraggling out for freſh Paſture, as alſo to deſtroy thoſe Vermin by Traps, Snares, and Engines, as hereafter ſhall be treated of, for otherwiſe your Warrens will never be well ſtock'd.

The beſt and ſureſt Way to ſtore a Warren, is to provide near your Lodge (for though Coneys require neither Food nor Water, but what they can get, except in exceeding hard Weather, and of a long Continuance; and at ſuch times they muſt be relieved with Hay, the Boughs of Trees and Bark to brouze upon; yet you ſhould have a Warrener to attend them, to preſerve them from being deſtroy'd by Thieves and Vermin) a handſome incloſed Place, with a Pent-houſe, under which you may have ſeveral Hutches for the Keeping tame Rabbets; for they are large, and great Breeders. 'Tis true, the Fleſh of the old ones that are kept up is ſomething more rank, occaſion'd through Want of Exerciſe; but the young ones are eſteem'd better: But when once you turn them out to become wild, they ſoon loſe that Rankneſs, and become free Denizens of the Soil where you put them. When the young ones are big enough to ſhift for themſelves, you may put them into your Warren, with a little Reſpect to the Seaſon of the Year in regard of the Cold; for theſe young ones at a Month old are leſs able to endure Cold, as being never accuſtom'd to it, than thoſe of a few Days, that have their Dams to cheriſh them.

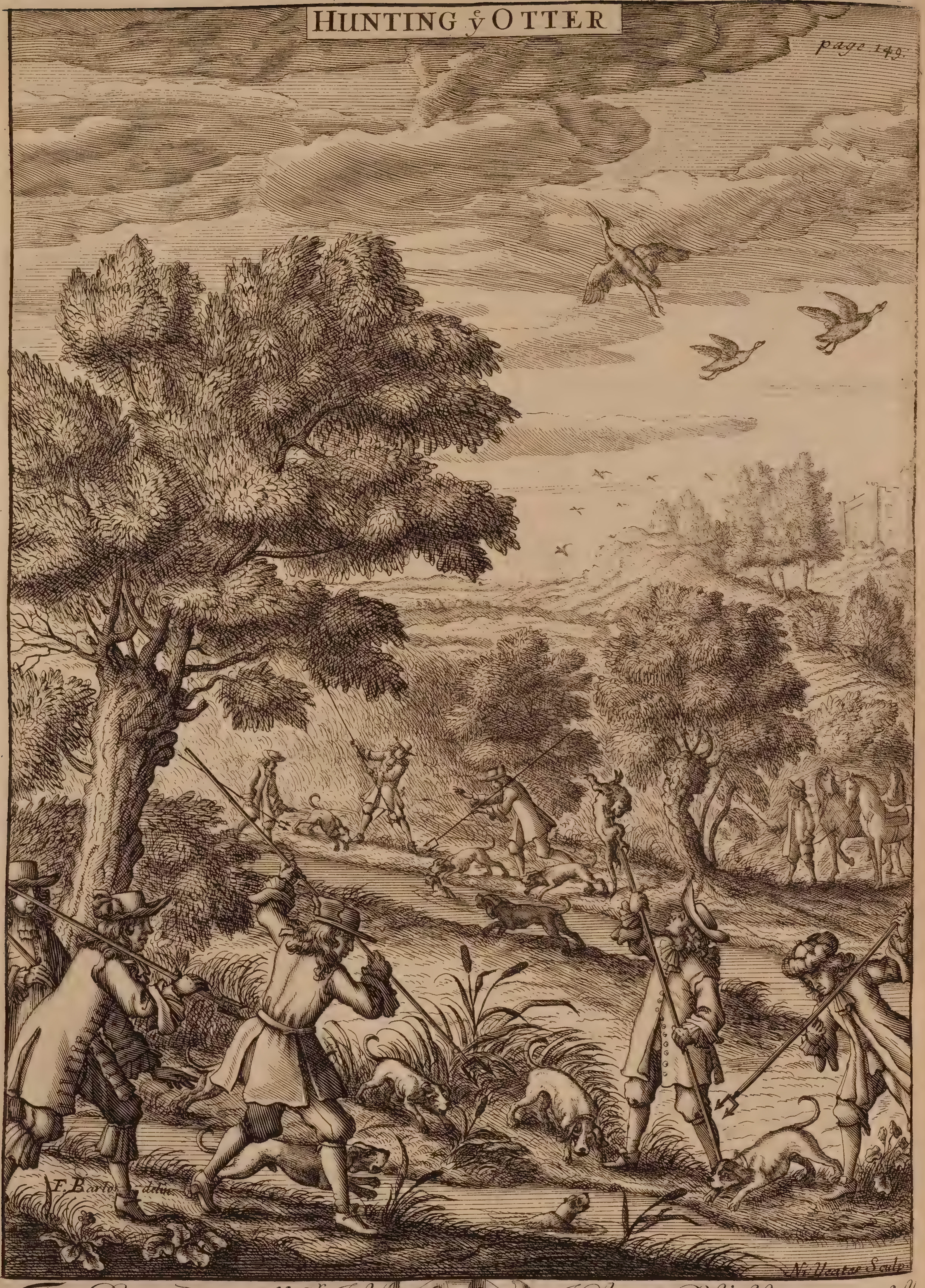
The Hutches wherein you keep your Breeders muſt have divers Cells or Neſts, and they muſt be kept neat and clean, otherwiſe Diſeaſes will breed amongſt them. Likewiſe the Bucks muſt be kept apart from the Does, until they have juſt kindled, and then they muſt be taken from the Young, and put to the Buck; and you may eaſily know when ſhe is ſtruck enough, for then ſhe will avoid the Buck. Tame Rabbets breed ſeven or eight times in a Year, and eight or nine at a Litter. For the chuſing of tame Rabbets, take the biggeſt and faireſt you can get, and if you can, let them be black, or Silver-hair'd; for thoſe Skins do exceed the others in Price.

Their Food, as before noted, may be Coleworts, Cabbage-Leaves, Carrots, Parſnips, Clivers, Apples, green Corn and Fetches in the time of Year, with ſuch like moiſt Food; but you muſt always obſerve to give them a proportionable Quantity of dry Meat, as Bran, Bread, Hay, Oats, and the like, otherwiſe they will be Pot-belly'd, and ſo die. You may alſo give them Bran and Grains mix'd together, which is very good Food.

Great Care muſt be taken, when any Graſs is cut for them, where there are Weeds, that no Hemlock grow amongſt it; for though they will eat it with great Greedineſs, yet 'tis a preſent Poiſon, and ſuddenly kills.

The Infirmities tame Rabbets are ſubject to are twofold; firſt the Rot, which comes by giving them green Meat, or gathering them Greens, and giving them with the Dew on; therefore let them have it but ſeldom, and then the Dryneſs of the Hay you give them will dry up their Moiſture, knit them, and keep them ſound without Danger. The beſt Food you can give them is the ſweeteſt, ſhorteſt, and beſt Hay that can be got, of which one Load will ſerve 200 Couples a Year, and out of the Stock of 200 may be ſpent in the Houſe as many, ſold in the Market as many, yet maintain a good Stock to anſwer all Caſualties. The Hay muſt be kept in little cloven Sticks, that they may with Eaſe reach and pull it out of the ſame, but ſo as not to ſcatter nor waſte any. 2. They are ſubject to a certain Rage or Madneſs, engender'd by corrupt Blood, ariſing from the Rankneſs of their Keeping; and it's known by their Wallowing or Tumbling with their Heels upwards, and Leaping in their Boxes; the Cure whereof is to give them Tare-Thiſtle to eat.

Monſ. *Liger* ſays, That the Serpent is one of the greateſt Enemies Rabbets have; That this venomous Inſect deſtroys and devours 'em where-ever ſhe lights on them: And this is ſo terrible a Monſter to them,


HUNTING y^{e} OTTER
page 149.
F. Barlow delin
N. Yeates Sculp

To y^{e} R^{t}. Worſhipfull S^{r}. John Hobart of Blinkling in Norfolk
Bar^{t}. heyre male to Sr Hen Hobart K^{t}. & Bar^{t}. Cheiſe Juſtice
of ye Common Pleas; who deſcendee from ye 2^{d}. ſon of S^{r}. James Hobart,
of Hales in y^{e} ſ^{d}. County Attourny Generall to K. Henry the 7th.
This Plate of Hunting ye Otter is humbly dedicated by Ric Bloome

QVÆ SUPRA

as to be alone the Cauſe of making them forſake the Warren; and therefore to prevent this as much as poſſible, Care ſhould be taken in making a Warren to plant a great many Aſh-Trees in it, to which, according to the Doctrine of Naturaliſts, the Serpent has ſo great an Antipathy, that ſhe ſhuns above all things the Shadow of this Tree, with ſo much Precipitation, that to avoid the ſame ſhe will rather croſs a River, than come near it.

One Buck may very well ſerve nine or ten Does, and no more.

If your Warren be very barren, you may ſow about an Acre or two of Summer-Corn for their Food, which will turn to good Profit.

The Ways to take Coneys.

FOR the Taking of Coneys there are divers Ways to be uſed, ſome of which I ſhall here take Notice of, as being a Beaſt of no great Skill or Subtilty. You may hunt ſuch as ſtraggle from their Burrows with ſmall *Grey-hounds* or *Mongrels*, Bred up for the Purpoſe; and the Places for hunting them are amongſt Buſhes, Hedges, Corn-Fields, or freſh Paſtures; and though you miſs killing them, yet thereby you drive them back to their Retreats, and preſerve them from being a Prey to others.

You may alſo drive them into their Burrows, and ſpread Purſe-Nets upon the Holes; ſo that when they come out they will be entangled in them, and ſo be taken. Now to force them out, 'tis good to have a Ferret or two, whoſe Mouths muſt be coup'd or muſled up, and ſo put into the Holes, which will cauſe them to bolt out into your Purſe-Nets; for the Coneys do eaſily ſmell the Ferrets, and at their Approach (being of a fearful Nature) dare not ſtay to ſee them. And for the ſurer taking them, it were good to have in a Readineſs a Hay or two, which ſhould be pitch'd up at a ſmall Diſtance againſt the Burrows you intend to hunt, according to the Figure repreſented in the Plate for taking Coneys.

Of the Ferret.

THE Ferret is a little Creature, that naturally breeds in *England*, tho' not in our Neighbouring Countries. They are of a bold and audacious Spirit; and an Enemy to all others but their own Kind, delighting to ſuck the Rabbets Blood, rather than to eat their Fleſh; but being tamed, are uſeful to the Warrener for the forcing the Coneys out, as before noted. A Ferret's Body is longer for the Proportion than the Quantity may afford, the Colour variable, but moſt commonly of a yellowiſh Sandy, like Wool died in Urine, the Head a little like a Mouſe's; ſo that wherever ſhe can put it in, the whole Body eaſily enters. The Eyes are ſmall, but fiery like a red-hot Iron, and therefore they moſt clearly ſee in the Dark. Their Voice is a whining Cry, without changing, and they have only two Teeth in the Nether-Chap, ſtanding out, and not joining and growing together.

The Males Genitals are of a bony Subſtance, therefore always ſtiff, and of equal Bigneſs, and the Pleaſure in Copulation is not in the ſaid Part, but in the Muſcles, Tunicles, and Nerves. The Female lies down, or bends her Knees, and cries like a Cat.

They go with Young ſix Weeks, and uſually bring forth ſix or ſeven at a time. Their Young are blind a Month, and after two Months more they are fit for Service. The Food that is given 'em is Milk, Sheeps-Hearts, Livers, raw Fleſh, and the like. They ought to be kept in Tubs, or other convenient Places, where they cannot get out, and to have freſh Straw; for they are very naſty, and of an ill Savour. Before you go to hunt with them, do not feed them; for when their Bellies are full they will be idle, and not hunt, lying ſleeping in the Burrows two or three Hours together before they come forth, and ſometimes much longer. When you have done hunting with them, uncoup them, and reward them with the Rabbet's Liver, which they much delight in, and ſo put them up in your Bag, and carry them home.

I ſhould here ſpeak of the *Lircher* or *Tumbler*, a *Dog* ſo called by reaſon of his Wiles and circumventing Tricks to take them; but having treated of him already in *Chap.* II. that treats of the ſeveral Sorts of *Dogs*, I ſhall forbear to ſpeak any thing here.

I ſhould alſo treat of the Taking the Coney with Engines, Traps, Snares, Nets, *&c.* but being intended to ſpeak thereof in the Chapters that treat of the Taking the Fox, Otter, Badger, Hare, *&c.* as alſo of the Pole-cat, Fitchet, and the like Vermin, I ſhall not ſay any thing here, but refer you to the ſame for further Satisfaction.

CHAP. XVI.

Hunting the Otter.

THE Otter is an amphibious Creature, having his Habitation as well in the Water as on the Land, and reſembling the Beaver, were it not for his Tail; and altho' the Otter hath much of his Abode in the Water, yet he doth not breathe like Fiſh thro' the Benefit of the Water, but like other four-footed Beaſts, and will remain under the Water for a good while without Reſpiration.

The Otter always reſides near great Ponds or Rivers, and preyeth on all manner of Fiſh, of which he is a great Deſtroyer, and, if not obſtructed, will in a ſhort time clear a whole Pond; and for want of Prey in the Water will make his Incurſions within Land, and if all fail, will feed on Roots, Herbs, or what not, to fill his Belly; nor will he take leſs Pains in the Water to ſatisfie his Hunger, being ſaid to ſwim above a Mile againſt the Stream to get his Prey, which, according to Obſervation, he ſmells at a good Diſtance; and when he hath fill'd his Belly, he is carried down the Current at Eaſe to his Couch, Hough, or Lodging, which is always near the Water, or in ſome hollow Stump or Root of a Tree, very artificially built with Boughs, Sprigs, and Sticks, wherein he ſits; and when he lifts up his Noſe above the Water for Air, it is term'd *Venting*: Nor will he remain long in a Place, for fear of a Surprize, or for ſome better Conveniency, having an excellent Ear for Hearing, and as good a Noſe for Smelling, being eſteem'd a very ſubtle Creature, and very nimble in taking his Prey; and for Greedineſs deſtroys far more than he eats, ſeldom eating farther than the Navel, leaving the Tail-part, diving deep under the Water, ſo that no Fiſh can hardly eſcape him, unleſs thoſe that are very large and ſwift of Swimming.

The Otters, when reclaim'd, are of great Uſe and Pleaſure, by reaſon of the great Quantities of Fiſh they take, which, as being ſo taught, they bring to their Maſter or Keeper.

They go to Sault at ſuch times as Ferrets do, and bring forth their Young, ſometimes more, ſometimes leſs. They are footed like a Gooſe, with a Web between their Claws, having no Heel, but only a round Ball under the Sole of their Feet, the Impreſſion of which is term'd the *Mark* or *Seal* of an Otter. Their Excrements are term'd *Spraits*, their Stones are reported to be good againſt the Falling-Sickneſs; and the Skin of a well-grown Otter is worth twelve or fifteen Shillings, and ſometimes more, if it be of a ſhining Black; and of theſe Skins are made excellent Muffs. Their Fleſh is not over-wholſome, yet eaten in *Germany*.

There is much Subtilty to be uſed in the hunting the Otter, yet by Cunning and Pains they may be enſnar'd under Water, and by the River-Sides.

If you would Hunt, or Train an *Otter*, you muſt be provided with *Otter-Hounds*, and Spears, and be ſure to have a *Draught Hound* or two that will hunt in the Lyame; and ſet on each ſide of the River one of them, with about two Couples of *Hounds*, and a Man or two to attend; and obſerve his Vents, that you may ſtrike him with your *Otter-Spear*; or if you miſs, then to purſue him with your *Hounds*; and if they are good and well entred for the Sport, they will come Trailing along by the River ſide, beating every Tree, Root, Oſier-Bed, or Tuft of Bullruſhes, and ſometimes will take the Water like *Spaniels*; and if any of the *Hounds* finds him out, then look in the moiſt Places to ſee which way he bent his Head; for if the Marks make no Diſcovery, you may partly find it by the *Spraits*, and ſo follow the *Hounds*, and Lodge him as you do a *Deer*. You may uncouple ſome of the *Hounds*, and walk beating up and down the Sides of the River, under the Buſhes, Stubs of Trees, and in the Holes; and you ſhould rather beat up againſt the Stream than down it, by reaſon the *Otter* uſeth to Fiſh againſt the Stream, the better to get Scent of the Fiſh.

If you find him not quickly, you may judge he is gone to Couch ſomewhere further off from the River, for every Night he ſeeks his Prey on the Land, and makes his Spraits ſo, that if there be an *Otter* in that Quarter, you may ſoon find it out, either by the *Hounds*, or by his Spraits.

The Huntſman having carefully beaten the moiſt Places as aforeſaid, and found which way he bent his Head, which may often be diſcovered by his Marks, he may then lodge him any Evening; But if he do not quickly make him out, he may be ſure he is gone to Couch farther off from the River ſide; and when the Huntſman hath lodged him in his Couch, he muſt not uncouple the *Hounds* until he be within about a Bow-ſhoot or two of the Place, for he will preſently make away upon the firſt Noiſe, and draw towards the River, where ſome freſh *Dogs* muſt be laid ready to intercept him.

The Huntſman muſt alſo have *Otter* Spears to dart at him, and wound him in the Water when he Vents, for when they find themſelves Wounded with the Spear, they preſently make to Land, where they furiouſly encounter the *Hounds*. Being ſenſible the cold Water muſt annoy their green Wounds; and therefore they ſpin out their Lives to the length of a Thread, chooſing rather to Die in Torments among the *Dogs*, than in the other Element. There is indeed Cunning to be uſed in Hunting them; but they may, without any more ado be enſnared under Water and by Rivers Sides; but Care muſt be had of them, for they will Bite Sorely, and Venomouſly, and if after their Enſnaring, they chance to abide there long; they will ſoon enlarge themſelves with their Teeth: After the *Dogs* are once well entred, they will eagerly follow the Chaſe, leaving no Place unſearched that is fit for their Reception, as Holes, Oſier Beds, or the like moiſt Places.

CHAP. XVII.

Hunting the Beaver.

THE *Beaver* as before noted, differs not much from the *Otter*, but only in his Tail; there are great Quantities of them in *Virginia*, *New-England*, *New-York*, and thoſe Parts, and their Skins are found a good Commodity here in *England*, for making of *Beaver Hats*. They are an Amphibious Creature, as the *Otter* living on Land and Water, both Freſh and Salt; and without Water they can't ſubſiſt, much participating of the Nature of Fiſh, which may be concluded from their hinder Legs, and Tails. They are much about the bigneſs of Mungril Curs, their Fore-feet are like thoſe of a *Dog*, and their Hinder like that of a Gooſe, having a Web to aſſiſt them in their Swimming; their Head is ſhort, with ſmall round Ears; their Teeth are very long, broad and ſtrong, ſtanding out above their Lips about three Fingers broad; and their Teeth being their only Weapon to defend themſelves againſt other Beaſts; and with their Teeth they will ſoon gnaw down a ſmall Tree; their Tail is very ſtrange, being without Hair, and covered over with a Skin, like the Scales of Fiſh, and is about half a Foot long, and for the moſt part ſix Fingers broad.

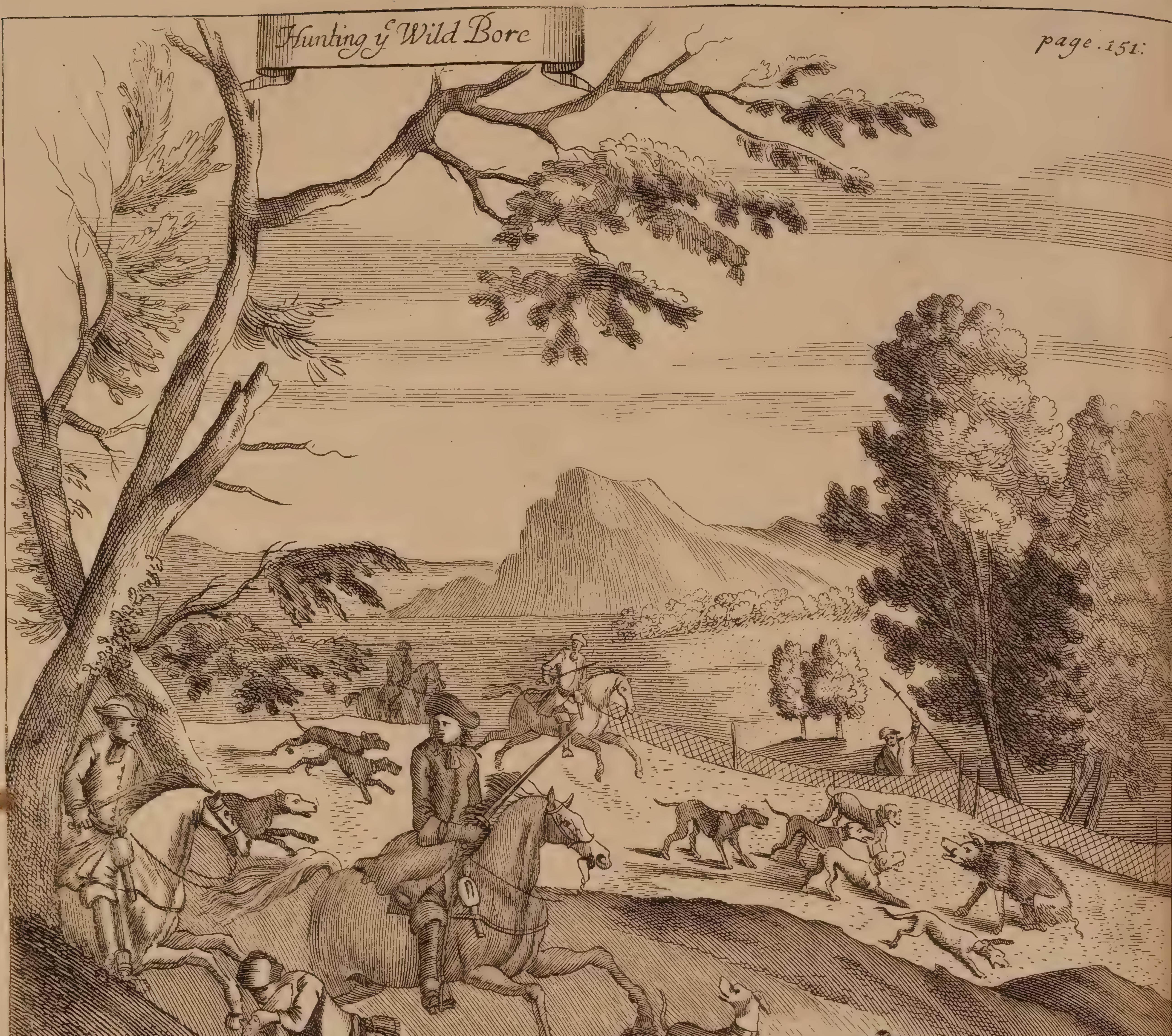
They are taken for their Skins and Cods, which are of a high Price; And for the taking them, you muſt find out their Caves, in which are ſeveral Chambers, or Places of Retreat, built by the Water ſide, to aſcend or deſcend according as the Water riſeth or falleth; and the building of them is almoſt wonderful to behold, being made of Sticks, and plaiſter'd with Dirt very artificially, in form of a *Bee-hive*, but for largeneſs, as big as a good Oven.

Their Caves or Places of Abode being found, a Breach muſt be made therein, into which put a little *Dog*, which when the *Beaver* perceiveth, ſhe immediately gets to the end of her Cave, and there defends her ſelf with her Teeth, until all the building is deſtroyed, and ſhe laid open to her Enemies, ſo that ſoon ſhe becomes their Pray.

The *Dogs* uſed for killing them, are ſuch as for the *Otter*.

The *Beaver* can't dive long under Water, but muſt put up his Head for Breath; and then they ſhoot him, or ſtrike him with their Spears, which are ſuch as uſed for the *Otter*.

In *Virginia*, *New-England*, &c. there are great ſtore of them, and one that dwelt in thoſe Parts gave this Account of them, That they dwell, or inhabit in low mooriſh boggy Places, through which


Hunting yͤ Wild Bore
page.151:

To his Royall Highneſs George
Prince of Denmarke &c.ª

This plate is moſt humbly Dedicated by Richard Blome runs a Rill of Water, and this Rill at ſome convenient Place they ſtop, by making a Dam croſs it, to raiſe the Water Breaſt high; and by this Dam which is made Artificially with Earth and Sticks, they make their Caves, and to which belong commonly two or three hundred *Beavers*, reſembling as it were a Town. If this Dam at any time is broken by any to take them, or otherwiſe becomes decayed, the Water being their chief Refuge, it is immediately repaired by them. And that by Obſervation they have a Chief, or King over them, who takes care thereof, and the reſt are obſervant to him, to work when he aſſembleth them together, which is done by the flapping his Tail in the Water, making a Noiſe.

Some ſay, when this Beaſt is hunted, and in danger of being taken, that he bites off his own Stones, knowing that he is thus purſued for them only: But this cannot be, ſince they are ſo ſmall, and plac'd like a *Boar*'s, ſo as it is impoſſible to come at them: As for *Beaver* Skins, thoſe are beſt that are blackeſt.

CHAP. XVIII.

Hunting the Wild-Boar.

ALthough *England* affords no *Wild-Boar*'s, yet being ſo plentiful in *Germany* and other Countries, and affording ſo Noble a Chaſe, which is ſo much uſed by the Nobility and Gentry in thoſe Parts, 'tis thought neceſſary to add this Diſcourſe following.

The *Boar* is a Beaſt of ſuch great force, and ſo ſlow of Foot, by reaſon of his Heavineſs, that he is not properly Termed a Beaſt of Venery, for he chiefly truſts in his Strength and Tusks to be his Defence, and not to his Feet; ſo that he is more properly to be hunted by Stout *Maſtiffs*, than by *Grey-hounds*, which can't defend themſelves ſo well from his Fury: Alſo it ſpoils them from Hunting other flying Chaſes, by reaſon he leaveth ſo ſtrong a Scent, ſo that they hunt with greater eaſe than at light Chaſes, which are more painful unto them to find, and to hold the Scent.

The Nature and Subtilties of the Boar.

THE *Boar* is of this Nature, that when he is Farrowed hath all his Teeth, amongſt which he hath four Tusks, on each ſide two, and with thoſe on the lower Jaw he defends himſelf, as being greater and longer than the reſt.

The common Age of a *Boar* is twenty five or thirty Years; they go to Rut about *December*, and their great Heat endures about three Weeks; and altho' the *Sows* become cold of Conſtitution, not coveting the Company of the *Boar*, yet they do not ſeparate until *January*; and then they withdraw themſelves unto their Holds, wherein they keep cloſe three or four Days, not ſtirring thence, eſpecially if they meet with ſuch Places where Fern grows, whoſe Roots are ſweet and pleaſing to them.

It is eaſier to bring a *Boar* into a Soil in *April* or *May*, than in any other Seaſon, by reaſon they ſleep at that time more ſoundly, which is occaſioned by their eating of ſtrong Herbs, and Buds of Trees, which moiſtens their Brains, and cauſeth Sleep. Alſo the Spring time occaſions their Sleeping.

Their Food is on Corn, Fruits, Acorns, Cheſnuts, Beech-Maſt, and all ſorts of Roots; when they are in the Marſhy and Watery Places, they feed on Water-Creſſes, and ſuch like things as they can find; and when they are near the Sea-Coaſt, they Feed on Cockles, Muſcles, Oyſters and ſuch like Fiſh.

A *Boar* moſt commonly lies in the ſtrongeſt Holds of Thorns and thick Buſhes, and will abide the Bay, before he forſake his Den. If you hunt him from a ſtrong thick Covert, he will be ſure to go back the ſame way he came, if poſſible; and when he is rouſed, he never ſtays until he comes to the Place where he thinks himſelf moſt ſecure. If it ſo happen, that there is a *Sounder* of them together, then if any break *Sounder*, the reſt will run that way; and if he be hunted in a Hold, or Foreſt where he was bred, he will hardly be forced to quit it, but ſometimes he will take Head, and ſeem to go out, drawing to the outſides of the Covert, but 'tis only to hearken to the Noiſe of the *Dogs*; for he will return again, from whence he will hardly be compelled till Night; but having broken out, and taken Head endways, will not be put out of his way for Man or Beaſt.

A *Boar* will not cry when he is killed, eſpecially a great *Boar*, but the *Sows* and young ones will. In Fleeing before the *Dogs*, he neither doubleth nor croſſeth, nor uſeth ſuch Subtilties as other Beaſts of Chaſe do, as being heavy and ſlow, ſo that the *Dogs* are ſtill in with him.

Terms of Art uſed in Hunting the Boar.

A *Boar* of three Years Old is called a young *Boar*, that hath lately left the *Sounder*; and an old *Boar* is called a *Sanglier*, that hath left the *Sounder* four or five Years.

A *Boar* is ſaid to feed in the *Corn*, but if in the Meadows or Fallow Fields then he *Routeth* or *Wormeth*; but when he feeds in a Cloſe and Routeth not, then he *Grazeth*.

How to know a great Boar *by his Foot, by his Routings, and by his Soil.*

TO know an old or great *Boar* by the Foot, the Form or Print thereof ought to be great and large, the Toes round and thick, the Edge of the Hoof worn and blunt, without cutting or paring the Ground ſo much as the younger doth: and the Gards which are his hinder Claws, or Dew-Claws, ſhould be great and open one from the other; the treading of his Foot ſhould be deep and great, which ſheweth the Weightineſs of his Body, and his Steps ſhould be great and long.

By the largeneſs and depth of his Routing, his greatneſs may be known; his Greatneſs is alſo known by the length and largeneſs of his Soil, when he walloweth in the Myre; Alſo when he comes out of the Soil, he will rub himſelf againſt a Tree, by which his Height appears.

How to Hunt the Boar *at Force with* Dogs.

THE Seaſon for Hunting the *Boar* begins about mid-*September*, and ends in *December*, at which time they go a *Brimming.*

It is not convenient to hunt a young *Boar*, of three Years old at Force; for he will ſtand up as long (if not longer) than a light young Deer, that beareth but three in the top; but when he is in his fourth Year he may be hunted at force, as well as a *Hart* of Ten, and will ſtand up as long. Therefore if a Huntſman goes too near a *Boar* of four Years Old, he ought to mark well whether he went timely to his Den or Couch, or not; for commonly thoſe *Boars* which tarry till it be Day-light go into their Dens, following their Paths or Ways a long time, eſpecially where they find Fern, or Bed-maſts, whereupon they Feed; they are very hardy, and the Huntſman needs not be afraid to come near unto ſuch a *Boar*, for he will not eaſily be reared; But if he find a *Boar* which Soileth often times, and which Routeth ſometimes here and ſometimes there, not ſtaying long in a Place, 'tis a ſign that he hath been ſcared and withdraweth himſelf to ſome reſting Place, and ſuch *Boars* moſt commonly come to their Dens or Holds two or three Hours before Day, and then the Huntſman muſt be careful not to come too near them, for if they once find him in the Wind, or have the Wind of his *Dogs*, they will ſoon be gone.

If a *Boar* deſigns to tarry in his Couch, he makes ſome Doublings or Croſſings at the Entry thereof, and then lieth down to Reſt, and being early in the Wood you may judge of his Subtilty, and accordingly prepare to hunt him with *Dogs* that are either hot ſpirited, or temperate; for if it be a great *Boar*, and one that hath lain long at Reſt, he muſt be hunted with *Dogs* that will ſtick to him, and let the Huntſmen on Horſeback be amongſt them, charging the *Boar*, and forcing him as much as poſſible, to diſcourage him; for if you hunt ſuch a *Boar* with four or five Couple of *Dogs* he will not regard them, and when they have a little chafed him he will take Courage and keep them at Bay, ſtill running upon any thing that he ſeeth before him; but if he perceive himſelf charged, and hard laid unto with *Dogs* and Huntſmen, then he abateth his Courage, and fleeth to ſome other Place for Refuge. You muſt alſo ſet Relays, which ſhould be of the beſt old ſtauncheſt *Hounds* of the Kennel; for if you ſhould make your Relays with young *Hounds*, and ſuch that are ſwift and raſh to ſeize him before the reſt come up, they will be ſpoiled or killed by him: But if he be a *Boar* that is accuſtomed to flee end-ways before the *Dogs*, and to take the Champion Countrey, then caſt off four or five Couple of *Dogs* at the firſt, and ſet all the reſt at Relays, about the Entry of the Fields where you think he is likely to flee; for ſuch a *Boar* will ſeldom keep the *Hounds* at a Bay, unleſs he be forced, and if he do ſtand at Bay then the Huntſmen muſt ride in unto him as ſecretly, and with as little noiſe as poſſible, and being near him, let them caſt round about the Place where he ſtands, and run upon him all at once, and it will be hard if they do not give him his Death-Wound with their Spears or Swords, provided they ſtrike not too low, for then he will defend the ſtroaks with his Snout, and be ſure keep not long in a Place uſing a quick motion. And 'tis obſerved, that if you put Collers of Bells about your *Dog's* Necks, a *Boar* will not ſo ſoon ſtrike at them, but flee end-ways before them, and ſeldom ſtand at Bay.

If a *Boar* make Head againſt the Huntſman he muſt not fly, but meet him with his Spear, having great regard to the Motion of his Head, for his Nature is ſuch, to ſnatch the Spear out of his Hands, if he can by any Subtilty, by which means he endangers his Life; therefore when any ſuch thing ſhould happen, there is no way to ſave his Life, but for another of the Company to charge him home with his Spear, upon which he leaves his firſt Man, and ruſheth upon the ſecond, who muſt be very dexterous in the ordering his Weapon for fear of danger.

If you ſtrike at him with your Spear or Sword, ſtrike not low, as aforeſaid, to hit him on the Snout, for that he regards not, making it his great care to receive blows upon his Tuſks, but ſtrike down right, and in thus aſſaulting him, they muſt be very careful, for he will run or ruſh upon them with great fierceneſs.

The Hunting-Spears muſt be very ſharp, and broad, branching forth into certain Forks, ſo that the *Boar* may not break through them upon the Huntſmen; and the beſt Places to Wound him therewith, are upon his Shoulders, or on his Forehead betwixt his Eyes.

When you firſt raiſe him out of the Wood (which is beſt to be in the Morning early, before he hath made Water) he uſeth to ſnuff in the Wind, to ſmell what is with or againſt him, and very ſeldom ſtrikes a Man till he be firſt Wounded; and when he finds he is ſo Wounded as not to Live, he is ſo enraged, that he makes what ſlaughter he can, flying at all he meets with, and his Teeth are at ſuch time ſo hot that it cauſeth the Wound to be inflamed.

In the Chaſe of the *Boar* you are to obſerve the ſame Diligence and Devices, which are uſed in Hunting the *Hart*; for a *Boar* of three Years Old will ſtand as long before the *Dogs* as a light young Deer, which beareth but three in the Top, as before taken notice of.

CHAP. XIX.

Of the Polecat, Fitchet, Martern *and* Wild-Cat.

POlecats, *Fitchets.* and *Marterns*, are a ſort of Vermin very deſtructive to Warrens, and Henhouſes; They have a ſtrong Scent; they are not Chaſes to be ſought or purſued after, yet when by accident they are diſcovered, they afford very good Diverſion, and a *Hound* Croſſing on them will hunt them as merrily as any other Chaſe, and make a full Cry for the time they ſtand before them, which is not long; for they quickly betake themſelves to ſome Tree, and truſt to that Policy ſooner than to their Strength; and yet it is much to ſee the Strength of Nature of theſe Creatures, and how ſtoutly they will make their Party good againſt the *Hounds*, ſcratching, clawing, and biting ſo, that moſt of 'em come off with Bloody Noſes; at laſt they betake themſelves to ſome Trees, leaping from Bough to Bough, and Tree to Tree; in the mean time the *Dogs*

Dogs baying at them on the Ground, and the Huntſman pelting them with Stones, Sticks and the like; alſo a Croſs-bow, or Bow with Bolts doth good execution, and ſoon puts an end to the Hunt.

The Hunt being ended, the *Dogs* expect their Reward; but it muſt not be the Fleſh of the Vermine, that being not good, neither will they meddle with it; therefore you ſhould hang them up on the end of the Hunting Pole, calling the *Dogs* together, that they may ſee it for their Encouragement, but Reward them with pieces of Bread, or the like.

A *Martern* is about the bigneſs of a *Cat*, having a longer Body, and ſhorter Legs, with a Head and Tail like a *Fox*. It's Skin is commonly brown, white on the Throat, and ſomewhat yellowiſh on the Back, their Teeth are exceeding white and unequal, being ſharp above meaſure: Some will have this to be the *Polecat*, or *Wild-Cat*, a ſort of Vermine well known in *England* for their Deſtructiveneſs to Hens and tame Fowl.

Their Skin is a good Fur, nor is that of the *Polecat* without its Virtues, being reputed very uſeful and comfortable for cold Aches in the Bones and Joints, and the Greaſe is good for extending Shrunk Sinews. The *Martern* is hunted after the ſame manner as the *Wild-Cat*.

Having juſt mention'd the *Wild-Cat*; we are to obſerve, that this is a ſort of Vermine, that is very noxious and deſtructive; and 'tis the Opinion of experienc'd Huntſmen, that ſhe makes as good a Cry and leaves as great a Scent as any Creature that is hunted: But tho' her Caſe is not ſo good as that of the *Martern*, yet 'tis very Warm and Medicinal for ſeveral Aches and Pains in the Bones and Joints: Her Greaſe alſo is very good for Sinews that are ſhrunk: This Creature is not to be ſought purpoſely, no more than the forementiond ones, unleſs the Huntſman ſees it where it preys, and can go readily to it.

CHAP. XX.

Hunting the Squirrel.

THIS is a little Animal, greater in Compaſs than a Weaſel, but the latter is longer than the other. The Back-part and Body is reddiſh, ſaving the Belly, which is white. They are in general of three Colours: In the firſt Age black, in the ſecond of a ruſty Iron-colour, and laſtly when old they become full of white hoary Hairs. Their Teeth are like thoſe of Mice, having the two Under-Teeth very long and ſharp. The Tail is always as big as their Body, and lies continually on their Backs when they ſleep, or ſit ſtill, and ſeems to be given them for a Covering: They are alſo of another valuable Uſe to them, ſerving inſtead of Wings to help 'em to leap a very great Diſtance from one Tree to another, and ſupporting them without Sinking to any one's Appearance; nay, they will frequently leap from a very high Tree down to the Ground, without receiving any Hurt: To which, as a great Rarity in this little Animal, we may add their admirable Sagacity in ſwimming or paſſing over a River; for being conſtrain'd with Hunger ſo to do, they ſeek out ſome Rind or ſmall Bark of a Tree, which they ſet upon the Water; then they go into it, and holding up their Tails like a Sail, let the Wind drive them to the other Side; and they carry Meat in their Mouths to prevent Famine, whatever ſhould befal them.

Hunting the *Squirrel* affords excellent Paſtime, and not without ſome Profit; for both the Fleſh and Skin is uſeful, the former being good Meat, and the latter an excellent Fur. 'Tis a very thrifty provident Creature, providing in the Summer-Seaſon Nuts, and ſuch like Food in their Neſts, to keep them in the Winter, for they do not much care to ſtir abroad in cold Weather, eſpecially when the North and Eaſt Winds blow. They build their Neſts (which by ſome are called *Drays*) in the Summer on the Tops of Trees very artificially, with Sticks and Moſs of an oval Form, like an Egg, with a Hole in the Middle, that the Rain may not anoy them.

The Way of Hunting them is with *Dogs*, which are to bay at them on the Ground, which, with the *Huntſmen* hallowing, doth much affright them; and if one or two of the Company had ſmall Drums to beat, it would the more amaze them, and facilitate the Sport.

Then the Men pelt them with Stones, or Cubitſticks, as the Pole-cat, courſing them from Tree to Tree. The Croſs-bow, or the Bow and Bolt, as likewiſe the Gun makes a quick Diſpatch of them.

The Archer indeed need not fear to do her much Hurt, unleſs he hit her on the Head, by reaſon of a ſtrong Back-bone and fleſhy Parts, whereby ſhe will abide as great a Stroke as a *Dog*.

The beſt Seaſon to hunt 'em is in Autumn, when the Leaves are off the Trees; and indeed 'tis very pretty Sport to ſee them ſkip and jump from Tree to Tree with ſuch Nimbleneſs to ſave themſelves, but all to little Purpoſe, for in the End either the Men or Dogs ſeize them.

If they be driven to the Ground from the Trees, and creep into the Hedges, 'tis a Sign of their Wearineſs; for during their Strength they have ſuch lofty Minds, that they will keep the Trees with all the Dexterity and Subtilty they can.

CHAP. XXI.

To know by the Impreſſion of the Foot, or by the Dung, any Foreſt Beaſt.

HAD I only regarded *Hunting* in the common Acceptation, only managed with Men and Dogs, I might have put an End to this Diſcourſe: But foraſmuch as there are other Ways to attain the End, and thoſe peradventure more uſeful and commendable, I ſhall here treat of ſuch as are moſt approved of for Taking them.

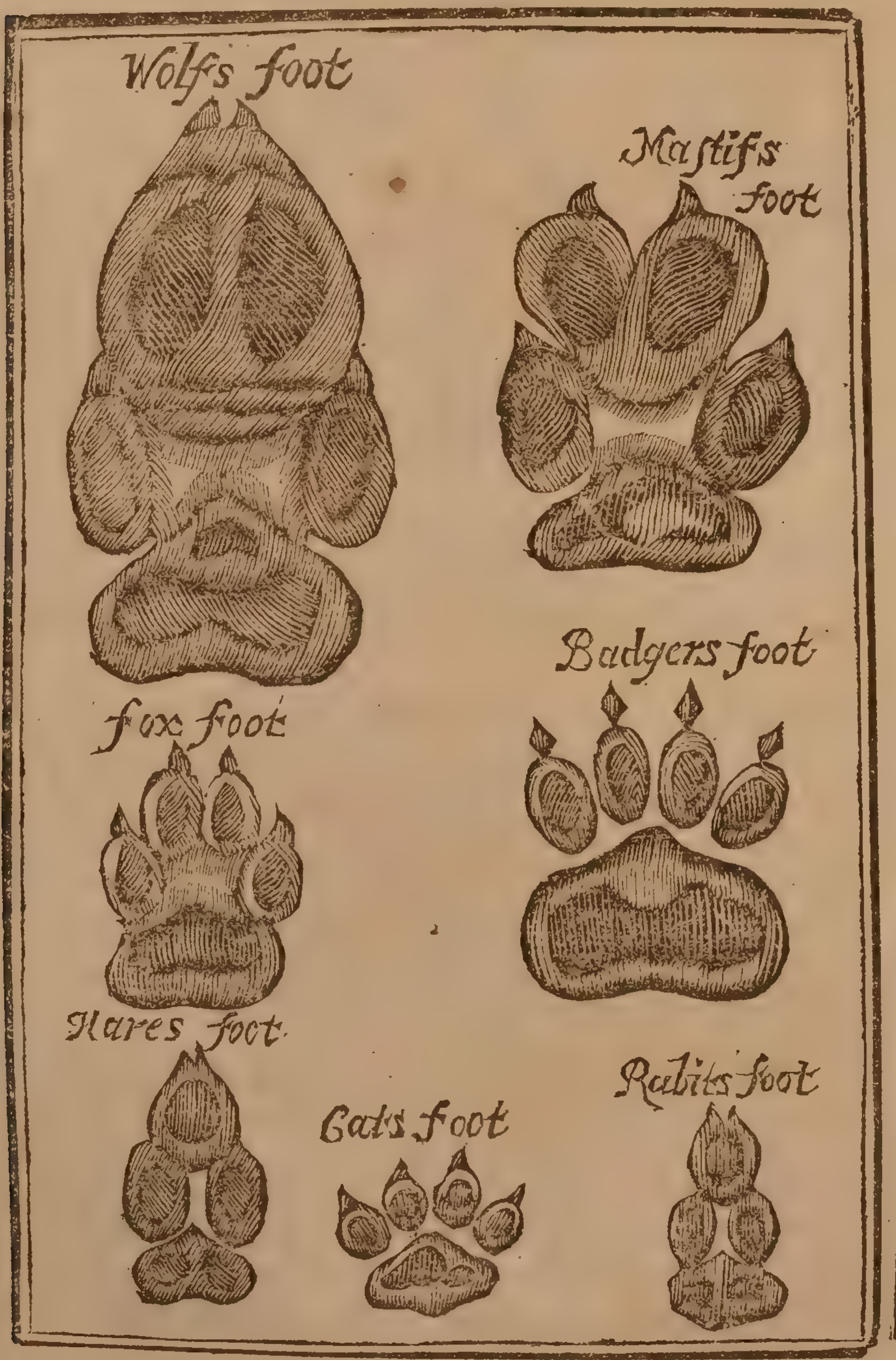
But firſt, The ſkilful Wood-man ought to know the ſeveral Impreſſions of the Feet of every Beaſt of the Foreſt, which they leave imprinted in ſoft and moiſt Places: And you muſt know that the Females make ſmaller Impreſſions than the Males: Nor ſhould the Wood-man be ignorant of the ſeveral Excrements of Foreſt Beaſts, and how to make uſe of every one for the Taking their Fellows; for the Dung of all ravenous Creatures is of great Uſe to draw them on into thoſe Snares and Devices wherewith you intend to entrap them; for ſhould you uſe any Cord, Wood, or Iron, which is not anointed over therewith, theſe Creatures have that Subtilty and good Scent, that they would avoid it. You ſhould therefore in making of Trains uſe Cords made of Hay and Straw, and not uſe Ropes; and when you ſet any Engines, if you cannot get any of their Dung, be ſure get ſome Carrion, and with that rub them over.

Now for the having ſome of their Dung upon Occaſion, as alſo to know what Beaſts are ſtirring in any Place by their Tracts, obſerve thoſe following Directions.

In ſome fair Evening, on the Sides of the Thickets or Foreſts, and by the High-ways, where in all Probability thoſe Beaſts uſe to paſs, dig up the Earth with a How or Mattock, bruiſing it ſmall or fine, about four Foot ſquare in a Place, and ſo do in all likely Paſſes, to the end that whatſoever Beaſt comes over them he may leave his Impreſſion.

For Beaſts of Prey, as the Wolf, Fox, Badger, Pole-cat, *&c.* make a Train, and when you come to any of the Places which you have ſo prepared, throw four or five Bits of your Train-Carrion upon it, and of Chickens Guts for ſmaller Beaſts, and you need not doubt but ſuch Beaſts as eat of the Train will leave ſome of their Dung behind them, as well as the Impreſſion of their Feet, and accordingly you may prepare for them againſt the next Day: But uſe great Circumſpection; for wild Beaſts are for the moſt part very ſubtle, of quick Scent, timorous, and jealous of every thing; only being preſs'd with Hunger, or attracted by the Provocations of Luſt, they are not ſo ſcrupulous.

The Impreſſion of the Foot being of that Importance to know theſe Animals by, we here preſent you with a Cut of ſeveral of them, *viz.* of the Wolf, Maſtiff, Fox, Badger, Hare, Rabbet and Wild-Cat.



The firſt Foot repreſents that of a Wolf, which is eaſily diſtinguiſhable from that of a *Maſtiff*, becauſe the laſt always treads with Action and a quick Pace, makes a greater Impreſſion, and ſpreads his Claws more than the Wolf does, who goes ſlowly, and in Fear, treads more lightly, eſpecially with his Heel: But when he is hunted, and forced to fly, he then ſpreads them more, becauſe he ſupports himſelf with a greater Force. A Fox's Foot is very like unto that of a Hound, but may be diſtinguiſh'd by his not ſpreading his Claws ſo much, unleſs preſs'd to run, and treading more lightly with his Heel. A Badger's Tread is eaſily diſcern'd, becauſe it differs ſo much from other Animals, having his Paws join'd together, and a very thick Heel, treading heavily and alike at all times. An Otter's Tread is almoſt like that of a Badger, ſaving that his Toes, like thoſe of a Man, are longer one than another. His Tract is not to be met with but along River-Sides, where he ſeeks his Food. The Tread of a Hare and Rabbet are alike, there being only a ſmall Difference in the Bigneſs of them: But that you may not be deceiv'd therein, you are to obſerve, that a Hare goes with one Foot before another; but that the Rabbet moves equally both with her Fore and Hind-feet. The wild Cat treads much alike with the tame one, only ſhe does not lean ſo much behind. Here 'tis to be obſerv'd for a general Remark, that all wild Animals do not lean ſo much upon the Heel as the tame ones of their Kind, and that the Females do it ſtill leſs than the Males.

Now foraſmuch as the deſtroying Wolves, and ſuch like ravenous Creatures, (which make War ſometimes with Man himſelf) hath ever been eſteem'd a commendable Exerciſe, and hath at all times been encouraged, I ſhall beſtow a Chapter or two in the Diſcourſe thereof; notwithſtanding at preſent *England* is not annoy'd with any of theſe ſtrong and great Devourers, which heretofore inhabited our Woods and Foreſts: But however, *Ireland* is yet infeſted therewith in ſeveral Parts, ſo that it will not be loſt Labour to treat thereof, but a Benefit to that Kingdom, as alſo to many of our *American* Plantations, where they frequent.

CHAP. XXII.

Concerning the Taking Wolves, Foxes, Badgers, Otters, &c. by Traps, Engines, &c.

WOlves are a Kind of wild Dogs, ſtrong and fierce. Their Young are whelp'd blind, and continue ſo for ſome time. When they have their Young they are very bold, and venture much for Prey for them; and when they are Proud they are moſt fierce, inſomuch that they will moſt furiouſly fight with one another; and at ſuch times they are eaſily purſued and found out in their Retreats, and ſo may be ſhot.

There are ſome Hounds, and eſpecially the large *Iriſh* Grey-hounds, which will run at them; but they ſhould always be laid on a clear Wind in divers Places to aſſiſt each other, and the Men ought to be ready with Half-Pikes to aſſiſt them, and to kill the Wolf when he is ſtay'd; for a Wolf's Biting is mortal to the Dogs.

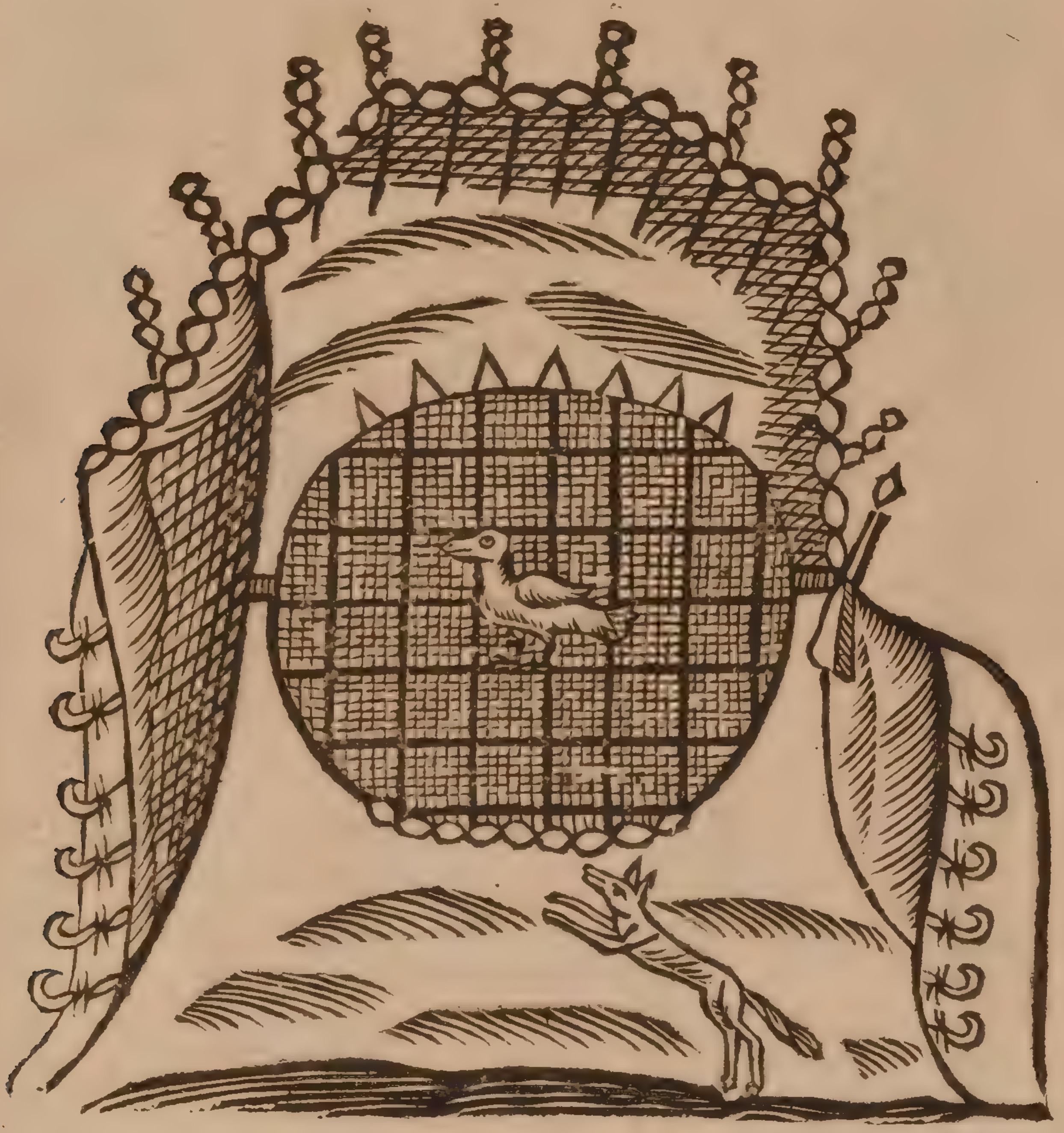
If you run at the Wolf with Dogs, it muſt be by Day; for in the Night their Eyes are ſo flaming and dreadful, that no Dog will venture on them.

A Blood-hound will draw after them very courageouſly, but not all Hounds; and there ought to be particular Care in the Entring your Dogs, at the firſt Seaſon in *Auguſt* and *September*, whilſt they are young, to the end they may be brought on by degrees to encounter with old ones.

There ought to be no Law given to ſuch Beaſts of Rapine; ſo that you may uſe Guns, Bows, or the like, to deſtroy them, taking all Advantages of Age, Sex, or Conditions.

I forbear to give you any further Obſervations of the Nature and Quality of the Wolf, referring you to *Ariſtotle*, *Pliny*, *Geſner*, and others that have written very ſtrange and fabulous Things of them; but proceed to ſhew you ſome Ways (beſides hunting them at Force) how to take them by Gins, Nets, Traps, and the like.

I ſhall preſent you with a kind of *Pit-fall*, which will require little or no Explanation, it is ſo eaſie to be underſtood: The following Figure will deſcribe it unto you.



Be ſure your Pit be large and deep enough, and that your Hurdle be cover'd with Turfs or Earth; the Hinges on which it hangs to be of a juſt Ballance, that the Hurdle may turn and return upon the leaſt Motion. The *Artificial Hedge*, which you ſee made up of Hurdles, ſuch as are uſed for Sheep-pens, may be broad at the Entrance, and ſo growing narrower at the End, that the Wolf, Fox, or Badger may not paſs by the Sides: And on the other End of the Trap place a Gooſe, a young Pig, or the like. Make a Train of ſome Carrion to direct and draw the Beaſts to the ſaid Trap; and it may ſometimes ſo fall out, that you may take two or three in a Night in the ſame Pit. Be ſure therefore that the Trap do exactly cover the Hole, to the end they may not diſcover one another.

Having once taken a live Wolf, you may diſable him from hurting the Dogs by breaking his lower Jaws, and then enter them at him, ſuffering them to kill him, and ſo reward them.

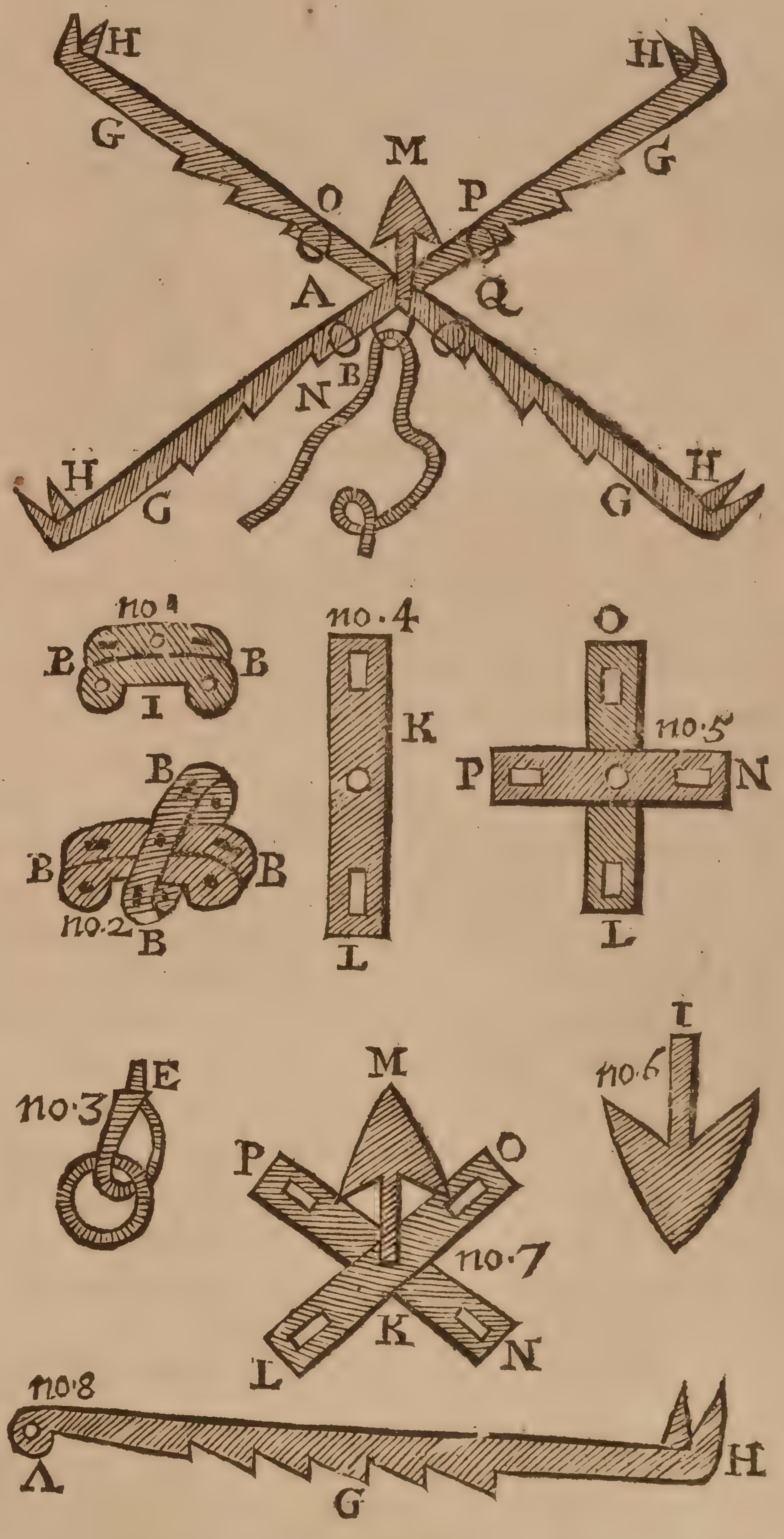
The beſt Way to bait the Trap, is to lay a live Lamb, tied by the four Feet, juſt on the Middle of the Trap-Door, and next to that a Gooſe nail'd, with a Lath over her Feet; for theſe two Creatures being alone, do always call out for their Companions, and conſequently do draw on their Enemies ſo much the more eagerly; and a Wolf or Fox coming to jump on them is more ſurely taken, than if you ſhould place your Bait ot one End of the Trap upon the Ground.

Now if you know where a Wolf, Badger, or the like, uſeth to paſs, you may boldly uſe this Device with good Succeſs; But a Fox will be too cunning, for it is in his Nature to return whenever he meets with any new Contrivances in his Roads, and will not adventure for ſome time, taking his Circumference by other Ways.

The two former Ways for Baiting your Trap are very good, but I ſhall ſhew you one more that excels them, *viz.* Make your Trains, and always draw your Train over the Trap, and then hang the ſaid Train-Carrion on ſome Bough, which butteth juſt over the Trap, ſo that nothing may come to reach it but by firſt ſtanding on the Trap, and ſo you will be ſure of them.

Theſe kind of Traps ought not to ſtand cover'd by Day, for fear of Cattle falling into them.

I ſhall next deſcribe unto you an Iron Engine for the Taking them, very eaſie to be made. This Figure ſheweth its Form.



The Uſe and Explanation of this Engine is as followeth; and for the better Comprehenſion thereof, the ſeveral Pieces are ſet down apart that go to the Compoſure of the whole, with the ſeveral Numbers over them.

Firſt get two Pieces of Iron, as *No.* 1. each two Inches and an half long, one broad, and a Quarter of an Inch thick: Theſe two Pieces muſt have Supporters at each End, as you ſee *B.* and pierced thro' to receive an Iron-Peg. You muſt place athwart one over another, as *No.* 2. riveted in the Middle with a Piece of Iron, as *E*, an Inch long, with a Ring in the End of it, as *R* in *No.* 3.

In the next place, you muſt have two other Pieces of Iron, as *No.* 4. ſix Inches long, one Inch broad, and the ſixth Part of an Inch thick, which muſt be a little hollow'd under, and at each End *L*, *O*, there muſt be an Opening like a Mortice, an Inch long, and about a third part of an Inch broad. Theſe two Pieces faſten in the Middle athwart each other, as *No.*5. with an Iron-Pin, as *M I* in *No.* 6. four or five Inches long, and made like a Snake's Tongue, ſo that being thruſt into any Piece of Fleſh, the Fleſh may not eaſily be gotten off. The End of the ſaid Peg or Pin *I*, muſt be thruſt into the Hole *K*, to hold the ſaid two Pieces fix'd like a Croſs, as *No.* 7.

The next thing to be done, is to prepare four Pieces of Iron, as *No.* 8. each eighteen Inches long, and about a Quarter of an Inch ſquare, unleſs it be towards the Middle *C*, where they muſt be ſomewhat thicker, that is, almoſt half an Inch thick, and not ſquare, but only where the Teeth are. The End mark'd *A* ſhould be rounded with a ſingle Supporter, pierced thro' in the Middle; and the other End *H*, ſhould be like a Fork, with a crooked Back, about two Inches, as deſcrib'd.

All theſe Pieces being thus prepar'd, begin to compoſe the whole Engine by *No*: 1. placing them croſsways, and the End of the Peg *E* into the Hole *I*, that they may not ſtir. Then take a Piece of Iron *M I*, *No.* 6. force the End *I* into the Hole *K* of each Piece, *P*, *N*, *O*, *L*, fixing it very faſt, that nothing may give way. The *No.* 7. ſheweth them altogether. Then take *No.* 8. and put the End *A* into the Mortice or Opening *N*, and then into one of the Supporters *B*, of *No.* 3. and there faſten it with an Iron-Peg, that it may play in and out, and turn like a Caſement on its Hinges. Alſo do the ſame with the three other of the ſame Pieces, placing the crooked Forks upwards, as in the three Figures which repreſent the whole ready ſet.

Your Engine being thus prepar'd, carry it where you find any Carrion laid, and about 50 or 60 Paces from the ſaid Carrion ſet your Engine, and faſten it with a Stake, or Iron-Peg, to the Ground; and, if it might be, place it in the midſt of ſome High-way, or Foot-path; or for want of ſuch a Conveniency, in ſome ſmooth even Place; beat up the Earth the whole Circumference of the Engine, ſo that the Middle may be half a Foot deep, like a ſquare Bed. Juſt in the middle drive in your Stake, or Iron-Peg, which muſt have a Head, or round Knob, that you may faſten thereto the Cord *B*, which holds the whole Engine.

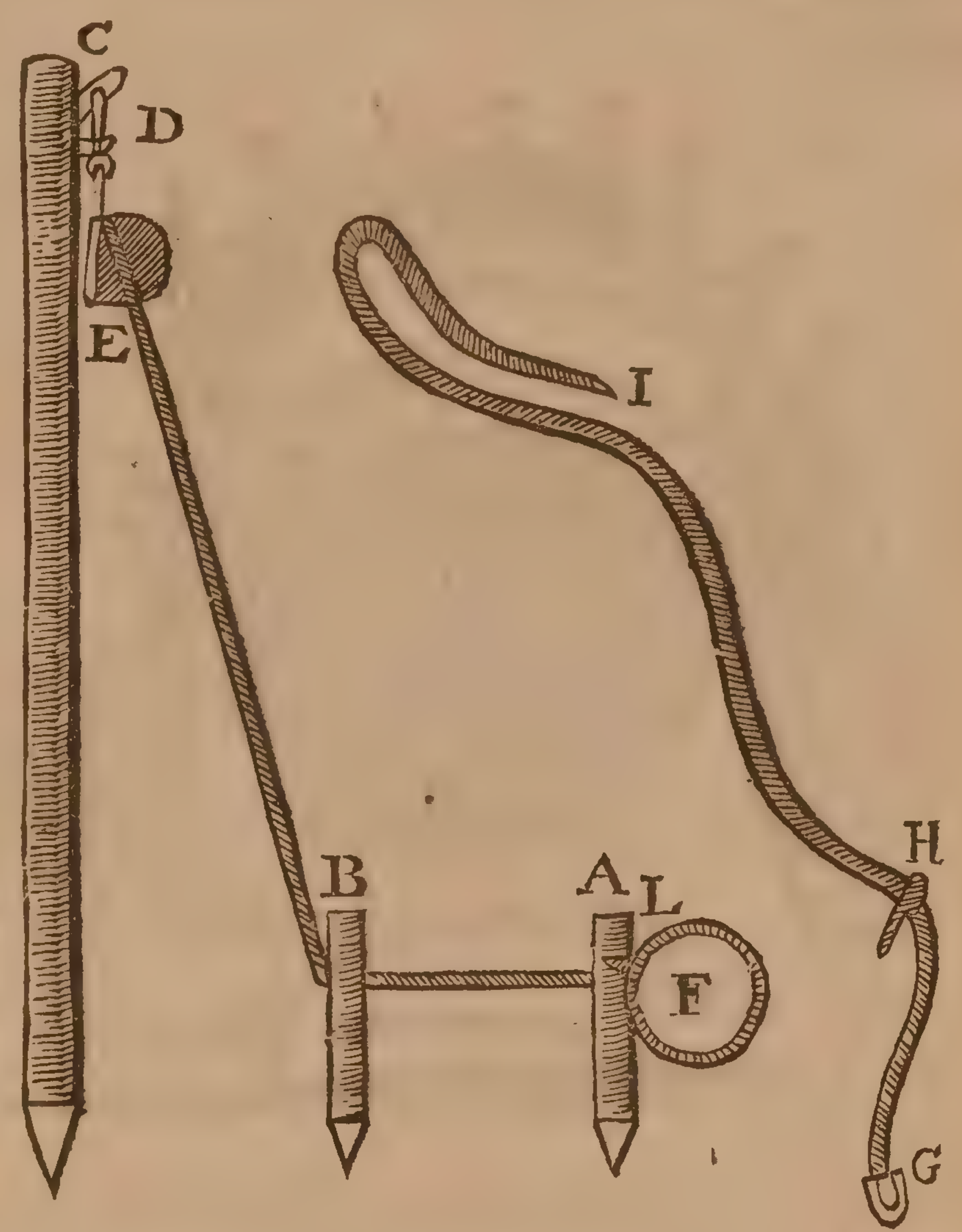
Then cut a pretty big Piece of Carrion, and faſten it to ſome Stick, or Rope of Hay, and drag it up and down to and fro your Engine or Trap at a good Diſtance, and then clap it upon your Piece of Iron *M*, having firſt rubb'd over therewith the whole Engine, Rope, Stake, and all, that the Beaſts may not ſmell your Deſign. (But it is held better that you make your Train to and from your Carrion, and not your Engine; and that you place your Train-Carrion with the reſt of the Carrion, and bait your Engine with a freſh Piece.) You muſt then pitch up a Stick juſt over your Carrion, with a Piece of white Paper on the Top of it, to the end you may frighten the Beaſts from approaching it; for they will not preſume to come very near it, but will ſurround it at a Diſtance on every Side, and at length fall in with your Engine, and coming with Fury to ſeize on the Bait, the four Crooks or Forks *H* will ſeize on him, and the more he ſtrives, the faſter he will be.

If you place three or four about a Piece of Carrion, you cannot well miſs of your Deſign; and that the Carrion may be preſerv'd the longer, take care that no Dogs, Crows, or the like, come to it.

The Badger is not very clear-ſighted, nor well ſcented; ſo that there is no great Skill required in taking them: A ſmall Blow on the Head, betwixt the Eyes, knocks them down.

The Otter is ſaid conſtantly to uſe his wonted Road, and can hardly be put by it, ſhould you make a Hedge athwart their Walks. But on the contrary, the Fox, if he find any new thing, or any Alteration in his accuſtomary Road, he preſently retires upon his Steps, being jealous of a Surprizal.

I ſhall preſent you with a Device for the Taking a Badger but not a Fox, as being too fearful and ſhy.



Provide a Stick, as the Letter *A*, about the Bigneſs of a Threſhing-Flail, with a Hole about four Inches diſtant from the great End *A*, and your Stick muſt be ſharpen'd at the ſmall End. Then prepare another Stick *B*, which muſt be ſomewhat bigger, but of the ſame Length with the other. This Stick muſt have a Mortice in it, about four Inches from the great End *B*, which may play in and out, and receive a Pulley of Wood; and the ſmall End muſt be pointed. Likewiſe get a third Stick, five Foot long, and as big as a Man's Arm, pointed at one End, and fork'd at the other, or at leaſt notch'd or fork'd thro' to receive a Peg or a Cord. Then have a ſtrong treble-twiſted Cord, about twenty Foot long, as mark'd *I H G*; at the End *G* you are to make a Loop, thro' which paſs the other End *I*, and about two Foot off at *H* make a Stay, either by tying a Knot, or, which is better, by whipping a Packthread four or five times about, and faſtening it there. Your Cord muſt have a Buckle, or Ring of Iron, or ſtrong Leather, as *D*, and that Ring or Buckle muſt have a ſecond Cord, about two Foot long, wherewith it may be faſten'd at the Hole or Fork of the Stick *G*.

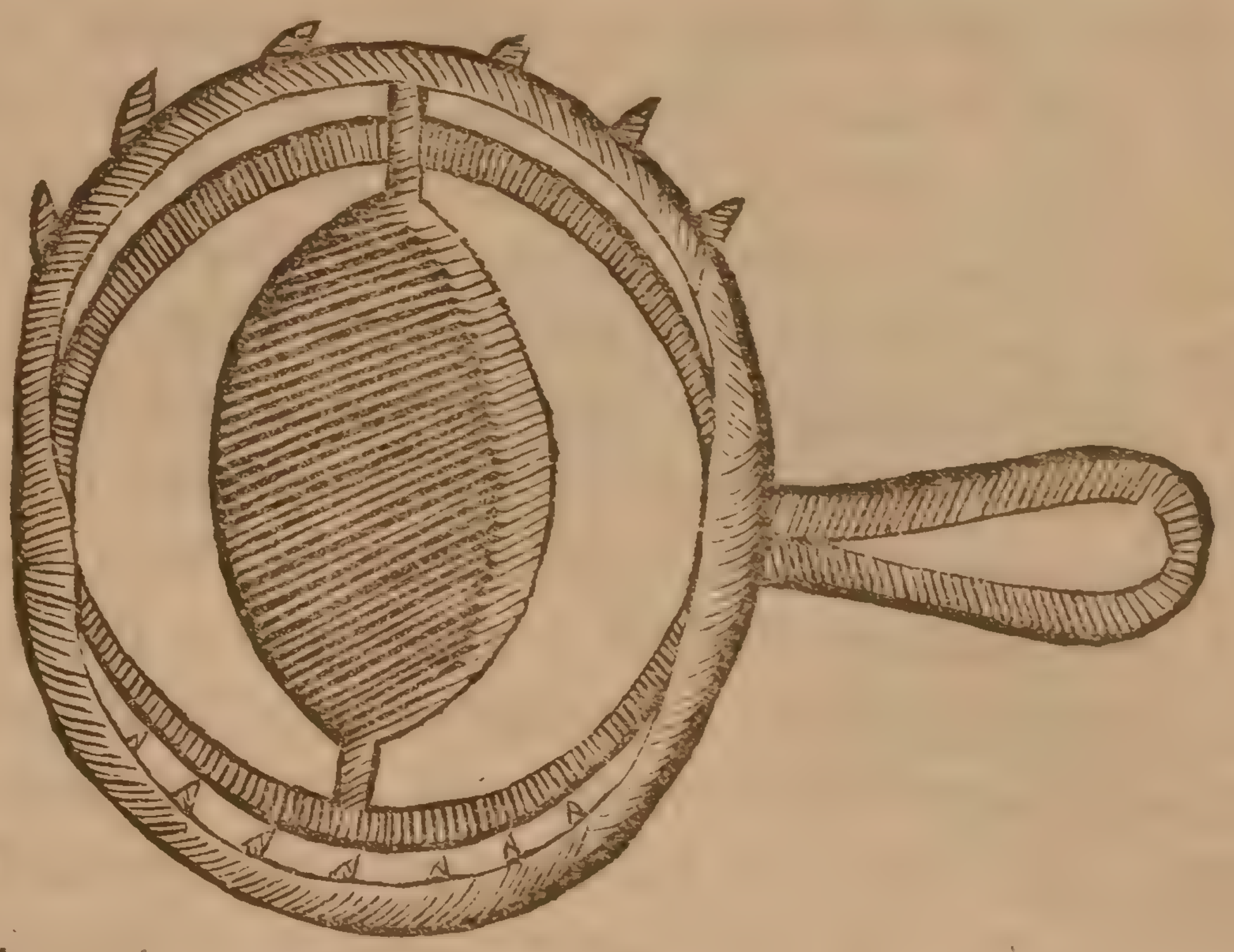
These are the chief Things you are to prepare, for 'tis ſuppoſed you may eaſily find a large Stone, of about Thirty Pound Weight, which you are to uſe.

When you find that any Badger hath paſs'd, either by his Footing, or leaving ſome of his Hair on the Boughs, (which Hairs are whitiſh at both Ends, and blackiſh in the Middle;) you may there ſet up this Engine, which ſeldom fails of taking him in three or four Days time. But obſerve that you ſet up the Engine juſt in the Meſh of the Badger, (that is, the Hole, or Thorough-fair, in the Hedge by which he paſſes) and about the Middle of the Hedge drive in your Stick *A*, until the Hole be only eight or nine Inches above the Earth; and juſt over-againſt him, at about a Foot Diſtance in your Stick *B*, ſo that the under part of the Pully be level with the Hole of your Stick *A:* Set your third Stick about three Foot from your ſecond in the Hedge, and fix it ſtrong. At the upper End faſten your Leather-Buckle, or Iron-Ring *D*; then thruſt the End of the Cord *I*, thro' the Top of the Cord *C*, next thro' the Hole in your Stick *A*, and then through the Mortice under the Pully of the Stick *B*; and laſtly through the Leather or Iron-Ring *D*. Strain the End of your Cord *I*, until the Stay *H* be juſt at the Hole of your Stick *A*, in which Hole gently put a ſmall Peg about an Inch long, which may only keep the ſaid Stay *H* from ſlipping thro' the Hole; then take your Stone or Weight of Lead, and lift it up to the Buckle *D*, and faſten it to your Cord, letting it hang there. Then open your Collar *F* juſt in the Meſh, that the Badger may not poſſibly get through at that Place, unleſs he put his Head through the Nooſe. In caſe the Meſh be large, and that the Nooſe will not ſtand up extended, you may tye it at both Sides with a few Spires of Graſs; and if the Meſh be high, ſupport your Nooſe with a little Fork, as *K*. You may try when all is right, for the leaſt Twitch of your Nooſe will thence force out the Peg *L*, and make way for the Stay *H*; then falls the Stone *E*, and ſtrangles the Badger.

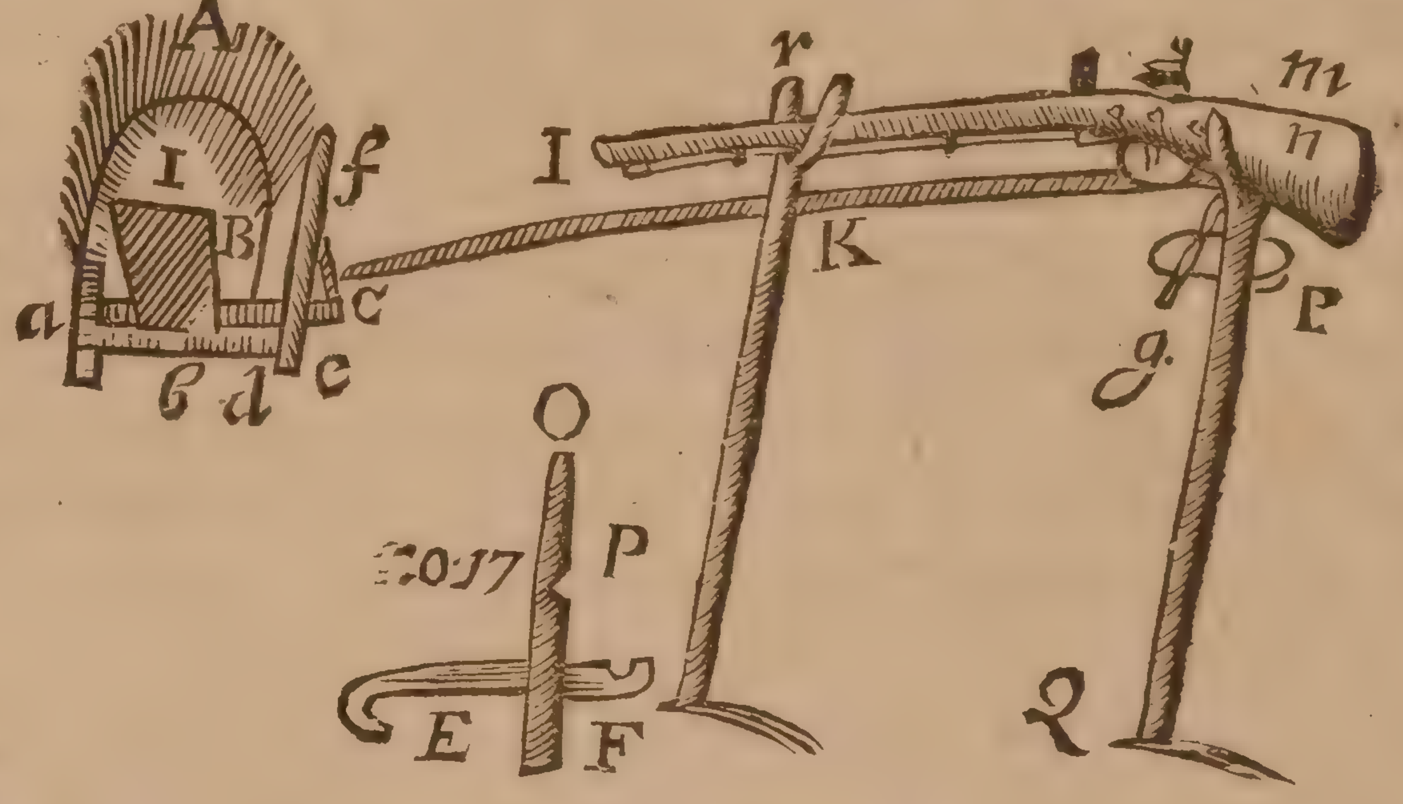
In caſe you perceive that a Badger uſeth to croſs any High-way, or to frequent any Foot-Path, make an Artificial Hedge croſs his Walk, and leave a Paſſage for him, in which you may plant your Engine; for he will endeavour to get thro', rather than return or walk about.

Your Ironmongers ſell certain Engines, which they know not the Uſe of. There is much Art and Caution to be obſerv'd in planting them as they ſhould be; for one well planted is better than ten ſet at Adventure and indiſcreetly. I ſhall not trouble you with the Manner of compoſing them, becauſe they are every where to be bought, nor how to open them, that being known to moſt; but I ſhall give you ſome Inſtructions how to ſet them to Art. When you have found out the Tracking of any Fox or Badger, place your Gin in this manner: Dig up a ſquare Plot of Ground, and bruiſe the Earth to fine Duſt, that it may lie ſmooth and plain. The midſt of it muſt be deeper and hollower, to the end the Bridge may have Room to play when the Beaſt treads on it.

Place your Gin croſs the Way by which the Vermin uſeth to paſs; and cover over the whole Plot with Graſs or Leaves gently ſtrew'd, that the Beaſt may not ſuſpect any thing. If you did the like in two or three Places, by which he uſeth to paſs, he would go over the more boldly. It is not amiſs to make a Train of ſome Carrion, to draw him on the more boldly. You may tye the End of the Chain to ſome Stake, remov'd about four or five Foot from the Gin; aud when you are making it, let the Soles of your Shoes be rubb'd over with ſome Carrion, that the Beaſt may not perceive you have been there. This followiug Figure ſhews the Form thereof.



There is great Art to be uſed in drawing on all Beaſts of the Foreſt, as being by Nature jealous and fearful, ſo that your Art muſt be to work your Devices with Subtilty. Therefore wherever you find a Beaſt hath paſt, lay ſome Baits for him three or four Days one after another; and if you find 'em ſtill eaten, you may aſſure your ſelf of taking him; but plant not your Engine all at once, but firſt make your Place ready, then let him eat out of it once or twice, then let your Engine lie there a Day or two, and if he ſtill continues eating the Baits, then fit it up for the taking him.



This Invention ſheweth how to ſhoot a Fox, Wolf, Badger, or other Beaſt, if once you know the Place by which they paſs, or the Earths where they retreat by Day, which are generally in ſtrong Thickets, and amongſt Rocks that cannot be dug; nor are theſe Beaſts to be gotten out by Force, therefore this Invention will be good to take them. Suppoſe the Letters *A B* were the Hole, by which they enter, drive in a Stake half a Foot long, juſt in the Mouth of the Entrance, and another at *d f*, as big as one's Thumb, and about a Foot long on the other Side, within two Inches of the Hole. This Stick at the End *F* muſt have a little Notch, as *F*, which muſt be four Inches out of the Ground; then have a Stick *b e c*, which muſt be four Fingers longer than the Space between the two firſt Sticks *b A*; at one End *a* muſt be a little Crook, and at the other End *e* a ſmall Notch: 'Tis deſcrib'd in the Figure *No.* 17. mark'd *E F*, ſo is the great Stake by the Letters *O P*, with the Notch at the Part *P*.

Then look out for a convenient Place, to ſtand about ten or twelve paces from the Hole, to make a Shoot directly into it, without the Interruption of any Boughs, Buſhes or the like, as for Example at *G Q*, and there faſten a luſty Stake, about four or five Foot long into the Earth, with a Head like a Reſt, and about three or four Foot nearer the Hole, drive in juſt ſuch another Stake, but ſomewhat ſhorter. Then place your Gun *L R M*, upon your two Reſts or Stakes, and level it directly with the Hole, then bind it very faſt to the Stakes, ſo that it may directly hit the middle of the Entrance. Your Gun being thus fixed according to Art, get a ſmall but ſtrong Cord, which draw on the forked places of the Stakes juſt under the Gun; at the end *P* tye a Stone of ſeven or eight Pound Weight, and at the other end *f* a ſmall Stick, half as big as one's little Finger, and about two Inches long; ſtrain your Cord until the Stone be juſt at the *Tricker* of your Gun, and that the ſmall Stick may be put with one end into the Notch *e* of the Stick *a e c*, in ſuch manner that the ſaid Stick may be about an Inch clear off the Ground, the Stone holding all right; then place a ſmall thin Board, about eight or nine Inches long, and half ſo broad over your little Stick, and cover it with dry Leaves, light Duſt or Graſs, then cock your Gun, and faſten to the *Tricker* one end of a little Pack-thread, the other end whereof muſt be drawn thro' the Reſt *P*, and then tyed to the Stone, and your Work is done.

For there is not any Creature which paſſeth in or out, but muſt tread on the Board, which cauſeth the ſmall Stick to give way, and then down falls the Stone, and off goes the Gun, which being well charged with Piſtol Bullets, cannot miſs Execution, unleſs it happens to rain, and the Wet damps the Powder that it doth not Fire, and that may be remedied by making a Caſe of Wood to be over the Lock. By this means you may kill Wolf, Fox, or other Creature, if you can find out their Retreats or Harbours, or but their uſual Paths or Roads. You may alſo make Trains and lay a Bait juſt at the level of your Gun, at about twelve or fourteen Paces from it, all which I refer to your Ingenuity, that I may not wear out the Thread of this Diſcourſe, and leave nothing to exerciſe your Invention.

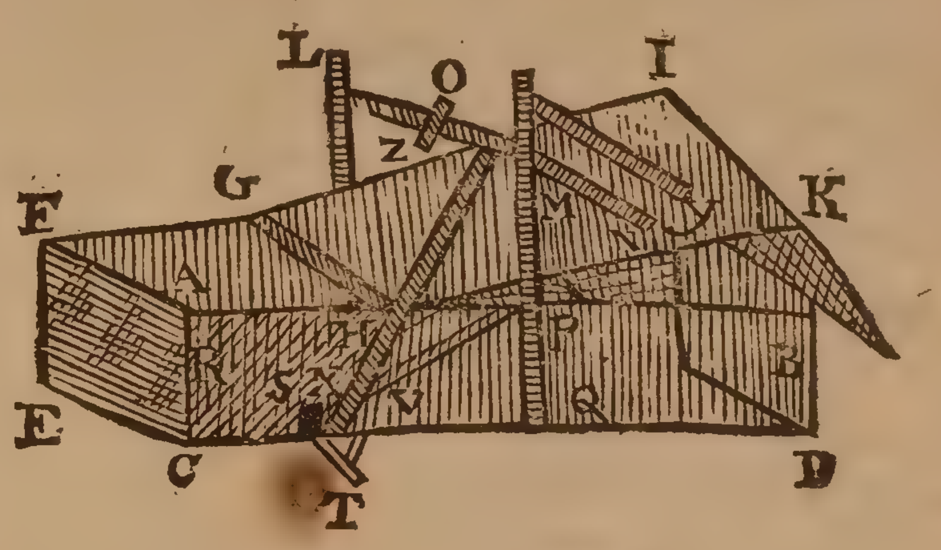
CHAP. XXIII.

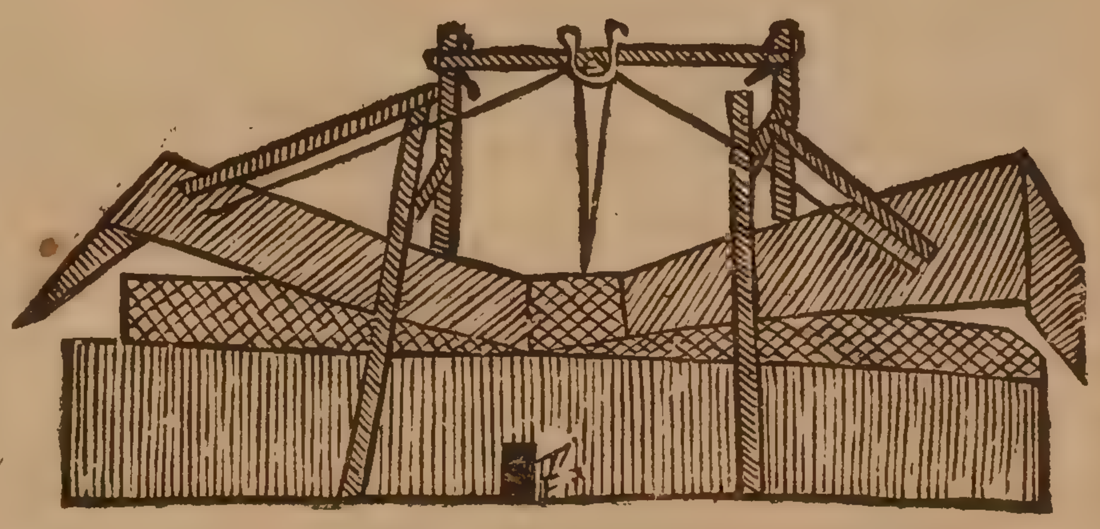
Directions for taking Polecats, Fichets, Martins, *or* Marterns, *and the like* Vermine *that are injurious to* Warrens, Dove-Houſes. *or* Hen-Rooſts.

THeſe Creatures are found very offenſive to ſuch Places as they frequent, as *Warrens*, *Dove-Houſes*, and *Hen-rooſts*, not only deſtroying the Young, but oft times devouring the Eggs.

They are great Encreaſers, and if care be not taken to deſtroy them, they will do great and many Miſchiefs. Here followeth a Device to take them by Night, for they are not often ſeen by Day, but do either lie cloſe in their Holes, or in ſome concealed Places as amongſt Stones, under Logs, and ſometimes on thick Boughs of Trees.

'Tis good that the Warrener do ſometimes look about in ſuch like Places with a Gun to ſhoot them, and not altogether to truſt to his Box, or Cheſt-Traps, which are here repreſented unto you in theſe Figures. The firſt being with a ſingle, and the latter with a double Entrance.





I ſhall ſhew you how to make and uſe theſe Traps. Take three pieces of Oak, or Elm Boards of an equal bigneſs, like that which is in the firſt Figure, and mark'd with *A B C D*; let them be four Foot long, and one over, and about an Inch thick; nail them together juſt like a Coffin, and cloſe up one end with a piece of the ſame Boards, which muſt be nailed faſt on, as *A C E F*. Likewiſe nail over three main Boards, another piece, as *A F G H*, which muſt be as large as any of the reſt, but not ſo long by two parts in three; and for the reſt of the covering you muſt have another Piece of the ſame ſort of Boards. On the other Side of the Boards make a Hole with a Gimlet at the Places mark'd *G H*, where faſten two Nails, which may be driven into the Board that lies on the Top, ſo as to ſerve for Sockets, or for your better comprehenſion as the Axletree of a Coach, ſo that the Board may be eaſily lifted up, and let down; and at the other end *I K*, nail another piece of Timber juſt equal to that marked with *A F G H*, which muſt only be faſten'd to the upper Board in ſuch manner, that being let down, the whole may ſeem to be ſome Cheſt cloſe ſhut.

Then get two pieces of Wood as *L M P Q*, two Foot long, an Inch and an half thick, and pierced at the ends *L M*, with a Hole big enough to turn one's little Finger therein; then nail them on your two ſide Boards about the middle of them, juſt oppoſite to each other, with a Piece of Wood an Inch Square, ſhaped at both ends like an Axletree, which put eaſily into the two Holes *L M*; at the middle *O* of this ſaid Axletree frame a Mortice, or Hole to faſten and tye a Stick *O N*, which may fall down upon the moving Plank, when it is let down; and this is intended to prevent any Beaſt from lifting up the Cover, when once it is down.

Before you nail all the Boards together, make a Hole in that Plank marked *A B C D*, at the Place mark'd *v x*, which Hole ſhould be two Inches long, and half an Inch over, juſt oppoſite thereunto; and in the other Plank bore a little Hole with a Gimlet as at *R*, that you may put in a ſmall Cord there, at the end of which tye your Tricker *R S T*, made of a Stick as big as one's little Finger, which tho' faſtned at the end *R*, may however have liberty enough to move up and down, and muſt paſs through the Hole *V*, about two Inches out, with a Notch or two as *T*: About the end of it tye your Bait on this

Tricker within the Cheſt-Trap, which ought to be appropriated to the Nature of the Beaſt or Vermine you intend to take. For a *Polecat* or *Fitchet* uſe a Chicken, for a *Weaſil* or *Martin*, Eggs, and for a *Houſe-Cat* ſome ſmall Birds, or a Pigeon.

For the ſetting this Trap, you muſt have a ſtrong Cord faſtned upon the moving Plank, near the middle of it marked *Y* towards the end; at the other end of the ſaid Cord tye a ſmall Stick marked *V*, an Inch and an half long, and half as big as one's Finger, formed at one end like a Wedge, ſo that the Trap being lifted up about half a Foot, as you ſee it repreſented in the Figure; and the Cord being paſſed over the Axletree *Z O*, the little Stick may have one end in the Notch *T* of your Tricker, and the other end in the Hole *X*, and then is your Trap or Engine right as it ſhould be.

If your Tricker be but a quarter of an Inch clear from the bottom Plank, when any Vermine is once in, and gives but one touch to the Bait, which is on the Tricker, that gives away, and down falls your moving Plank, with the Door faſt ſhut.

The other Trap with the double Entrance, is much the beſt, by reaſon that the Virmine you intend to take, may ſee through it to behold the Prey, and come in at which Side they pleaſe, and therefore will ſooner venture in.

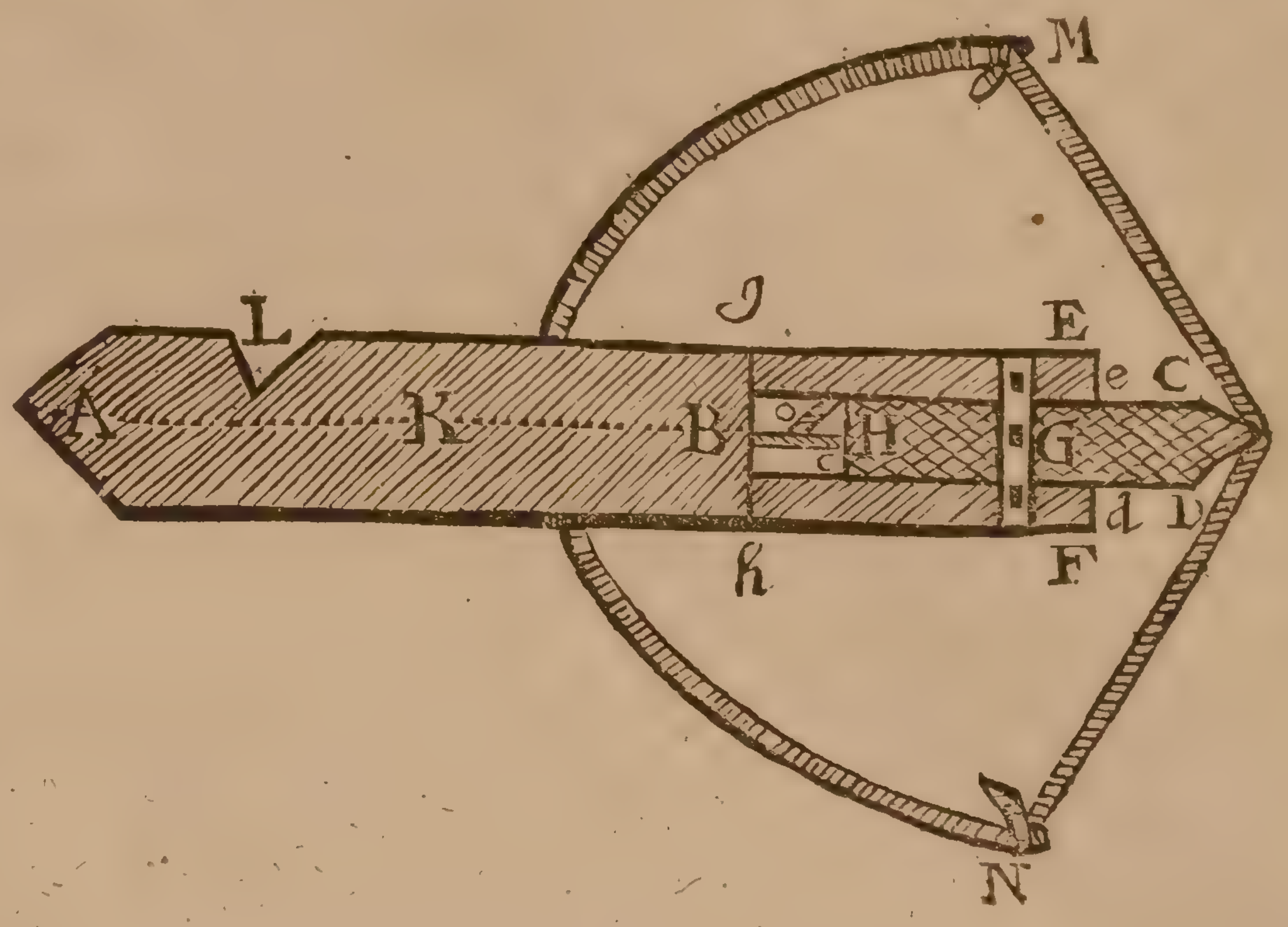
It is formed much after the ſame manner with the former, only it hath two turning Planks, and falling Doors, and the *Tricker* ought to be in the middle at *Z*. I need not give you further Directions therein, ſeeing you can't miſs the hitting this latter, if you have truly comprehended the former, it requiring nothing more than doubling the Inſtructions for the Trap-Doors, the Sockets, Cords and the like. Beſides every Warrener can either make them, or ſhew you them ready made, in caſe you can't make one by theſe Directions.

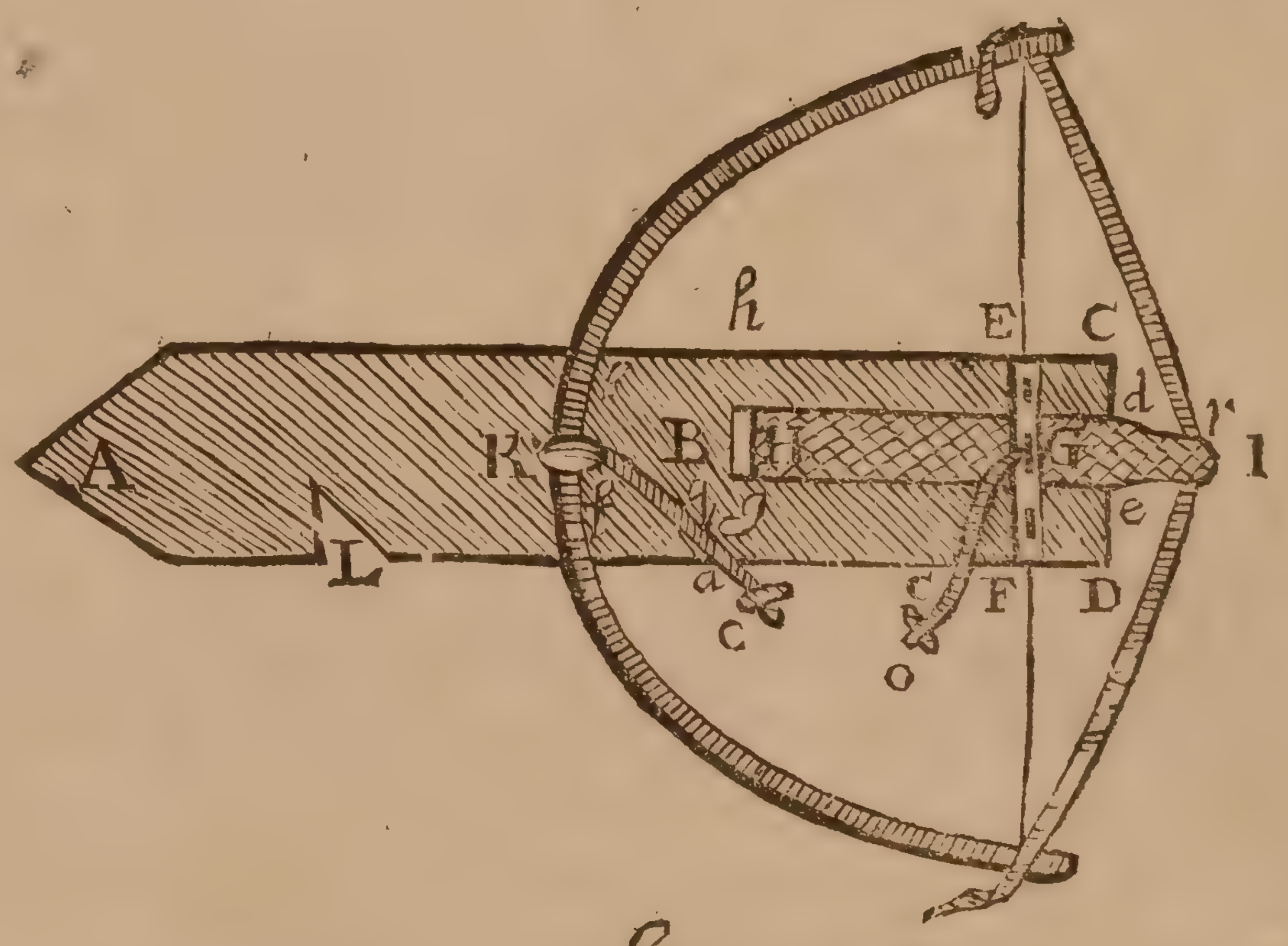
CHAP. XXIV.

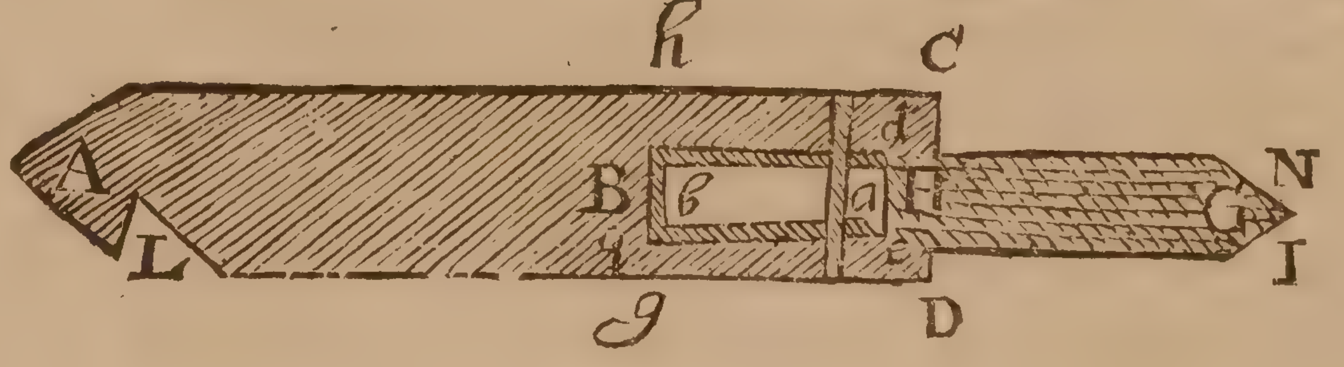
Directions for killing Field-Mice *and* Rats.

I Shall in this ſhort Paragraph give you a uſeful Invention for the killing *Field-Mice* and *Rats*, being great devourers of Wall-Fruit; and 'tis generally believed that Birds do the Miſchief, when in truth 'tis the *Rats* by Night. They differ from *Houſe-Rats*, being Grayer and longer Haired, their Tails are not ſo long, and have two thick Knobs on them, full of buſhy Hairs; they are ſaid to ſleep about ſix Months of the Year, *viz.* from *September* to *April*, and are often found in the Roots of old Trees, and the like Places. Therefore theſe following Figures will ſhew you a device to take them.

I ſhall give ſome Rules and Directions for the Making, Setting and Baiting the aforeſaid Traps to the moſt advantage; obſerve the middle Figure, and by that you may regulate your ſelf. Get a piece of Pipe-ſtaff two Foot and an half long, and ſix Inches broad; then take a piece out of it from the pointing line *g h*, about Ten Inches from the end *C, D*; then opening a pair of Compaſſes an Inch and an half, ſet one Foot of the Compaſſes at the edge *g*, and carry the other foot over the line *g h*, to the point *q*, and from thence placing one Foot of the Compaſſes at *D*, make one Point or Mark at the Letter *e*, to draw a line from thence to *q*: Do the very ſame on the other part of the Board *C E H*, then with a fine Saw cut out your Board by the lines *e q*, and *d i*, and ſo take off the piece *G H*.







When you have proceeded thus far, make a little kind of Gutter or Channel along the thickneſs of your Board with ſome ſmall Knife, juſt where your piece was taken out, and nail a Piece of ſtrong Wood *EF*, about half an Inch broad over the two Branches *C D*, to ſtrengthen them, as likewiſe to hold the Cord, which is to bend and ſet the Gin, as ſhall be ſhewed in its proper place. Next cut a Piece of Pipe-ſtaff as *H C I*, a little bigger than your Exciſion, and form it ſo that it may ſlip in and out by the Gutters or Channels which you have made in the thickneſs of the main Piece from whence you cut the Piece firſt mentioned.

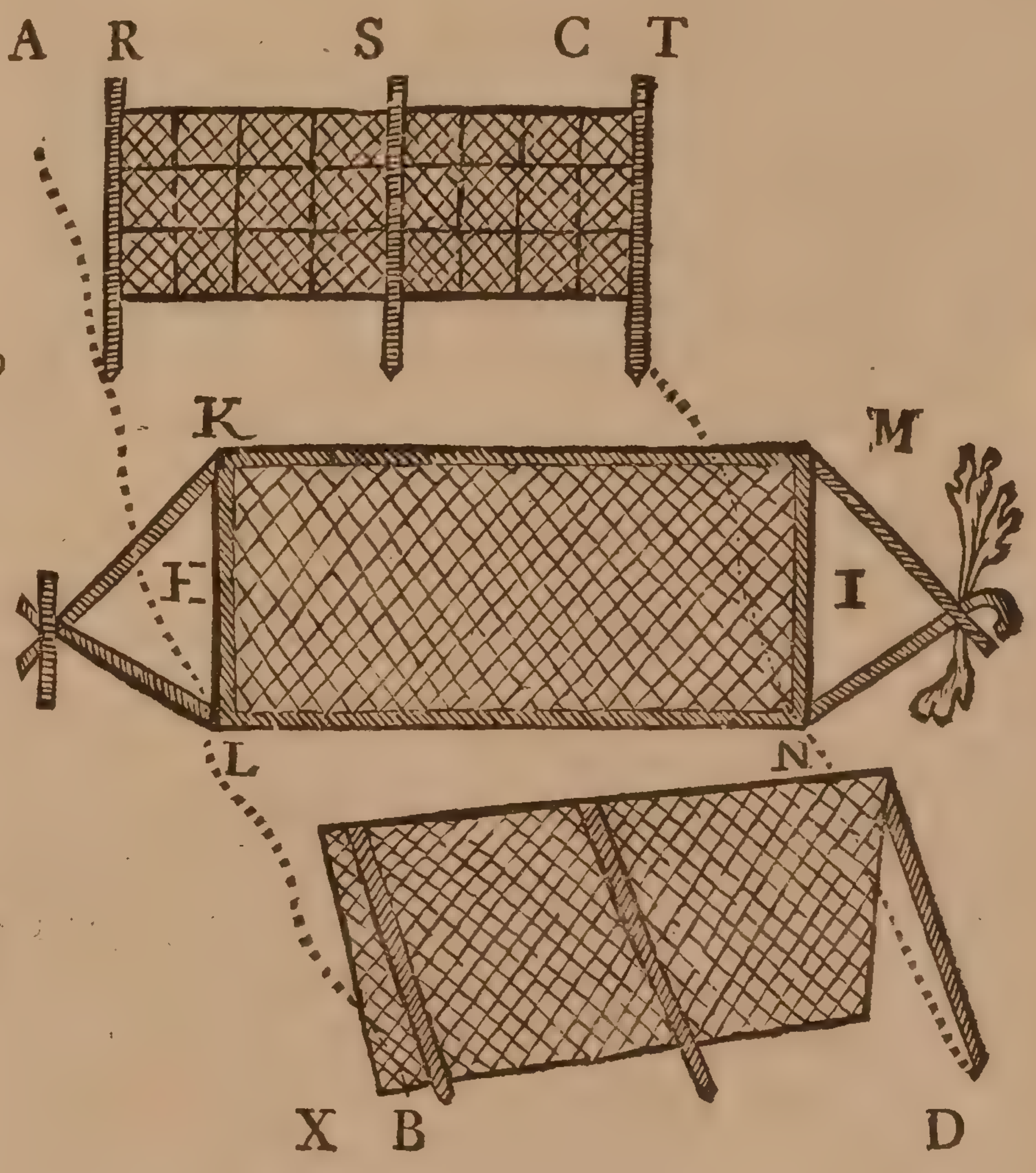
This Piece had need be three or four Inches longer than that which you cut out, and in the room thereof this latter muſt be placed, and the other end *I*, may be ſloped to a point; and at the end of it bore a ſmall Hole *n*, athwart the Board, wherein put a ſtrong well twiſted Cord; you muſt likewiſe have a piece of Holly about three Foot and an half long, as *M K N*, and as thick as one's Finger, (if it were of ſtrong round *Whale-bone* it would do well) which bend like a Bow, and at the end *M*, tye a ſtrong Pack-thread which muſt paſs through the Hole *N*, of the end *I*, of the moving piece *H G I*, and from thence tye it to the end *N*, of your Rod or Holm; then get three little pieces of Wood as *K f b*, ſome what leſs than one's little Finger, and place them in the Holes made ſix Inches from the Exciſion; then place the middle of your Bow upon your main piece of Pipe-ſtaff at the letter *K*, ſo that one of the three Crooks may be juſt at *K*, and the other two at *b f*, and between them three your Bow muſt be held tight and firm; then tye a ſtrong Cord at the Staff *E F*, at the Letter *b*, and at the other end a little Stick *c o*, two Inches long, and half ſo big as one's little Finger; the ſaid Cord from the letter *G* to this laſt mention'd Stick muſt not exceed ſix Inches in length. You muſt have another little Stick *f c*, eight Inches long, but no bigger than the former, which tye with a Cord at the middle of your Bow *K*, in ſuch manner that it may turn to which Side you pleaſe, and the other end of the ſaid Stick muſt have a Notch made in it as *c*, and near to it tye your Bait. The Stick *f c*, and the Packthread *G*, *o c*, muſt be of a convenient length, ſo as the piece of Wood, *H G I*, being drawn and ſtay'd by the little Stick *o c*, whereof the end *o* muſt be placed againſt the end *H*, and the other end *e* into the Notch of the Stick *f c*, and ſo it makes up a kind of Window, or entrance about the bigneſs of two Inches and an half, or three Inches, as it is repreſented by the Letters, *a o c*, in the ſecond Figure. The Bow *M K N*, muſt be ſo bent, that when it is drawn as you ſee in the firſt Figure, the ends *M N*, may be in a direct line with your ſtrengthening Piece *E, F*. The firſt of the Figures is to ſhew the form of the main Piece, as likewiſe the running one. The end *A* of the main Piece muſt be ſharpened to the intent you may either ſet it againſt the Wall, or on the Ground, when you bend it; and about eight Inches from the End *A*, at the letter *L*, you may cut in a pretty deep Notch whereon to reſt your Foot, that you may hold it the ſteddier when you go about to bend your Engine.

I ſhall now ſhew you how to bait it, and where to ſet it up. You muſt bait before you bend: A little piece of Lard, a Candle's end, or the like will do the work, which faſten to the Stick *f e*, about an Inch from the Notch *c*, juſt at the place mark'd with the letter *a*. Then ſet the end *A* to the Ground, reſt your Foot on the Notch *L*, take with one Hand the end *I* of the moving Piece, and ſtrain it until the end *A* be three Inches or thereabouts diſtant from *B*; then take in the other Hand the little Stick *o c*, and place the end thereof *o* juſt againſt the end *H* of the moving Piece, and then place the end *c* of the little Stick *o c*, in the Notch thereof *c*, and ſo the Bow is bent as it ſhould be. Now for the Setting or Placing it, obſerve where the Fruit is moſt eaten, and there place the Trap or Gin in this manner. Thruſt the end *A* into any Hole of the Wall, it matters not how little way it enters, provided it ſtand firm, the Bow being undermoſt, that ſo the Vermine may go along upon it by the pointed Line *A.K B*, to ſeize on the Bait *a* by the opening *a o c*; and being on the Board *B*, he will ſtretch out his Head and Legs to reach it, and of neceſſity will force the little Stick *o c*, from the Notch *c*, of the Tricker; then down goes the Bow and forces on the moving Piece, ſo that the *Rat* is taken by the midſt of his Body. Be careful in Setting this Gin, that there be no Bough adjoyning; for then by the help thereof the *Rat* may get off the Bait, and not come upon the Gin. This Device is alſo good for *Houſe-Rats*.

CHAP. XXV.

How to take Hares *and* Rabbets *by* Nets, &c.

I Shall next proceed to ſhew you ſeveral Ways how to take *Hares* and *Coneys*, and ſo conclude this Diſcourſe of Hunting; firſt giving you ſome Figures, and then Directions for the Ordering them for Uſe.



Theſe Nets are proper either for *Hares* or *Rabbets*, but they muſt be placed as hereafter followeth. Obſerve the Path or Tract in any Coppice or Furrow by which any *Hare* uſeth to paſs, likewiſe how the Wind is, that you may ſo ſet the Net that the *Hare* and Wind may come together. If the Wind be ſideways it may do well enough; but never if the Wind blow over the Net into the *Hare*'s Face, for he will ſcent both it and you at a great diſtance. The two pointed Lines *A B C D*, denote the Foot-path by which the Game uſeth to paſs; then prepare three or more Stakes, according to the length of your Net; the Stakes ſhould be about the bigneſs of one's Thumb, and about four Foot long, ſharpen'd at the greater End, and a little crooked at the ſmaller *R S T*. Stick them in the Ground ſomewhat ſloping, as if ſo forced by the Wind; two of them muſt be ſet at the two ſides of the Way and the reſt in the midſt as you ſee occaſion. They muſt only hold up the Net from falling, but in a very ſlight manner, that if the Game run againſt it, it may fall down and ſo entangle him. Be ſure to hide your ſelf in ſome Ditch or Buſh, behind ſome Tree, or in ſuch like Place behind the Net, for if you ſhould be perceived, your Expectation would be fruſtrated; nor indeed ſhould you walk in the Path-way by which you expect the Game to come, for they will have ſome imperfect ſcent of you. When you perceive the Game to be paſt you, give a Shout, flinging your Hat at them, which will put them into ſuch a ſurprize, that they will ſpring on, and run juſt into the Net, ſo that you muſt be nimble to take them, leſt they break out and make their eſcape. This Net is not ſo good in windy Weather as in Calm.

The middlemoſt of the three Figures I ſhall next explain. It muſt be ſet after the ſame manner as the former, as to the Way and Wind. You ſee how the two Cords at each end of the Net ought to be diſpoſed; next you muſt have two Sticks *K L M N*, each four Foot long, and thrice as big as one's Thumb, they muſt be cut exactly ſmooth at each End, and placed in this manner; Take the Stick *K L*, and put it on the edge of the Way upon the Cord *L*, which is at the bottom of the Net; The other Cord muſt be placed on the top of the Stick; then go along behind the Net ſupporting it with your Hand, and place your ſecond Stick juſt as you did the firſt; you ſhould endeavour to let your Net lean a little towards the Way by which you expect your Game to come, for the Game running fiercely againſt the Net, will force the Sticks to give way, and ſo the Net falls on him.

There is another Net repreſented by the laſt Figure, which is leſs troubleſome than either of the former, only it may be further diſcerned; however it is excellent for *Rabbets* in ſuch Foot-paths, where ſometimes you have three or four Couple running after one another, all which may be taken at once, for it doth not fall as the two former.

The two former are uſeful for taking *Wolves*, *Foxes*, *Badgers* and *Polecats*, as well as *Hares* and *Coneys*; but the latter only for *Hares* and *Coneys*. The true time to ſet theſe Nets is at Day-break, until half an Hour before Sun-riſe; and from about half an Hour before Sun-ſet until Dark-night.

I ſhall forbear to inſtruct you further in the ſetting this laſt Net, the repreſenting it, together with the preceding Rules being ſufficient; only this is of another Make, and indeed a Net incloſed within two others.

There are three or four other Ways to take both *Hares* and *Coneys* with Nets at any time of the Day, eſpecially if you know any Furz-Buſhes or ſtrong Thickets, where they uſe to reſort. I ſhall not need to trouble you with the Forms of the Nets, only the Names ſhall ſuffice. You muſt obſerve which way in probability the *Hare* will take, and at twelve or fourteen Paces diſtance, pitch your Net in a Semicircle; then fetch a compaſs about and beat the Buſh, and you can't well miſs; for *Rabbets* will make to their Burrows, and *Hares* to the Coverts.

The Nets that are of uſe for this purpoſe are called *Hays*, and are common to be bought at any Shop that ſells Nets; you may have them longer or ſhorter as you think fit, about fifteen or twenty Fathom is a good length, and for depth a Fathom.

Rabbets do often ſtraggle abroad about Mid-day for freſh Graſs; when you perceive any great ſtore to be gone forth to ſome remote Brakes or Thickets, get one with you, and pitch two or three of theſe *Hays* about their Burrows, and lie cloſe there. In caſe you have not Nets enough to encloſe all their Burrows, you may ſtop ſome with Stones, Buſhes, or the like; then go with your *Coney-Dog* to hunt up and down at a good diſtance, beating the Buſhes, and drawing on by degrees, and the Man that is with you, which lieth cloſe by the *Hay*, may take them as they bolt into the *Hay*.

Your Purſe-Nets are very uſeful to take both *Hares* and *Rabbets* at certain times, but you muſt watch them, elſe they will ſoon bite through and eſcape; they are to be placed in their Meſhes through Hedges, and in their Burrows or Holes. Theſe Purſe-Nets are alſo well known, and common to be bought in Shops that ſell Nets. Three or four Dozen of theſe Nets are ſufficient to lay over the Holes, and be ſure to faſten them by tying the Strings to ſome Sticks thruſt into the Earth, otherwiſe when the *Rabbets* bolt out, they will run away, and get out of the Nets.

When your Purſe-Nets are all fixed, and every thing in order, there muſt be one or two to lie cloſe to ſee what Game comes home, whilſt in the mean time you beat the Buſhes, and hunting at a diſtance to force them home; and in caſe you have not Purſe-Nets enough to lay over all the Burrows, then ſtop thoſe that remain with Earth, Buſhes, or the like, to keep them out.

There is another Way to take *Rabbets* with theſe Purſe-Nets, and that is at their coming out of their Burrows, and you muſt ferret them out in this manner; firſt, hunt up and down to force them all in; then ſpread your Nets over the Burrows, and ſo put in your *Ferret*, or *Ferrets*, with a Bell about their Necks, which will give notice of their coming to the *Rabbets*, who endeavouring to avoid the *Ferrets* will bolt out into the Purſe-Nets; from whence you muſt immediately take them, before the *Ferrets* ſeize them, and when they come out of the Burrows, put them in again. You muſt Cope their Mouths, that is, tye up their Chaps with ſome fine Packthread, which will hinder their ſeizing on the *Rabbets*, and ſucking their Blood; for when their Bellies are full, they will lie in their Burrows and ſleep, ſo that you may wait above half a Day before they will come forth, ſo that your Sport will be ſpoiled.

Some uſe to ſhoot a Gun into the Berries to awaken them; but I hold not that a good Way, for it will terrifie the *Rabbets*, and occaſion them to forſake the Burrows.

You ought not to deſtroy too many Does, but of the old Bucks the more the better.

The *Hay*, as well as the Purſe-Nets, muſt be made uſe of with your *Ferrets*; for if they eſcape the Purſe-Nets, then they are taken in the *Hay*.

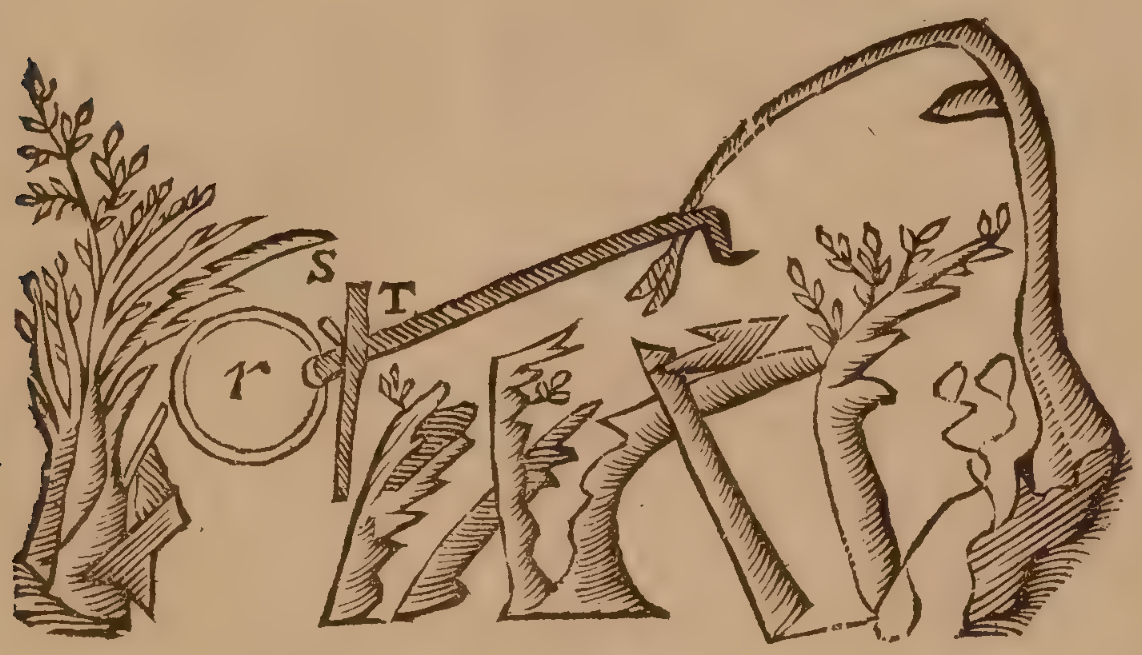
For the keeping your *Ferrets*, obſerve theſe few Directions; Let them be lodged in ſome Hutch or Hutches, or for want thereof in Tubs, with clean Straw, which ought to be ſhifted every three or four Days; give them every Morning and Evening ſome warm Milk from the Cow, and for want thereof, ſometimes a warm Egg, the White and Yolk being beaten together. You may ſometimes Reward them when they hunt, with the Eye, or ſome part of a *Rabbet*. You muſt carry your *Ferrets* in Bags, and ſo carry them home again; alſo feed them with Sheeps-Hearts and raw Fleſh.

As to the taking *Hares* and *Coneys* with Slipping-Knots, Collars, or the like Nooſes, altho' the ways are common to many, yet I ſhall ſpeak ſomething of them.

In ſetting theſe Running-Knots rub them over, as alſo your Hands and the Soles of your Shoes, with ſome of the *Croſels* of a *Hare*, or with ſome green Wheat, or the like; for they are of ſo quick a ſmell, that you will elſe be diſcovered.

In planting your Collar, make the leaſt alteration imaginable; for old *Hares* are as ſubtle and jealous as *Foxes*, and their Cuſtom is when they come to any Hedge through which they uſe to paſs, to ſcrape with their Fore-feet round about the Meſh, both before and in it, ere they will adventure through, ſo that you ſhall often find your Knot ſlipt aſide and drawn, which you will hardly believe; yet Experience hath demonſtrated it in the ſame Place fifteen or twenty Days together, ſo that for the greater ſecurity, it will not be amiſs to plant a ſecond Running-Knot flat on the Ground, juſt under that which you ſpread abroad, by which means you may take the *Hare* by the hinder Parts. This ſecond is intended to ſurprize him by the Foot, and one or the other will hardly fail.

It is the Nature of the *Hare* being once taken in any of theſe Knots, to pull with all his ſtrength, and he ſeldom or never turns about like the *Rabbet*, to bite off the Hold-faſt; you ſhould therefore uſe Latten-wire double twiſted, which will be ſure to hold either *Hare* or *Rabbet*, or elſe as this Figure directs.



Take a little Stake *T*, twice as big as one's Thumb, and about a Foot long; at the upper-end *S*, make a Hole big enough to receive the Tip of one's little Finger; then make your Collar of ſtrong Packthread or Wire; if of the latter, tye the end of it to any ſtrong Packthread, which draw through the Hole of the Stake, and faſten it to ſome ſtrong Bough, which muſt bend down towards the Stake; then put a ſhort Peg of about an Inch long, and ſomewhat leſs than one's little Finger very gently into the Hole *S*, ſo that the Branch being let go may not ſlip your Knot, but may ſtand bent. Then open your Collar *R* to the largeneſs of the Meſh, and if any *Rabbet* or *Hare* be taken, and they turn about to bite off their Chain, they preſently rub out the little Peg, then the Bough flies back and ſtrangles it. This is an excellent way to take any Vermine.

I ſhould now proceed to ſhew you ſeveral Ways to take Deer, both with Toyls or Nets, and without, as alſo the manner of making them; but I forbear, leſt I ſhould be thought to teach the Art of ſtealing Veniſon; Cuſtom, and the Laws having ſo prevailed amongſt us, as to diſcountenance all Ways of taking them, but by hunting them with *Dogs*.

I ſhall next proceed to ſome few Obſervations about Parks and Warrens, and ſo conclude this Diſcourſe of Hunting, with the Laws relating thereunto, as alſo to Foreſts.

CHAP. XXVI.

Of PARKS *and* WARRENS.

PARKS and *Warrens* may not improperly be termed the Nurſeries and Store-houſes of Game, as being always furniſhed with Deer, Hares, and Coneys, and generally with Pheaſants, and other winged Fowl. The firſt *Roman* that we read of that encloſed Wild Beaſts, was *Fulvius Herpinus*; and *Varro* had the firſt *Hare-Warren*.

As concerning the Situation of a *Park*, I ſhall let you know wherein the Beauty and Advantages do conſiſt; not that every Place can afford ſuch a Ground; however he that can't have all the Conveniences and Benefits, ſhould get as many of them as the Place will afford, not loſing any, and not to follow the Foot-ſteps of ſome, who, for want of due Circumſpection and mature Conſultation, have alter'd the frame of a Building two or three times before they have finiſh'd it, to their great Loſs and Diſcredit.

A *Park* ſhould have three ſorts of Land in it, *viz.* Mountainous and Barren, Hilly and yet Fertile, Plains and Fruitful: The Mountainous part ſhould be well covered with high Woods, at leaſt a third part thereof; the Downs and Hilly Part, ſhould have one third part Coppices and low Woods; and the Plains, at leaſt one third part Meadows, with ſome Arable for Corn. A Park ſhould not want a River to run through ſome part of it; alſo it ought to have a ſmall Brook or Spring; but if Nature denies theſe Conveniences, Art muſt ſupply it by Ponds, made to receive and preſerve Rain which falls; and ſuch Ponds will be very profitable for Fiſh and Fowl, in ſome of which may be made a Decoy.

You ſhould have your *Park* well ſtored with Maſt-Trees, as Oaks, Beech and Cheſnut, which are not difficult to be had, and are quick of growth, eſpecially the two laſt, and they exceed the former alſo in ſweetneſs and goodneſs; neither ſhould Apple, Pear, and Plumb Trees be wanting, all affording good Food for them. You ſhould alſo have your *Park* well incloſed, if poſſible, with a Brick or Stone-Wall; or for want with a Pale of ſound Oak, ſo high and cloſe joyned, that neither *Badger* nor *Cat* can creep through, nor *Fox* nor *Wolf* leap over; and for a further defence it were not amiſs to have a good Quick-ſet Hedge, which ſhould be always kept in a good Husbandlike order. Some part of the Mountain and High-wood may afford a *Hernery*, and ſome part of the Middling-ground may be for a *Coney* or *Hare-Warren*. In the whole, you may breed young Colts and Horſes, nor is it amiſs that in ſome part of the lower Ground you have a Cow-walk during the Summer-Seaſon. There ſhould be at leaſt five or ſix Incloſures in your *Park*, that you may ſhut out and let in your Deer, as you ſee occaſion; ſometimes altogether in your High-woods, where in cold Froſts and Snows they may be ſheltered and fed by the Keepers with Hay and Provender. You may alſo in Summer let ſuch a proportion as you intend to uſe, be fed in better Ground than the others which are for Store. You ſhould alſo make artificial Holes and Caverns for the Deer to retire into, as well in the hot as cold Seaſons.

This Chapter bearing the Title of *Parks* and *Warrens*, but our Author having ſaid little or nothing concerning the latter in particular: Monſieur *Liger* informs us, that a *Warren*, as well as ſeveral other things, requires a Place proper for it, and a convenient Situation: And indeed it ſhould ſtand ſo as to face the Eaſt or the South, and the Soil ſhould be moſtly Sandy; for to make a *Warren* in a ſtrong Claiey Ground, would be the way to hinder the *Rabbets* to dig eaſily, and to form their Burrows in the Earth: And if any ſhould pitch upon Marſhy Ground for it, it will be the way to make the *Rabbets* they put into it to turn to very little account, becauſe theſe Animals are Enemies to Moiſture: A *Warren*, properly ſpeaking, is a Coppice, or Underwood that is cut every ten, twelve or fifteen Years, as the Owner thinks beſt: And if it be near your Lodge, 'tis ſo much the better; however you muſt place it as the Situation and Nature of your Ground will beſt bear.

CHAP. XXVII.

Of Terms relating to Foreſts, and Foreſt-Laws.

A *Foreſt* is a Place peculiarly ſet apart by Royal Authority for the Keeping and Preſerving of Game; and to that end there are certain peculiar *Laws*, *Officers*, and *Orders*, many of which I ſhall here take notice of, and which may at large be found in the great Charter of the Foreſt.

A *Purlieu* is Ground adjoining to Foreſts, which being made Foreſts by King *Henry* the Second, *Richard* the Firſt, K. *John*, were by Perambulations granted by *Henry* the Third, and ſevered again from the ſame, And a *Purlieu-man* is he that hath Ground within the ſaid Purlieu, and 40 *s. per Annum* Freehold; and ſuch a one may hunt within his Purlieu.

To every Foreſt doth belong certain *Officers*.

A *Regarder* is an Officer ſworn to take care of the Vert and Veniſon, to view and enquire of all Offences committed within the Foreſt, and of all Concealments of them, and to ſee that Officers do well execute their Office; and of theſe Regarders there are more or leſs belonging to every Foreſt, according to the Largeneſs thereof.

A *Foreſter* is an Officer ſworn to look after and preſerve the Vert and Veniſon within his Bailiwick or Diviſion, and to watch the ſame both by Day and Night; likewiſe to apprehend all Offenders, and to make Complaint thereof to the Foreſt-Courts.

A *Verderor* is an Officer choſen by the Free-holders of the County, by a Writ directed to the Sheriff for that Purpoſe, and is to look after the Wood and Graſs in the Foreſts; and of theſe there are alſo more or leſs, according to the Extent of the Foreſt.

A *Ranger* is to look after the Purlieu, and to drive back the Deer into the Foreſt, and to enquire after Offenders, and to preſent their Offences.

An *Agiſtor* is an Officer that takes in to feed Strangers Cattle, and receives for the King's Uſe all ſuch Tack-money as becomes due for the ſame.

A *Chaſe* is much of the Nature of a Foreſt, being a Place for the Keeping of Game, to which belongs alſo ſeveral the like Officers.

There is a Month every Year called *Fence-Month*, which begins fifteen Days before Mid-Summer, and ends fifteen Days after, during which time 'tis not permitted to hunt in the Foreſt, or to diſturb the Deer, as being Fawning-time, and at that time no Cattle are permitted to feed there.

Woodgeld is the Cutting or Gathering of Wood in the Foreſt, or the Money paid for it to the Foreſter's Uſe.

Vert, or *Green Hue*, comprehends every thing that beareth any green Leaf, and the like, within the Foreſt, that may ſhelter and hide the Deer.

Foot-geld is an Amercement on ſuch as live within the Limits of the Foreſt, for not expediating their Dogs, if not privileged thereunto. And all great Dogs are to be *expediated*, that is, their Fore-claws are to be cut off by the Skin, which hinders their Running.

Over-vert is all manner of High Wood, and *Nether-vert* is all ſort of Under-wood. Bruſh-wood is called *Cabliſh*.

Minovery is an Offence for ſetting up any Engine, Trap, or the like, in the Foreſt to take the Deer.

Drift of the Foreſt is a taking a ſtrict View of the Cattle, and that none common but ſuch as have Right, nor be over-charged therewith to the Prejudice of the Deer.

Perambulation is the Setting down the Bounds and Limits of the Foreſt.

Horngeld is a Tax for all horn'd Beaſts.

No Officer of the Foreſt ought to be permitted to keep an Ale-houſe, and this is called *Scotale*.

Stable-ſtand is when one is found in the Foreſt with a Bow ready bent to ſhoot at the Deer, or with his Grey-hound in a Leeſh ready to ſlip.

An *Aſſart* is the grubbing up the Coverts or Woods in the Foreſts, and converting them to arable Land.

Afforeſt is to convert Land into a Foreſt.

Diſafforeſt is to turn Land from a Foreſt to other Uſes.

Swainmote is a Court to be held within the Foreſt thrice a Year, one fifteen Days before *Michaelmas*, another about *Martinmas*, and another fifteen Days before St. *John Baptiſt*.

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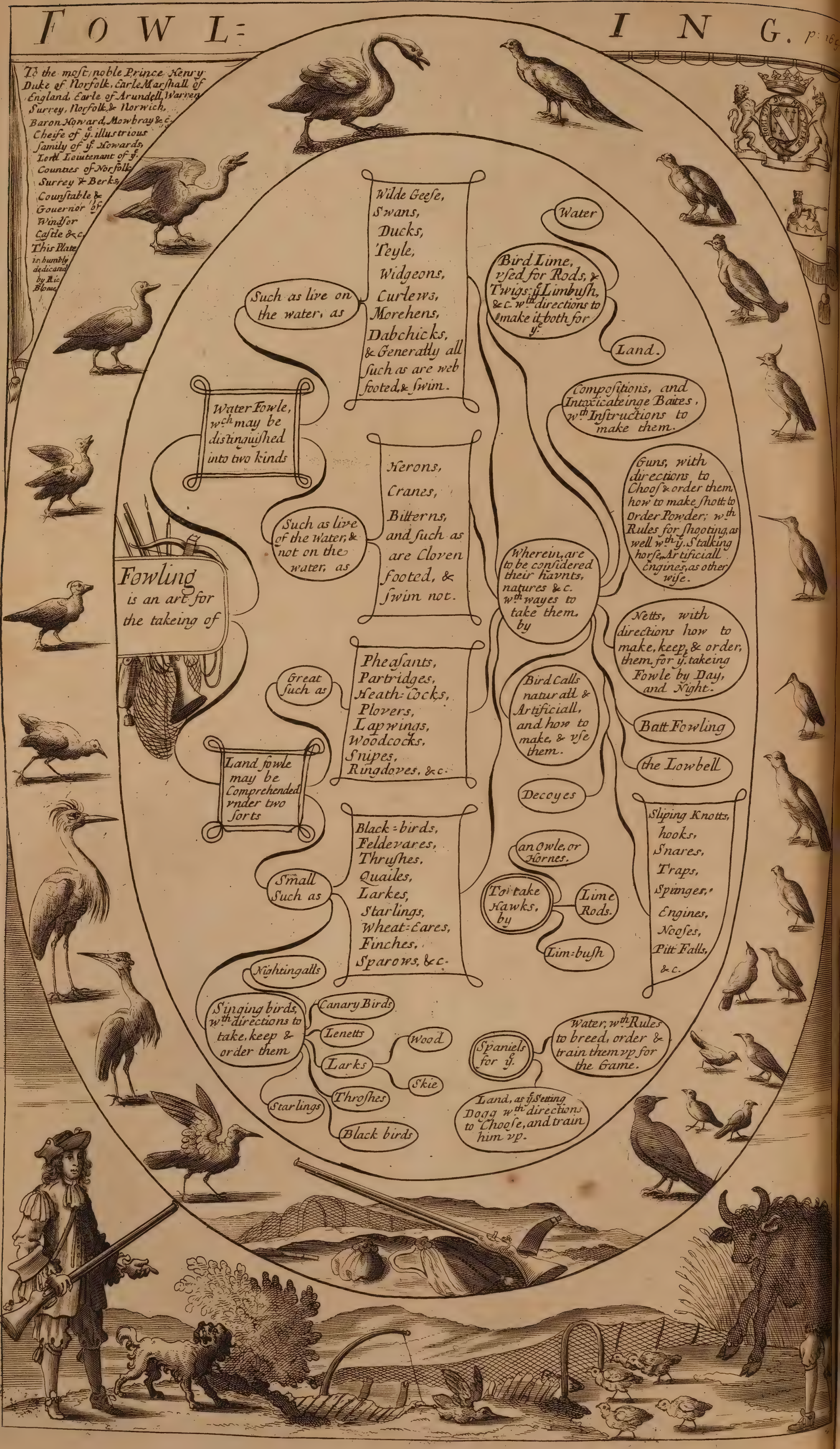


FOWLING. p: 16

To the most noble Prince Henry Duke of Norfolk, Earle Marshall of England, Earle of Arundell, Warren Surrey, Norfolk, & Norwich, Baron Howard, Mowbray &c. Cheife of yͤ illustrious family of yͤ Howards, Lord Leiutenant of yͤ Counties of Norfolk Surrey & Berks, Counstable & Gouernor of Windsor Castle &c. This Plate is humbly dedicated by Ric Blome

Fowling is an art for the takeing of
Water Fowle, wᶜʰ may be distinguished into two kinds
Such as live on the water, as
Wilde Geese, Swans, Ducks, Teyle, Widgeons, Curlews, Morehens, Dabchicks, & Generatly all such as are web footed, & swim.
Such as live of the water, & not on the water, as
Herons, Cranes, Bitterns, and such as are Cloven footed, & swim not.
Land fowle may be Comprehended vnder two sorts
Great such as
Pheasants, Partridges, Heath-Cocks, Plovers, Lapwings, Woodcocks, Snipes, Ringdoves, &c.
Small Such as
Black-birds, Feldevares, Thrushes, Quailes, Larkes, Starlings, Wheat-Eares, Finches, Sparows, &c.
Singing birds, wᵗʰ directions to take, keep & order them
Nightingalls
Canary Birds
Lenetts
Larks
Wood
Skie
Throshes
Starlings
Black birds
Wherein, are to be considered their havnts, natures &c. wᵗʰ wayes to take them, by
Bird Lime, vsed for Rods, & Twigs; yͤ Limbush, &c. wᵗʰ directions to make it both for yͤ
Water
Land.
Compositions, and Intoxicateinge Baites, wᵗʰ Instructions to make them.
Guns, with directions to Choos & order them, how to make shott, to Order Powder; wᵗʰ Rules for shooting, as well wᵗʰ yͤ Stalking horse, Artificiall engines, as other wise.
Netts, with directions how to make, keep, & order, them, for yͤ takeing Fowle by Day, and Night.
Bird Calls naturall & Artificiall, and how to make, & vse them.
Batt Fowling
the Lowbell
Decoyes
Sliping Knotts, hooks, Snares, Traps, Springes, Engines, Nooses, Pitt Falls, &c.
To take Hawks, by
an Owle, or Hornes.
Lime Rods.
Lim-bush
Spaniels for yͤ
Water, wᵗʰ Rules to breed, order & train them vp for the Game.
Land, as yͤ Setting Dogg wᵗʰ directions to Choose, and train him vp.

THE
COMPLEAT ART
OF
FOWLING.

PART IV.

Containing great Variety of Experimental Secrets, for the taking of all Fowl, *both by Land and Water; by* Bird-lime, Snares, Traps, Nets, Engines, Bird-calls, Decoys, Intoxicating Baits; *the* Fowling-Piece, Stalking-Horſe, Setting-Dog, Spaniels, *&c. Illuſtrated with great Variety of uſeful* Figures, *for the better Explanation thereof.*

CHAP. I.

The INTRODUCTION;

Shewing what Fowling *is, with the Nature of the ſeveral Sorts of* Fowl; *their* Haunts, &c.

FOWLING is an Art for the Taking all manner of *Fowl*, either by Enticement or Enchantment, as *Calls*, *Intoxicating Baits*, or the like, or elſe by *Guns*, *Nets*, *Engines*, *Traps*, *Setting-Dogs*, &c.

Now foraſmuch as the *Fowl* on which this Art depends are various, and indeed numerous, ſo that to run into all the Particularities would be voluminous; therefore for the Practitioner's Eaſe and Benefit, I ſhall comprize them under theſe two general Heads, *viz.* *Water-Fowl* and *Land-Fowl.*

Water-Fowl may alſo be diſtinguiſhed into two ſeveral Kinds; that is, ſuch that live of the Water, and upon the Water, by gathering much of their Food from thence, and ſwimming for the moſt part on the Surface thereof; and ſuch as live of the Water, but not upon the Water, as by the Gathering of moſt of their Food from thence, but not ſwimming upon the ſame, more than wading with their long Legs, and diving with their long Necks for the getting their Food therein.

Such as live on the Water are, *Wild Geeſe*, *Swans*, *Mallards*, *Teals*, *Curlues*, *Widgeons*, *Moor-Hens*, *Dab-chicks*, and generally all ſuch that are Web-footed and ſwim. Thoſe that live of the Water, and not on the Water are, *Herons*, *Cranes*, *Bitterns*, and any *Fowl* that hath his Suſtenance in the Water, and yet hath his Feet cloven, and ſwimmeth not. And there are ſome which may not improperly be term'd Amphibious, as partaking of the Land, as well as the Water; and ſuch are the *Sea-Pies*, which are not Web-footed, and yet can ſwim.

Land-Fowl are properly thoſe that have their Suſtenance and Abode only on the Land, either in Woods, Coverts, Encloſures, Uplands, both Arable and Paſture, in marſhy Grounds, or by and near Houſes, Hedge-rows and High-ways: and theſe *Fowl* may be diſtinguiſh'd under the general Name of *Fowl*; and ſuch are *Pheaſants*, *Partridges*, *Heath-cocks*, *Plovers*, *Lapwings*, *Wood-cocks*, *Snipes*, *Ring-doves*, &c. alſo ſmall Birds, as *Quails*, *Black-birds*, *Thruſhes*, *Starlings*, *Larks*, *Wheat-ears*, *Chawfinches*, *Sparrows*, with abundance of other Sorts, too tedious to name.

Now for your better effecting the Taking of the aforſaid *Fowl* and *Birds*, I ſhall give you ſome Inſtructions how to know and find out their *Haunts*; and then proceed to the ſeveral Ways of taking them: But note, that by Obſervation 'tis found, that *Water-Fowl* are the ſubtileſt of *Birds*, and have the greateſt Regard to their own Safety: Whence it is that they are compar'd to a well-govern'd Camp, having Scouts on Land afar off, Courts of Guard, Sentinels, and ſuch like watchful Officers, ſurrounding the

Body, to give a ſpeedy Alarm at any Approach of ſeeming Danger. And indeed whoſoever ſhall obſerve their Manner of Living ſhall find the ſame; for there will be always ſome ſtraggling *Fowl* aloof of the main Body, which upon any Suſpicion of Danger take Wing, and give Notice to the reſt; and it is the Nature of *Water-Fowl* to fly in Flocks, loving Society. The like doth *Starlings*, *Feldivers*, *Ring-doves*, *Plovers*, *Lap-wings*, *Daws*, &c.

Of the Haunts of Fowl.

THE greateſt Thing of Moment for a *Fowler* to underſtand is, the *Haunts* of *Fowl*, and accordingly to apply himſelf to take 'em. In order thereunto take notice, that all Sorts of great *Fowl* that divide the Foot have their Reſidence by the Edge of ſhallow Rivers, Brooks, Rivulets, and Plaſhes of Water, and theſe keep not in Flocks together, but are ſingle, or here and there a Couple together, which makes them difficult to be taken by Engines, or the like; but are the beſt Flights for River-Hawks that can be, eſpecially the *Hern*, that takes the greateſt Delight in ſuch like Places, where he may wade and dive in for the getting of Fiſh for his Suſtenance. They alſo delight in low marſhy, ſedgy, and boggy Grounds; likewiſe in the dry Parts of drown'd Fens, that are over-grown with Reeds, Ruſhes, and Sedges; and in ſuch Places the *Bittern* naturally delights, as being a melancholy *Fowl:* They alſo delight in half drown'd Moors, and in the Vales of Heaths or Downs, that is ſhelter'd with Hedges, Buſhes, or Trees, where they may obſcurely lurk.

For the leſſer *Fowl*, and ſuch as are Web-footed, they frequent thoſe fenny and mooriſh Grounds, that are continually overflown, where they may ſwim free from Diſturbance of Man or Beaſt: they alſo affect the main Streams or Channels of large Rivers, with ſwift and deep Currents; but the wild *Gooſe* and the *Barnacle*, delight not in any Water above their Sounding; for when they cannot come to the Bottom to ſuck up the Owze, or the Fatneſs of the Water, they ſeek new Places. They alſo greatly delight to feed on green Winter-Corn, eſpecially where the Lands are low, and drown'd with Water, wherein they may paddle and bathe after Feeding.

The ſmaller *Fowl* do alſo delight to feed in drown'd Meadows, Moors, and ſuch like Places; alſo upon Plaſhes, Meers, Lakes, and Loughs, which have the Shelter of Shrubs, Reeds, and ſuch like Things, for their Preſervation from Danger.

As to the Haunts of *Pheaſants*, *Partridges*, *Woodcocks*, *Snipes*, *Quails*, and other *Land-Fowl*, I ſhall ſpeak of them when I treat of each in its proper Place.

CHAP. II.

Directions for the making of Bird-lime, and Lime-twigs or Rods; and how to apply them to uſe for the taking of Fowl *and* Birds.

THE beſt Seaſon for making of Bird-lime is between the 10th of *June* and the End of *July*, at which time the Sap is ſtrongeſt and quickeſt in the Bark; but rather about *Mid-Summer* Moon: And then take the Bark of Holly, put it into fair Water, and boil it ſix or ſeven Hours; and when it is ſo ſoft that you may pinch it through with your Fingers, it is enough. Then take it off the Fire, peel away the inner white Rind, which caſt away, and the green Bark, (which is for your Uſe) lay in ſome damp and moiſt Place, covering it over with green Weeds, and as they wither put freſh thereon; and thus do for about nine or ten Days, by which time the Bark or Rind will be all rotten, with a white Hoar over it. Then put it in a Mortar, beat it very fine like green Sauce; then waſh it very well in running Water to get out all the Filth, making it into ſmall Balls, the better to ſqueeze out the Filth with your Hands in the Water. And to know when it is waſh'd enough, it will ſwell in your Hands; and then keeping it ſtill waſhing, it will fall a little, and be fine and white, which is a Sign that 'tis enough.

Being thus waſh'd, put it into a Stone-Pot, fill it about three Parts, becauſe it will work and ſwell, and keep it cloſe cover'd to preſerve it from the Duſt: In three or four Days it will have done working, and then keep it for Uſe.

If you will have it for Water-lime, (which muſt be very ſtrong;) then after it hath done working, as aforſaid, take what Quantity you pleaſe, put it into a Skillet, to which put the like Quantity of Venice-Turpentine, as alſo the like Quantity of Gooſe-Greaſe, with about Half a Quarter of a Pint of *Aqua-vitæ*; let theſe boil gently on the Fire, keeping it always ſtirring; and to know when it is enough, have a Pail of clean Water, in which put Half a Crown; then put the Stick which you ſtir the Bird-lime with down into the Water to the Half-Crown, and when it brings it up it is ſtrong enough, ſo that you may take it off the Fire, and put it into a Pot or Pots for Uſe.

This Bird-lime will never freeze, and therefore in the Extremity of froſty Weather you may uſe it inſtead of the weaker for *Land-Fowl* or *Birds*; and if for *Water-Fowl*, ſo ſtick the Twigs in the Banks, and up and down the Sides of the Ponds, that about a Handful of the Twigs be under Water, and if it toucheth but the Foot or the Feathers of a *Fowl*, it will hold her.

Of Rods and Twigs.

THE next Direction ſhall be touching your Rods and Twigs, which muſt be bigger or leſſer, according to the Strength of the Fowl you deſign to take; and of all others, thoſe of Willow are the beſt, as being the tougheſt. You muſt alſo be careful how to plant your Twigs: For Example, for great Fowl they muſt be at leaſt half a Yard aſunder, almoſt upright, but with their Heads inclining from the River; for no Fowl will come up againſt the Rods, and you cannot plant leſs than two or three hundred in a Place. In the Morning early viſit your Rods, to ſee what Fowl are taken; and if none, then beat about the Banks of the Rivers, and the like Places, for about half a Mile in Compaſs, to force them to your Rods, if poſſible, againſt the next Night.

In large deep Ponds and broad Rivers, where you cannot handſomely fix your Rods, you may uſe this Device: Faſten two Poles, on each Side of the River one, and ſtrain your Cord, which muſt be artificially ly daubed over with Bird-Lime, and let it remain a little above the Water; to facilitate which tye at certain diſtances little Bundles of dry Ruſhes, or Peaſe-hawn handſomly compacted; and this Device will not fail to take good ſtore of Fowl, eſpecially Duck, if any frequent the Place; and two or three times a Day, eſpecially Mornings, Noons and Evenings, ſee if any Fowl are taken.

To place Lime Rods for the Land for taking ſmall and great Fowl.

YOU may plant your Lime-Twigs, or Rods on the Land, eſpecially in green Wheat for Pigeons or Partridges; and if the Weather be hard, for Wild Geeſe; but if you plant for heavy great Fowl, your Rods or Twigs muſt be proportionable; and you ought to lie near hand concealed, that you may run in with your *Spaniel* on any occaſion. *Hares* and *Coneys* may be alſo taken by this Device. You muſt place your Rods ſlope-wiſe, and the Tops not above four or five Inches from the Ground, at about half a Yard diſtance, and as it were in Ranks.

The ſmall and ſtraight ground Twigs cut from the Willow-boughs are the beſt, and muſt be greater or ſmaller according to the Fowl you deſign to take; but not very big that they may be plyable and wind about the Feathers of the Fowl they touch. Theſe Rods or Twigs being thus prepared, let the upper Part, or half, be daubed over with ſtrong Bird-lime, which muſt be well melted by the Fire and even laid on, that Fowl may not diſcern the Bird-lime.

Being well acquainted with the Haunts and Feedings of Fowl, either before Sun-Set, or before Day, go with your Rods to the ſaid Places, and there pin down a *Stale*, that is, a live Fowl of the ſame kind you deſign to take, but with liberty to flutter up and down at pleaſure; then round about it, within a Foot of each other, prick down your Rods ſlopewiſe in Ranges, ſome one way, and ſome another, about a Foot high; and the more Rods you have to ſtick down, the better ſucceſs you will have. If you deſign to take Pigeons it were not amiſs to have two or three of theſe *Stales* tied down; and near the ſaid Rods ſcatter ſome grains of Corn, the better to intice them to the Rods. You muſt lie concealed, but in ſight of the Rods, and you ſhould have ſmall Strings tied to the *Stales* runing along the Ground unto you, which by giving them a twitch will cauſe them to ſtir; ſo that the other Fowl ſeeing, will light in amongſt them, and if you can with conveniency not frightning away the others, you may take theſe that are entangled, if not, let them flutter and tumble among the Rods. For the better facilitating your Sport, have a well taught *Spaniel*, that when any Fowl offers to get away, your *Dog* may bring them to you; for in Flocks, eſpecially of Pigeons, there will be work enough for both.

It were convenient to keep ſome for *Stales* for the like occaſion; And when your Sport is done, gather up your Rods or Twigs, bundle them up and keep them for further uſe; and thus you may do Morning and Evening during the Seaſon of the Year.

To take ſmall Water-Fowl with Lime-Rods.

THE aforeſaid Rods may be uſed for taking Water-Fowl, and then they muſt be trimm'd, and ſized out according to your Uſe, and the Depth of the Water; for the deeper it is, the longer muſt your Rods be, and they muſt be trimmed with the ſtrongeſt Water-Lime. For the placing theſe Rods ſtick them in the Water as you did thoſe on the Land ſlopewiſe, and amongſt your Rods here and there ſtake down a *Stale* or live Fowl, either Mallard, Teal or Widgeon, as you can get; and place your Rods very thick, the better to take them. You need not watch your Rods as you do for Land-Fowl, only viſit them two or three times a Day, as aforeſaid, always having with you a good managed *Water-Spaniel* to find out thoſe that are eſcaped with the Twigs, and for other uſes.

For the taking of Wild Geeſe or Barnacles, which commonly feed and frequent together, their Haunts muſt be found out; and their moſt certain Place is upon green Winter-Corn that is remote from Houſes. Your Rods muſt be large for ſuch great Fowl, and placed ſlopewiſe in Rows, about the Water-furrows, and in the midſt, ſo that they cannot come to the Water without touching them. Let the Rods be of a dark colour, reſembling the Earth, and you ſhould be near at hand to make in; for when any of 'em are taken they will flutter, and the reſt will take Wing; and if any do endeavour to eſcape (not being thoroughly Limed) your *Spaniel* muſt retrieve them whilſt you take up thoſe that are entangled.

To take ſmall Birds by Lime-Twigs and the Lime-Buſh.

FOR taking ſmall Birds with Twigs, get up before Day, and go to their Haunts, and all along the Hedges place your Lime-twigs, ſome upright, ſome ſlopewiſe, and ſome croſs, and at ſuch thickneſs that the Birds cannot well paſs in or out without being entangled. Having thus ſet the Twigs (which muſt be after the Birds are gone into the Fields to ſeek their Breakfaſt) go into the Corn-fields, or Meadows near adjoyning where they uſually feed, and with a Pole beat or fright them up, and they will betake themſelves to the Hedges for Sanctuary, and ſo are taken. This Exploit is to be done about the Spring, in Harveſt, and at the Fall of the Leaf; alſo early in the Morning and about Sun-ſet before they go to Rooſt.

For the better taking the Birds get an Owl, and tie him to ſome part of the Top of the Hedge, and the Birds ſeeing it, will come to gaze upon it, and ſo will become enſnared.

Lime-Buſh.

THE Lime-buſh is eſteemed a very good Way to take Birds, which is thus done; Cut down an Arm, or chief Bough of any buſhy Tree, whoſe Twigs are thick and long, yet ſmooth and ſtreight, as the Birch, Aſpen, Popler or Willow; then neatly cut off all the ſuperfluous Twigs, and having your ſtrong Bird-Lime well mixt and wrought together with Capon's or Gooſe-greaſe, warm and fit to work, daub over (of an equal thickneſs) the Twigs or Branches that are left within about four Fingers of the bottom, but the Body and Arms muſt be free.

Your Buſh being thus prepared and Limed, place it for the Spring Seaſon on ſome Quick-ſet or dead Hedge near unto a Town's end, a Farm-yard, or the like; In Summer and Harveſt in Groves, in Hedges near Corn-fields, Orchards, Flax, Hemp, or Rape-

Lands; and in Winter about Barns, Stables, and Stacks of Corn, where Chaff and Corn is ſcattered up and down.

Having ſet your Buſh in any of the ſaid Places according to the Seaſon of the Year, place your ſelf conveniently near at hand, where you may lie concealed; and in this Buſh you ſhould have about half a dozen *Stales* fixed, whoſe chirping and ſinging will intice others to the Buſh; and it were not amiſs if you were expert in their Notes to imitate them, which Practice and due Obſervance will bring you unto; and for the effecting it, be provided with Bird-Calls which are of ſeveral ſorts, ſome being made of Wood, others of Tin, and others of Horn; alſo ſome of Vellam, and ſome of Cane, *&c.*

This Buſh is alſo of excellent uſe in the Winter for taking Feldefares, which uſually fly in great Flocks, and ſettle upon Trees; ſo that being provided with one or more of them which faſten upon Trees, and having fixed thereon ſome *Stales*, beat about the adjacent Grounds to raiſe them up, and when they eſpy the *Stales* they will light on the Tree and Buſhes for Company, and ſo are taken.

Theſe Birds do alſo reſort unto Hedges for the Haws; ſo that it is good to fix your Twigs thick up and down in ſuch Hedges with ſome *Stales*.

Alſo they uſe much Marſhy low Grounds to get Worms; ſo that they may be taken with your Lime-Twigs ſet up and down ſlopewiſe as before directed.

How to take Wood-cocks *and* Snipes *with Bird-Lime.*

IT is by Obſervation found, that a Diſeaſe is half cured when found out: So likewiſe it is eaſie to enſnare any Creature or Fowl, if their Nature is rightly underſtood, and what they delight in either for Food or Exerciſe. But theſe Birds are difficult to diſcover, lying cloſe, and not reſorting much together, eſpecially in the Day.

The Nature of the *Snipe* is to lie in Froſty-weather when all Plaſhes are frozen, by the ſides of Rivers, and always with their Heads up or down the Stream and not athwart it; and for the finding them out, you muſt be expert in the knowledge of the colour of their Feathers.

The *Wood-cock* doth uſually lie on Banks by Hedges and Ditches, againſt the Sun; and note, that a Day after a Moonſhiny-Night they will endure one to come better to find them, than after a Dark-Night; and the reaſon is, for that in Moonſhiny-Nights they can ſee to feed, and will not be ſo ſtill and watchful taking their Reſt.

Now for the taking them with Bird-Lime, you ought to be provided with about ſixty or ſeventy Twigs, which muſt be exactly and ſmoothly Limed; and having found their Haunts, which you may know by their Dung, which is generally in low Plaſhy Places, and ſuch as are ſubject to Weeds, and not frozen in froſty-weather; and at ſuch Places ſet your Twigs more or leſs, as you think fit, at about a Yard diſtance one from the other, and let them ſtand ſloping, ſome one way, and ſome another. If you deſign to ſee the Sport, you muſt lie concealed. And if there be any other open Place near to that where your Twigs are ſet, beat them up, or elſe ſet your Twigs alſo there.

'Tis ſaid, that theſe Birds do put their Bills into the moiſt Places of the Earth where they frequent, and ſo jogging and moving them about diſturb the Worms, and cauſe them to come up, and ſo they become their Prey.

How to take Pigeons, Rooks *and* Crows, *upon new Plow'd or Sown Ground.*

TAke a good quantity of ſmall Lime-twigs, or ſtrong Wheaten-Straws of a good length, which muſt be well Limed; theſe lay up and down where they frequent, and they will ſoon be entangled therewith; and for the better drawing them to your Twigs or Straws, you may be provided with two or three Pigeons tyed to the Ground amongſt your Twigs.

Another way to take Pigeons, Rooks *or* Crows, *very pleaſant.*

TAke ſome thick Brown-Paper, cut a Sheet into about eight Parts, and make them up like Sugar-Loaves, then Lime the inſide of the Paper indifferent well three or four Days before you intend to ſet them; then put into each Paper, towards the further end, two or three Grains of Corn, lay theſe Papers up and down the Ground, and as near as you can under ſome Clods of Earth, early in the Morning before they come to Feed; for the quantity you may uſe your Diſcretion, the more the better, about an hundred is indifferent. When they come to feed they will eſpy the Corn, and begin to peck them out by thruſting in their Heads; then are they Hood-wink'd, for they can't get it off by reaſon it ſticks ſo cloſe to their Feathers; when they find themſelves thus ſerved they take Wing, and will fly bolt upright until they have ſpent themſelves, and then come tumbling down to the delight of the Spectators.

If you uſe this Invention in Plowing-time, inſtead of Corn you may put into the Papers Worms, which will do as well.

CHAP. III.

Compoſitions and Baits for Intoxicating of Fowl.

THere are ſeveral Artificial Compoſitions and Baits for Intoxicating Fowl, and yet without tainting or hurting their Fleſh, ſo that it be unfit to eat; ſome of them I ſhall mention.

Take a Peck, or a leſſer quantity of Wheat, Rye, Barley, Peaſe, or Tares, to which put two or three handfuls of *Nux Vomica*, and boil them in Running-Water very well, until they are almoſt ready to burſt; then take it off the Fire, and when they are cold ſtrew them upon the Land where you deſign to take the Fowl, and ſuch that eat thereof will immediately be Intoxicated, and lie as if Dead, ſo that you may take them up at Pleaſure, provided you ſtay not too long (for the dizzineſs will not laſt long upon them, therefore be near at Hand;) and it were not amiſs to kill them preſently and take out their Intrails, although there is no great danger in it.

As the greater ſort of Land-fowl are thus taken, ſo may you take ſmall Birds, only making this alteration, that inſtead of Wheat, Peaſe, or the like Grain, you uſe Hemp-ſeed, Rape-ſeed, or Canary-ſeed, but above all Muſtard-ſeed.

If you approve not of *Nux Vomica*, you may boil the ſaid Grains or Seeds in the Lees of Wine (the ſtronger the better) as you did in the Running-water, and apply them to uſe as aforeſaid, and it will work the ſame Effect, being eſteemed more wholſom, having nothing of that poyſonous Nature in it; but in an Hour or two the Fumes will be perfectly wrought off.

Inſtead of boiling the ſaid Grains or Seeds in the Lees, you may ſteep them therein; but then they will require longer time before they are ſufficiently ſwoln and fit for uſe.

Or inſtead of *Nux Vomica*, or Lees of Wine, you may infuſe the ſaid Grains or Seeds in the Juice of Hemlock, mixing therein the Seeds of Henbane and Poppy, or either of them. Theſe muſt ſtand two or three Days infuſing, before they are fit to ſtrew on the Ground for uſe, as aforeſaid.

Having ſhewed you how to take Land-fowl, it will be neceſſary to give you ſome Inſtructions to take Water-fowl, eſpecially at ſuch times as they range up and down to ſeek their Food on Land; for effecting of which,

Take the Seeds, Leaves and Roots of the Herb called Bellenge, and having cleanſed them from all filth, put them into a Veſſel of clean Running-water, and let them lie ſteeping therein at leaſt twenty four Hours, and then boil them in the ſaid Water until it is almoſt conſumed; then take it off the Fire, let it cool, and ſcatter it in ſuch Places where the Fowl have their Haunts; they will greedily eat it, ſo that they will become immediately Intoxicated, and lie in a Trance as if Dead; but you muſt watch them, for the Fumes will ſoon wear off.

Some do add to this Decoction the Powder of Brimſtone boiled therein, which is very effectual.

For deſtroying Crows, Ravens, Kytes, and ſuch like miſchievous Birds, that are found injurious to Warrens and Parks for the killing Coneys and Lambs, as alſo Chickens: Take the Garbage or Entrails of any Fowl, or for want thereof, of a Pig or Rabbet; this Garbage ſteep in the Lees of Wine with *Nux Vomica*, and when it is well infuſed therein, caſt it forth in ſuch a Place where theſe Birds uſe to Prey, or Reſort, which muſt be very early in the Morning, or in the Evening; and having a Place prepared to lie concealed in near at Hand, you may take thoſe that are Intoxicated by the eating a bit or two of the ſaid Garbage.

Or inſtead of the Garbage, you may take little Pieces of Fleſh, and thruſt therein a ſmall Piece of *Nux Vomica*, cloſing the Place that it may not be diſcerned, and ſcatter the ſaid Pieces up and down where their Haunts are, and it will do the ſame effect.

Having ſhewed how to take Fowl and Birds by intoxicating Baits, I will give you a Receipt how to recover them, that they may be made Tame.

Take a ſmall quantity of Sallet Oil, more or leſs, according to the bigneſs of the Fowl or Bird, and drop it down its Throat; then chafe its Head with a little ſtrong White-wine Vinegar, and it will ſoon recover, and be perfectly well.

CHAP. IV.

Directions for the chooſing, uſing and ordering of a Fowling-Piece, *with ſome Directions about* Powder *and* Shot, *together with Rules for* Shooting.

ALthough thoſe aforeſaid Lime-Rods, and Intoxicating Baits are very good for the taking of Fowl; yet whereas their Haunts and Places of Feeding are uncertain, which renders the ſaid Means uneffectual to effect the taking them by ſuch like Stratagems; therefore the Birding or Fowling-Piece is of great uſe to thoſe that are expert therein. And to be well accommodated therewith, every *Fowler* ought to have them of ſeveral Sorts and Sizes ſuitable to the Game he deſigns to kill; for ſmall Birds one with a ſmall Bore, about four Foot, or four Foot and an half long in the Barrel is ſufficient; for Wild-fowl, as Ducks, Herns, Wild-Geeſe, and the like, the Barrel ought to be about ſix Foot long, with an indifferent Bore under the ſize of a Musket.

As for the chooſing the Barrel obſerve theſe Directions; Let it be well Poliſh'd and ſmooth within, and the Bore all of a bigneſs, which you may try by putting in a piece of Paſt-board, or Board, cut of the exact roundneſs of the Top, which gently put down to the Touch-hole, and if you find it goes down well and even, without ſtops or ſlipping, you may judge it Even-bored.

Let the Bridge-Pin be ſomething above the Touch-hole, only with a Notch in the Bridge-Pin, to let down a little Powder; and if ſo, then the Gun will not Recoil, which it doth when the Bridge-Pin is below the Touch-hole.

For your Locks, chooſe thoſe that are well filed with true Work; let the Springs be neither too ſtrong, nor too weak; for if too weak, it will not ſtrike Fire in raw Sleety-weather; and if too ſtrong, it will ſhake your Hand in going off. Let the Hammer be very well hardned, and pliable to go down to the Pan, with a quick motion, when you touch the Tricker. Now for your trying it, move it gently to the Lock; and if it goes without any jerks, in a good circular motion, it is well made.

For the Stocks, Walnut-Tree, or Aſh, are very good for uſe; but Maple is the fineſt, and beſt for Ornament.

Concerning Powder *and* Shot.

LET your Powder be of the beſt ſort, of a middle ſize, and as new as you can; for bad and damp keeping, ſpoileth it; Let it be dry when you uſe it, and free from Duſt, which not only fouleth the Barrel, but is of leſs ſtrength.

Let your Shot be well caſt, and round without Tails hanging on, which in the Flight gathereth Wind, and by Conſequence Flieth not ſo far. As to the Sizes it muſt be according to the Fowl, or Birds you deſign to kill, but not too great, for then it flies thin and ſcattering; nor yet too ſmall, for then it is of ſmall force; for the Fowl will fly away with it, as having neither ſtrength nor weight to enter far to their Prejudice.

Now foraſmuch as Shot can't be had in all Places, anſwerable to your deſired ſize, and for that the making is ſo eaſie and cheap, it will be convenient to lay down ſome Directions for the making the ſame.

Being provided with Lead (let it be old or new it matters not) Melt it down in an Iron Veſſel, keeping it always ſtirring with an Iron-Ladle, which ſhould have a Lip or Notch in the Brim, for the more convenient pouring it out, and be ſure to skim or take off all the Droſs and Filth that ſwims on the Top: And when it is ſo hot that it appears of a greeniſh Colour, ſtrew upon it as much of the Powder of *Auripigmentum* as will lie upon a Shilling, (provided there be about ten or twelve Pounds of Lead), then ſtir the Lead well, and the *Auripigmentum* will Flame; then take out a little of the Lead in the Ladle for an Eſſay, and cauſe it to drop out into a Glaſs of Water, and if the Drops prove round, and without Tails, there is enough of *Auripigmentum* in it, and the temper of the Heat is as it ought to be; but if the Drops be not round and with Tails, then add more of the ſaid *Auripigmentum*, and augment the Heat until it be well.

Then take a Copper, or Braſs Plate of about the ſize of a Trencher, or bigger or leſſer as you think fit, with a Concavity in the middle, about three or four Inches Diameter, wherein muſt be made forty or fifty Holes of ſeveral ſizes, to what you would have your Shot to be; this Concave Bottom ſhould be thin, but the Brim thick, the better to retain the Heat. This Plate ſhould be placed on two Bars, or over an Iron Frame, over a Tub or Pail of fair Water, about four Inches from the Water. Then with your Ladle take off your Lead, and pour it gently on the Plate, on which ſhould be burning Coals to keep it hot, for the Lead will find its paſſage thro' the Coals into the Water, and fall in round Drops; when the Coals are out and dead, put on more, and ſo continue pouring on the Lead, until you have finiſhed what you intend. If the Lead ſtop the Plate, and yet is not too cool, give the Plate a little knock, and it will drop again.

Your chief Care is that the Lead be in good Condition, as not too cold, or too hot, for if too hot, it will drop cracky; and if too cold, it will ſtop the Holes; therefore as near as you can, obſerve the Temper of the Heat, and you will have good round Shot without Tails.

If you would have Shot of all one ſize, which I judge the beſt, as occaſioning the leaſt trouble in ſorting, let the Holes in the Plate be pierced all of one ſize, which is very eaſie to be done. It is not enough to be well provided with a good Fowling Piece, but your great Care muſt be to keep it in good Order, and for that purpoſe obſerve theſe few Directions. Keep it always in a Caſe either of Wood or Cloth, in a dry Place, for the Damp ſpoils and ruſts it. Let your Lock be kept always clean and oiled, that the Cock, Hammer, and all the Parts may be of a nimble Motion, upon the drawing the Trigger. Alſo a good Flint is of neceſſary uſe; and indeed the *Fowler* ought to be provided with ſeveral in his Bag, for fear of any Diſaſter of the other. The Barrel muſt alſo be kept clean; for if foul, it never carrieth true, beſides 'tis ſubject to recoyl, which is dangerous; and it will occaſion that oft times it flaſhes in the Pan a good while before it goeth off, by which means the Fowl are alarm'd, and ſo eſcape, with ſeveral more Inconveniences that may attend.

You muſt alſo be well acquainted with the Condition of the Gun, whether it be apt to ſcatter or carry the Shot round within the Compaſs, that you may load her accordingly; for if you ſhoot at a Flock of great Fowl, then the ſhot muſt be large, and there muſt be more Powder, and leſs Shot; and if you ſhoot at a ſingle Bird, then leſs Powder, and more Shot; for the former will ſcatter, and the latter fly cloſe and compact.

Directions about Shooting.

IN Shooting, whether the Game be flying, or on the Ground, on a Tree, or Hedge, always (as near as you can) endeavour to ſhoot with the Wind, and not againſt it; and rather ſide-ways or behind the Fowl, than in their Faces, and not at a ſingle Fowl, if you can compaſs more within your Level; and if on a Tree, Hedge, or the Ground, ſeek the convenienteſt Shelter you can of Hedge, Bank, Tree, or the like, to be abſconded from the Fowls ſeeing you, which is very offenſive to them; and being within Shot, and a fair Mark, loſe no Time, but let fly.

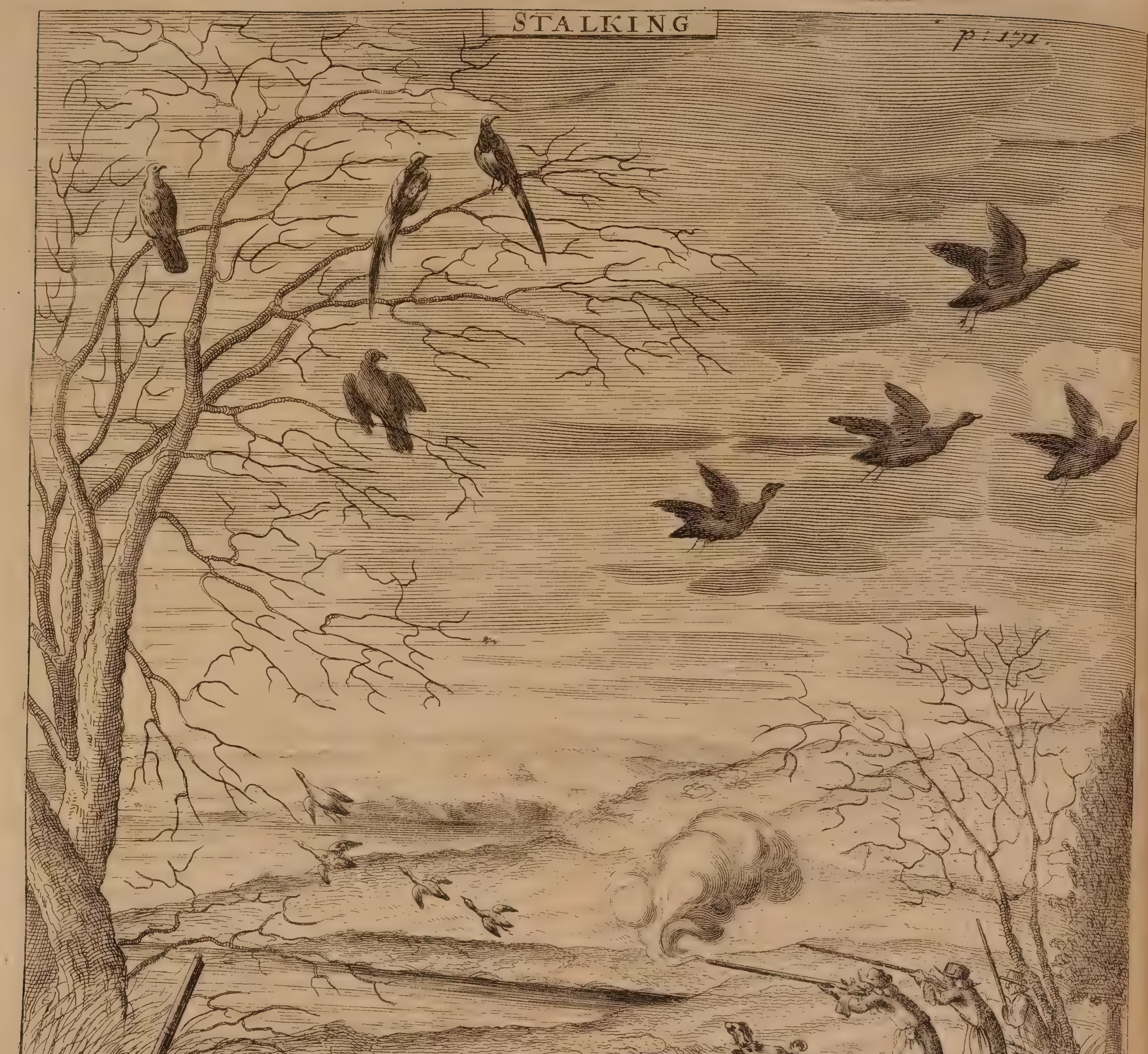
A Spaniel of great Uſe.

YOU muſt always have your Spaniel, which muſt be train'd up for the Sport, (of which more in the Chapter of *Land-Spaniels*), attending you very cloſe, to fetch what you have ſhot, as well thoſe that are killed, as thoſe that are maim'd; and it may be all, or moſt of them, (eſpecially Water-Fowl) are not to be conveniently come at by you, ſo that they may be loſt, were it not for the Aſſiſtance of your Dog, which, upon your Word of Command, immediately ſeeks them out, and brings them to you. And be ſure to have your Dog in ſuch Obedience, as not to ſtir from your Heels, until you have ſhot, and give him the Word of Command to go; for to ruſh forth too ſuddenly upon the firſt Fire, or Snap of the Cock, when 'tis probable the Gun goeth not off, as many mad-headed Dogs will do, may be the Loſs of your Game, by ſpringing them.

Shooting flying.

IT is now the Mode to ſhoot flying, as being by Experience found the beſt and ſureſt Way; for when your Game is on the Wing, it is more expoſed to Danger; for if but one Shot hits any Part of its Wings ſo expanded, it will occaſion its Fall, altho' not to kill it; ſo that your Spaniel will ſoon be its Victor, and, if well diſciplin'd to the Sport, will bring it to you.

For your better Inſtruction herein, I ſhall lay down ſome few Directions. The Gun moſt proper for this Sport ſhould be about four Foot and a half long in the Barrel, and of a pretty wide Bore, ſomething under a Muſket. You ſhould have your Gun always cock'd in Readineſs, with your Thumb over the Cock, for fear of its going off contrary to your Intention; ſo that when you meet with any Game, you



To the Honble Sr Henry Goodricke of Ribston Parke
in Yorkeſhire Knight & Bar.^{t} his Majesties Envoy Extraordinary, to the King of Spain. Anno Dom. 168$\frac{2}{3}$.
This Plate is humble dedicated by Richard Blome

Fortior Leone Justus

Arthur Soly fecit 1683

you muſt be quick, and having got an Aim to your Mind, let fly with all Expedition.

Some are of Opinion, that you muſt ſhoot ſomething before the Fowl, otherwiſe it will be paſt before the Shot can come to it; but that is a vulgar Error, for no Game can fly ſo quick, but that the Shot will meet it; for the Shot flyeth as wide as about the Compaſs of a Buſhel, if rightly order'd in the Charging: Yet I am of the Opinion, if the Game flyeth as it were over your Head, that 'tis beſt to aim at the Head; and if it flyeth from you, to aim as it were under its Belly. And 'tis found beſt to let the Game fly a little paſt you before you let fly; for thereby the Shot will the better enter the Body.

Your next Buſineſs muſt be to be provided with one, or at the moſt two Spaniels, ſuch that are rather ſlack-mettled, not ranging out of Shot, than thoſe that are hot-ſpirited, to raiſe the Game beyond Shot, and withal ſuch that are at good Command, being train'd up to bring the Game, and tender mouth'd, ſo as not to tear and ſpoil them.

Now for your better Sport, it were good to have a Companion alſo expert in this Exerciſe, who muſt be provided likewiſe with a Gun; then let one go on the one Side of a Hedge, or Field, and the other on the other, provided the Field be not too broad, and beyond the Reach of your Guns to the midſt thereof; then caſt off your Spaniels to range about betwixt you, but near at hand, obſerving to follow their Motion; ſo that when any Game is ſprung up, you or your Companion may be in Reach thereof; the like obſerve if you ſeek for Cocks or Snipes about Plaſhes. But above all things obſerve, that you train up your Spaniels, ſo that they may hunt not ſtraggling, but in Compaſs.

If you deſign for Cocks, and in a Wood, you may uſe two or three Spaniels; and if you had three or four Men on Trees to obſerve, that when the Spaniels have fluſh'd any, he that ſeeth it ſhould ſay, *I have mark'd*, which gives notice to him that ſhoots to come, and make his Shot. If you deſign to kill Ducks, uſe no Dogs to range, but only to follow you cloſe behind, for thoſe Sort of Fowl will riſe faſt enough.

For your learning to ſhoot flying, the Spring is the beſt time for Swallows or Swifts, and you will not miſs of them in Church-yards, and ſuch like Places.

This Method of ſhooting flying may be perform'd alſo on Horſe-back, which is more commodious, and leſs toilſome; but then your Buſineſs muſt be to bring your Horſe to good Command, and to underſtand his Duty, which he may be ſoon brought unto, the chief Thing being to ſtand ſtill upon the leaſt Check of the Bridle, but chiefly not to ſtart at the Noiſe or Report of a Gun.

CHAP. V.

Of the Stalking-Horſe, *with ſeveral artificial Engines for the getting near to* Fowl *to ſhoot them.*

Foraſmuch as *Fowl* do frequently lie remote from Shelters, ſo that the *Fowler* is deprived of a Shot; therefore, by the Aſſiſtance of a *Stalking-Horſe*, he may command a Shot at Pleaſure, and to that end obſerve theſe Directions.

Let your *Stalking-Horſe* be of the largeſt Size, 'tis no matter how old he be, but he muſt be well train'd up for your purpoſe, and be at ready Command; and whereas there is ſome Art in reclaiming a Horſe, which by Nature is wild, and fearful of Noiſe and Fire, ſuch as that which a Gun makes, (eſpecially at the neareſt unto him) therefore get a ſtrong Chain, and faſten it about his Head, then tye him up to a Tree, and fire your Gun near him, giving him your Encouragement by Voice and Hand, ſtroking him, and ſo continue ſhooting near him ſeveral times; and although he continue his Kicking and Capering, yet in about a Week's Exerciſe after this manner, he will become ſo gentle, as to permit you to ſhoot under his Neck, without the leaſt Reluctance or Stirring. But ſome are of the Opinion, that during this Teaching, the Horſe muſt be kept waking in the Nights, and to ſhoot under his Neck as well as in the Day.

Having thus brought him to endure the Noiſe of your Gun, your next Buſineſs muſt be to train him up to go as you would have him, moving gently, and feeding as he goes; and to ſtand ſtill and feed when you would, which muſt be done by Practice, and his obſerving your Motions and Checks.

Now for this Exerciſe your Horſe muſt be naked, that is, without Bridle and Saddle, (for that will fright the Fowl, and cauſe them to take Wing) only to have a ſmall Slip, about ſix or eight Foot long, tied about his lower Chap, wherewith you may guide him as you ſee Cauſe; and remember to contrive your ſelf ſo, as to go juſt level with his Shoulders, for thereby his Fore-feet will guide your's; and be adviſed to take your Level from before his Breaſt, and not under his Belly; for that is too open, and often lays you to the View of the Fowl, whereby you loſe them. By this means you may gently cauſe him to move up and down, to ſtalk over Rivers, on the Sea-Shore, in Mooriſh Grounds, dry Lands, Stubble-Fields, or the like Places; and as he moveth he will feed. You muſt ſhelter your ſelf and Gun behind his Fore-Shoulder, bending your Body low by his Side, and keeping his Body always full betwixt you and the Fowl. Then having choſen your Mark, take your Level from the Fore-part of the Horſe, which is more ſafe and ſurer than under his Belly, and leſs perceivable; for the Shoulder of the Horſe covereth the Man's Body, and his Legs the Man's Legs.

You ought not to endeavour the coming nearer the Fowl than your Piece will carry, nor to diſcharge out of Diſtance; for by the latter you are ſure to miſs, and by the former you hazard the diſturbing them.

Some are of Opinion, that to ſhoot over the Horſe's Buttocks is the beſt Way, and others are of the contrary, holding it beſt to ſhoot over his Neck; but theſe Ways I think not ſo good, yet leave them to your Judgment, and to uſe which you find beſt.

You muſt upon no Account be without your Spaniel, which muſt be ſo exactly train'd up, that he may lie by your Side until you have made your Shot, for if he appear in View, the Fowl will never permit you to come near them; and when once you have ſhot, then give him your Word of Command to fetch the Fowl unto you, eſpecially thoſe that you cannot come at, which, with Practice, he will ſoon be expert in, for they are Creatures of a great Knowledge, and ready Apprehenſion, and naturally inclined to the Sport.

And foraſmuch as Stalking-Horſes are chargeable to keep, and that you cannot always have one at Command, I ſhall furniſh you with other cheaper Inventions, with the Help of which you may approach near enough to make a Shot at the moſt coy Fowl that are.

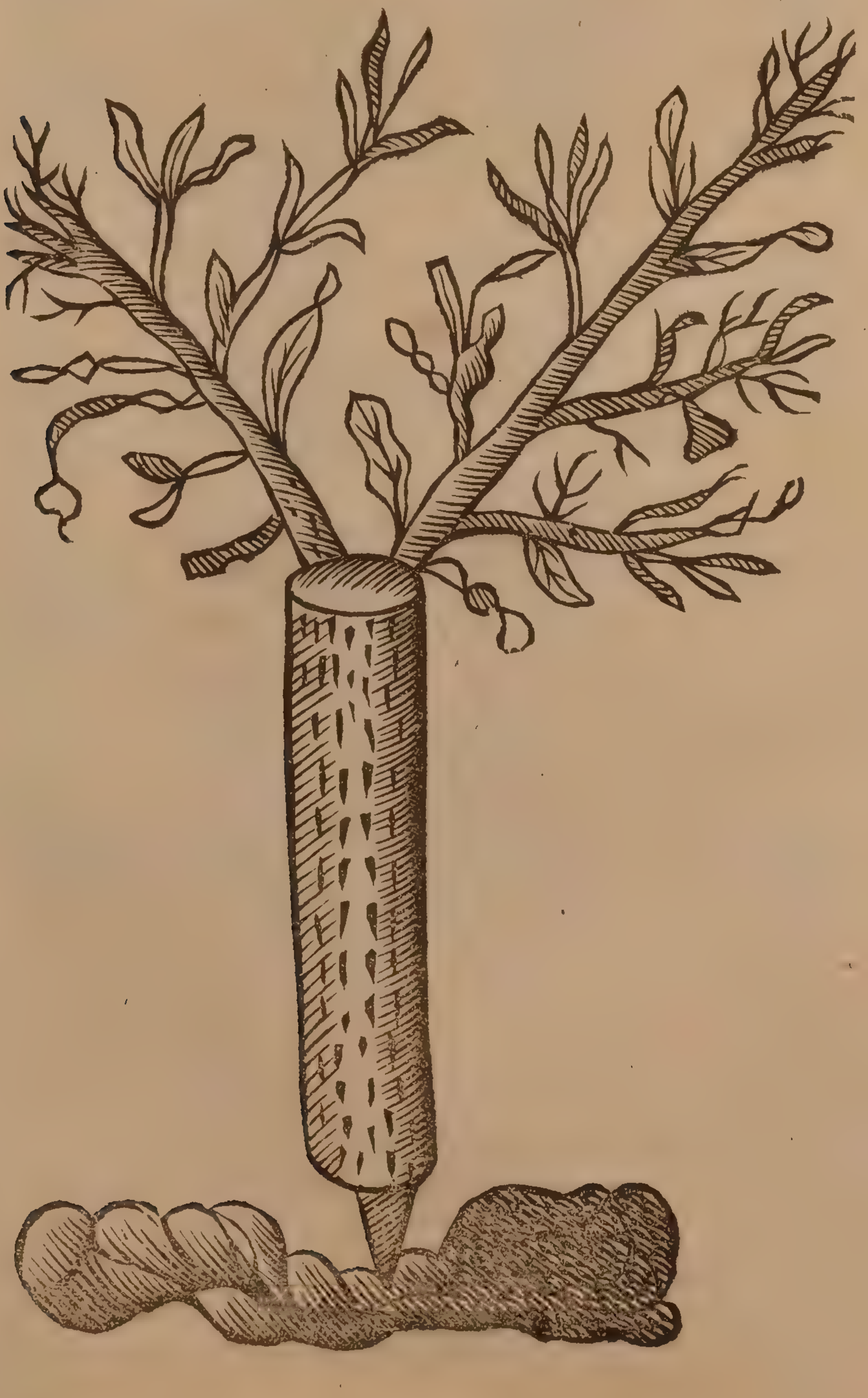
An Artificial Wheel-Barrow for Stalking.

TAke a Wheel-Barrow, made of light Fir for the Purpoſe, and build it about with Boughs and Buſhes, ſo that you may ſit in it and not be diſcern'd, and when you come where the Fowl are, move it very gently, that the Fowl may not diſcern it to diſturb them; then level your Gun through the ſaid Wheel-Barrow, and ſhoot kneeling, your Spaniel being always in Readineſs, and at Command to fetch your Game. But this Invention is ſomething troubleſome, therefore I ſhall proceed to ſome others more commodious.

The Stalking-Tree and Buſh.

THE Artificial Tree is thus made: Take ſmall Wands, or thin Splinters, folded together in the Shape of the Body of a Tree, and ſo cover'd with Canvas, and painted like the Bark of the Tree it repreſents, that it may not be diſcover'd by the Fowl, of which the Poplar and Willow that grow by the River-Side are the beſt, as being moſt known to the Fowl, and ſo the leſs to be ſuſpected.

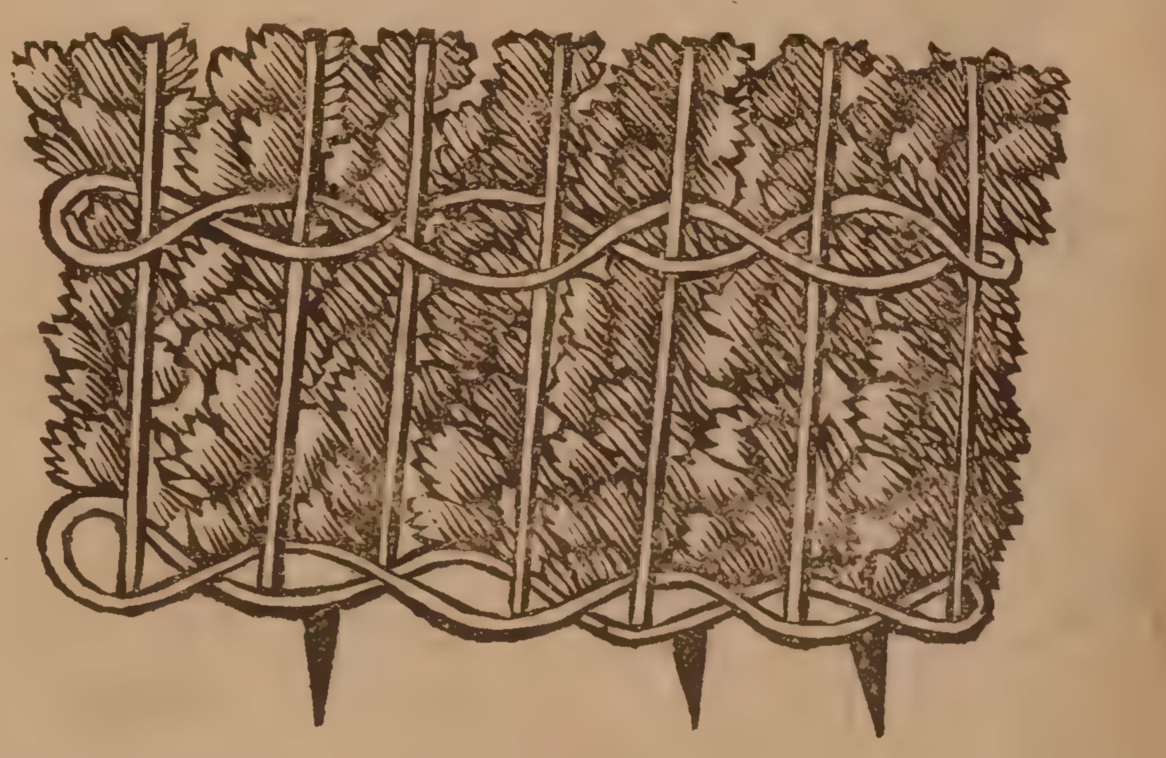
Having made the Boal of the Tree as aforeſaid, in certain Holes, made in the Top for that Purpoſe, ſtick in the Boughs and true natural Branches of the Tree, which you would make, in ſuch ſort as they grow at that Seaſon, acording to this following Figure.



As for the Stalking-Buſh, it muſt not be ſo tall as the Tree, but much thicker, and may be made either of one Buſh, or of ſeveral, neatly entangled and made faſt together, and about the Height of a Man; and in the midſt of the Bottom muſt be a ſmall Stake, with an Iron Point, to drive into the Ground to ſupport the Buſh whilſt you take your Aim. This Way is ſo eaſie, that there needs no further Explanation.

The Stalking-Hedge.

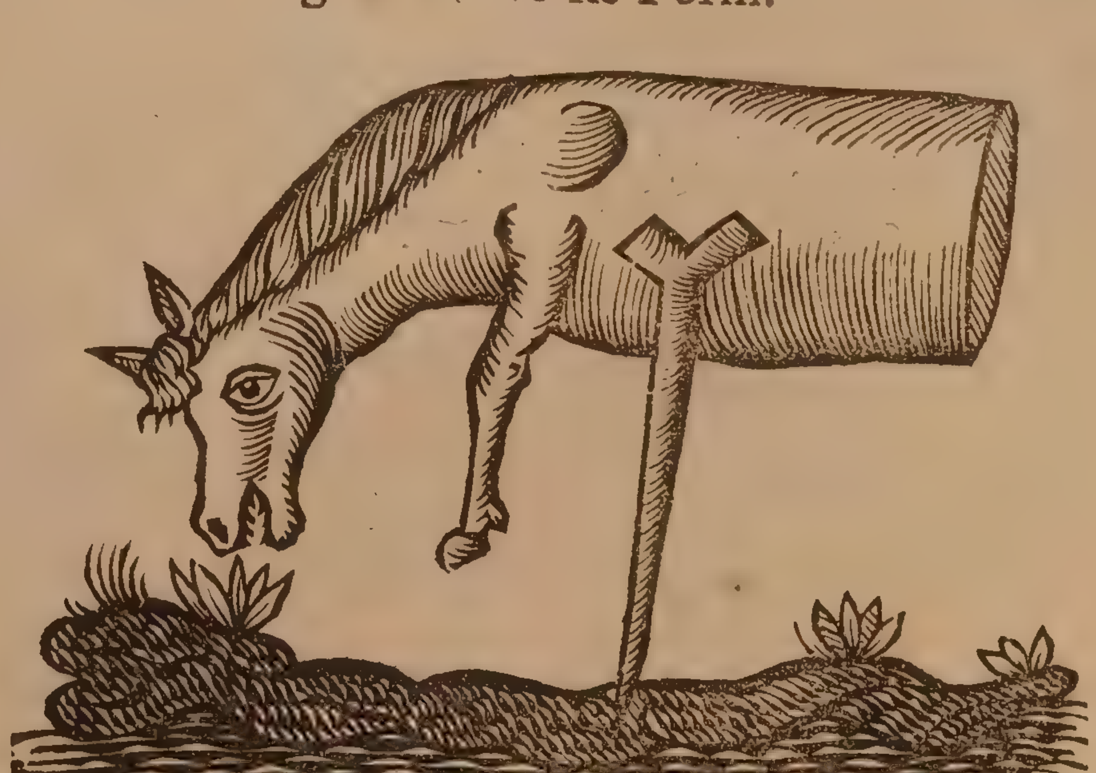
THE Stalking-Hedge ſhould be two or three Yards long, and about a Yard and a half high, and made with ſmall Wands, and buſh'd out in the Manner of a true Hedge, with certain Supports or Stakes, to bear it up from falling whilſt you take your Aim to ſhoot. And this is to be carried before you for your Shelter from the Fowl.



Theſe dead Engines, which carry not the Shape of a living Creature, are not ſo neceſſary and uſeful to ſtalk with, as for a Stand; for their ſeeing a dead Thing move will cauſe Apprehenſion of Fear and Danger in them, as ſome deſign againſt them; therefore I ſhall give ſome Examples of ſuch living Shapes, whoſe Motion is not ſtrange unto them; and firſt of the Horſe.

An Artificial Stalking-Horſe.

TAke ſome old Canvas, cut it into the true Shape of a Horſe, with the Head as if feeding; then paint it like a Horſe of a brown Colour, which is beſt. It muſt be made ſo portable, that it may be eaſily carried with one Hand, ſo that it may be mov'd in ſuch manner as if it grazed as it goes; nor muſt it exceed the uſual Bigneſs of a Horſe; and to make it ſo light, it may be ſtuff'd with Straw. In the midſt let there be fix'd a Staff, with an Iron Pick in it, to ſtick down in the Ground at Pleaſure, and to ſtand faſt whilſt you take Aim to ſhoot, as alſo to turn and wind any way for the Advantage of the Wind, or the like. This Figure ſhews its Form.



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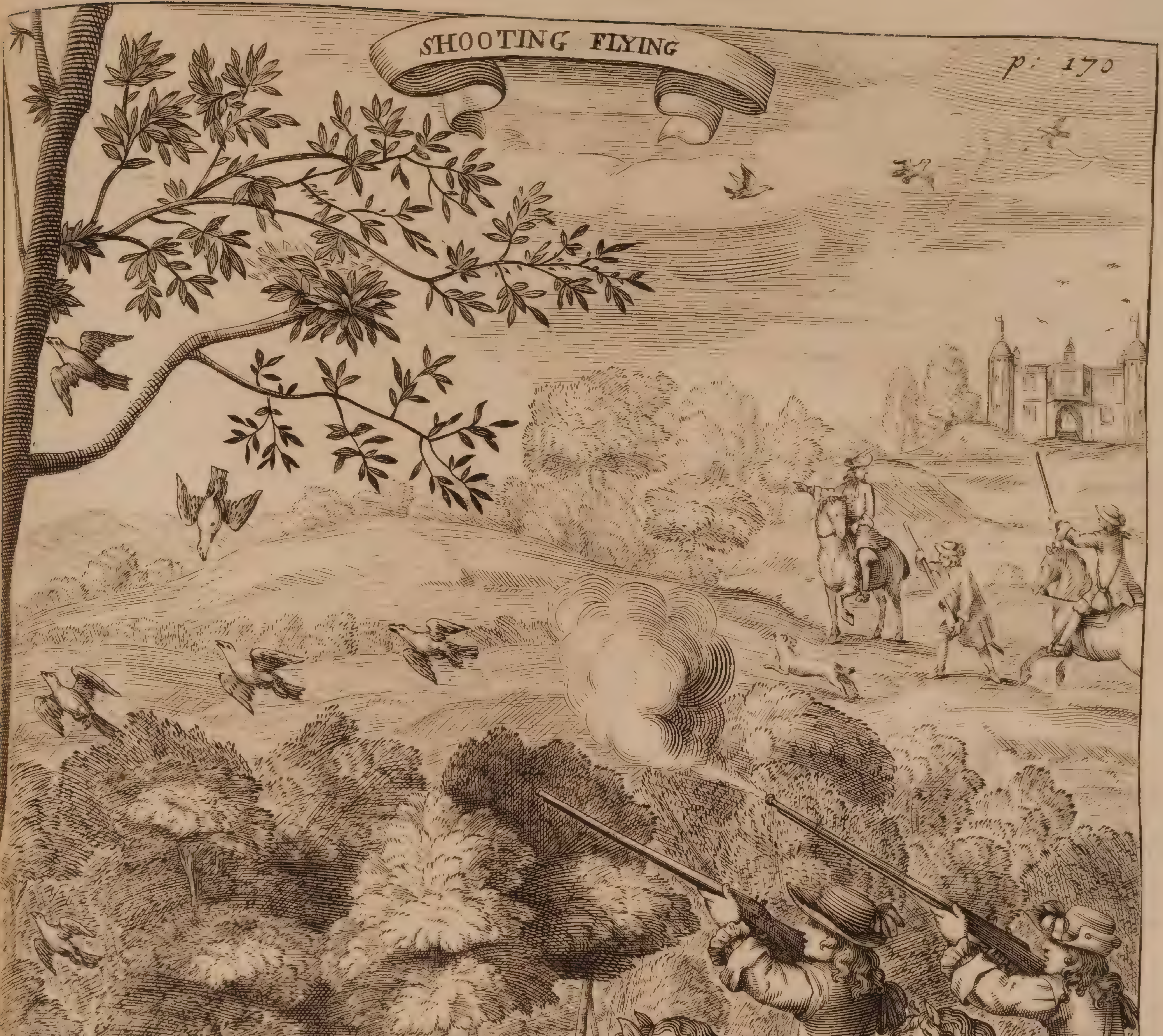

SHOOTING FLYING
p: 170
S.Gribelin. Sculps.

To the Honourable Thomas Fairfax Esq.r eldest Son of ye
Rt Hon.bl Henry Lord Fairfax of Denton in York-shire.
This Plate is humbly Dedicated by Richard Blome.

There are ſome of Opinion, that the Stuffing the Canvas thus out is not ſo good as unſtopp'd, being more troubleſome to command; but if unſtopp'd, it muſt be artificially painted, and very thick, leſt in the turning it againſt the Sun it appears tranſparent, which will affright the Fowl; and it muſt be proportionable to a Horſe, being ſtretched out upon Splents of Wood, or ſtrong Wire. This is ſo eaſie to be made, that it needs no Figure to explain it; and it were not amiſs, if you cut a little Hole thro' the Shoulder-part to level your Gun.

Inſtead of this Artificial Stalking-Horſe, you may make in Canvas (either ſtuff'd or unſtuff'd) the Shape or Proportion of a Cow or Ox, which muſt be alſo very well painted to the Life, and according to the uſual Colour of Cattle in thoſe Parts, and be very exact in the Horns, to make them ſuitable to the Breed of that ſort of Cattle there uſual; and thus by the Change of your Engines, you may make your Sport the longer to continue.

If you deſign theſe Artificial Stalking-Engines for Fowl that flock together, eſpecially Water-fowl, they will ſoon grow too crafty for thoſe unſtuff'd; but for Pheaſants, Wood-cocks, and the like, there cannot be a more uſeful and cheaper Way than the unſtuff'd; for when you have made a Shot, you may rowl up your Engine, and keep it for another Occaſion.

To conclude this Chapter, obſerve this Caution, That thoſe ſeveral Sorts of Engines are to be uſed early in the Morning, or late in the Evening, and they are more proper for Water than Land-fowl; for when the Sun is up, its Reflexion ſooner diſcovers the Imperfections in your Engine, which the Water better hideth.

CHAP. VI.

Of a Decoy-Pond, *with ſome Directions concerning the ſame, and* Decoy-Ducks.

THE Fifth Chapter teacheth you ſeveral Ways to take Fowl by Stalking-Engines, for the getting near to ſhoot them: I ſhall now ſpeak of Decoys, by which means great ſtore of Ducks and Teal are drawn into a Snare, and that by the Subtilty of a few of their own Kind, which from the Egg are train'd up to come to hand for the ſame Purpoſe.

Theſe Decoy-Ducks fly abroad, and light into the Company of wild ones, and being become acquainted with them, by their Allurements do draw them into the Decoy-Place, where they become a Prey.

The Manner of doing it, and the Making the Decoy-Pond, with the ſeveral Appartments belonging to it, require a long Diſcourſe; nor indeed can any particular Rules or Directions be given therein, as being variouſly made according to the Situation of the Place, which muſt be conſider'd: So that ſuch as would make any had beſt inſpect ſome already made, which are frequent in divers Parts of this Kingdom, eſpecially in *Lincoln-ſhire*, *Cambridge-ſhire*, and ſuch like fenny Countries; for it muſt be moiſt, mooriſh and fenny Grounds, with the Conveniency (if poſſible) of a River running through, or by it; ſo that I ſhall only ſay, that the Place where theſe Decoy-Ducks entice them muſt not be very broad, and ſet on both Sides thick with Oſiers, and at the Top and Entrance muſt be Nets to let down by the Man that is to attend it, when he ſeeth the Ducks all entred in, by which means they become taken.

And great Care muſt be taken, that the Nets are not let down until all are within the Limits of the Nets; for if any ſhould eſcape, it would be very prejudicial; for ſuch a Duck or Ducks would be ſhy of being drawn into the like Snare again, which would occaſion others in the Company to do the ſame, and thereby the Decoy would be much prejudiced.

CHAP. VII.

Directions for the Making, Chuſing, Ordering and Preſerving Nets.

BEfore I enter on the Ways of taking Fowl with Nets, it will be neceſſary to give you ſome Directions touching the Making, Chuſing and preſerving them, leſt the Charge exceed the Profit; for Nets are a dear periſhing Commodity, without due Care in the Well-ordering them; and it were very good Huſbandry if you, or any belonging to you, had the Art of making them, for ſome are very chargeable to buy. The Inſtruments or Tools required for the making them are Wooden-Needles, of which you ſhould have about half a Dozen of ſeveral Sizes, and as many Moulds of divers Sorts, ſome round, and others flat; alſo a Pair of flat round-pointed Sciſſars, and a Wheel to wind off the Thread. It cannot be expected to give Rules for the Knitting or Making the ſeveral Sorts of Nets, but it is requiſite to be underſtood by every compleat *Fowler*, were it only for the Mending them abroad, as well as at home.

But a Word or two concerning the Making thereof: Let your Packthread be the beſt and eveneſt you can get, and greater or ſmaller according to the Fowl you deſign to take; the like muſt be the Meſhes. For great Fowl let your Meſhes be about two Inches from Point to Point, for the larger they are (provided the Fowl cannot get out) 'tis the better to entangle them. Let your Nets be not too deep, nor too long; for that is troubleſome to manage: Let them be well verged on each Side with a ſtrong twiſted Thread.

As for the Colouring your Nets, they ſhould be either Yellow, Green, or Ruſſet: The latter is done by putting them in a Tanner's Pit, where they muſt lie until well colour'd, and this Tincture is alſo an excellent Preſerver of them. The ſecond Colour is Green, which may be thus made: Take green Wheat, chop it, and boil it in Water, and then rub your Nets therewith, and let them lie infuſing therein about 24 Hours. This is the Colour that Birds leaſt fear, as reſembling the Graſs. But to be more exact in this Colour, it were well to have it done by ſome Silk-Dyer. The Yellow is done by ſteeping the Net in the Juice of Celandine, which, being dried in the Shade, will become a good Yellow; for it muſt not be over-bright, but of the Colour of Stubble in Harveſt-time, for which Seaſon this Colour is moſt proper.

For preſerving your Nets, be ſure to keep them dry; and to that end hang them abroad in the Sun whenever you have uſed them in the Dew or Rain. And be careful to mend the leaſt Rent or Breach upon the firſt diſcovery, leſt it become worſe; and be perſwaded to hang your Nets from the Wall, to prevent their being injured by Rats and Mice, which are great Enemies to them. What relates more to Nets, I ſhall ſpeak of when I treat of each ſort.

In the next Place I ſhall proceed to the uſe of Nets for the taking Fowl and Birds, both for River and Land.

CHAP. VIII.

Of the taking of Partridges *with Nets; as alſo with Calls, Engines,* &c.

PArtridges are for the generality cowardly and fearful, likewiſe very ſimple, and eaſie to be deceived with Nets, Baits, Trains, Calls, Engines, *&c.* ſo that the taking them may be obtained by a Man's own and only Labour and Induſtry with great Eaſe and Pleaſure.

The moſt uſual ways are by Nets, Engines, Calls, by the Setting-Dog and Stalking-Horſe; for as touching the killing them with the *Hawk*, it is treated of in *Hawking*; therefore I ſhall omit it here.

In the firſt place, 'tis neceſſary to know their Haunts; which are not certain like Pheaſants, but various, yet the Places they moſt delight in are in Corn-fields, during the time that it grows, or is ſtanding; for under that Covert they ſhelter and breed, nor do they quit the Corn-fields after Harveſt, for the Stubble, eſpecially of Wheat, affords them ſhelter and Food; but when the Stubble is ſoiled or trodden down with Cattle, then they forſake it, and betake themſelves to the Barly-Stubble, and in the Furrows amongſt the Clots, Brambles, long Graſs, and Fog, hide themſelves and their whole Coveys.

Upon the approach of the Winter Seaſon, when the Stubble-fields are broken up, or that it is trodden and ſpoiled with Cattle, they betake themſelves to incloſed Grounds and Upland Meadows, and take Covert under Hedges, amongſt Mole-hills, at the Roots of Trees, amongſt Broom, and in the foggy dead Graſs. You ſhall alſo find their Haunts all the Year long in ſmall Coppices or Under-woods, eſpecially if adjoyning to Corn-fields; alſo in Cloſes peſtered with Shrubby-Buſhes, Brambles, Broom, Fern, or the like Covert; alſo in the height of Corn-Harveſt, when the Fields are peſtred with People and Cattle to diſturb them; they frequent the Fallow-fields all the Day, and early in the Mornings and late in the Evenings come thither to feed.

Having knowledge of their Haunts, according to the Situation of the Country, whether Mountainous or Plain, Champion or Woodland; and the Seaſon of the Year, whether Summer or Winter; Your next buſineſs is to find them out in their Haunts, and where they lodge, and this is done divers ways: ſome there are that will find them out by the Eye, although they lie never ſo cloſe couched together, diſtinguiſhing them by their colour from the Earth, which is an Art not to be taught, but only by Practice; and in ſeeking them this way, make your approach nearer and nearer unto them until you perfectly diſcern them (provided you do not ſtand at gaze upon them) but keep in a continual Motion, looking another way as if you ſaw them not; for they are a lazy and fearful Bird, and unwilling to take Wing.

Partridges may alſo be found out by their Haunts where they did laſt couch or lie; that is, whether the Haunt be Old or New, which may be thus known. If it be new, their Dung will be green and ſoft; alſo the paddling with their Feet round about will be ſoft and dirty, and the Earth will appear new broken, and of a darker Colour than that round about it; and if very new the Place where they ſat will be warm and the Ground ſmooth, with ſome Down, or ſmall Feathers ſcattered upon it. If the Haunt be old and long forſaken, the Dung will be dry and brickle, their Treading will alſo be dry, rough and hard, and of the colour of the reſt of the Ground; for the leſs dry, clean and ſoyled the Haunt is, the longer hath it been left; and the more moiſt, dirty, *&c.* the later was it ſince they were there.

If you find the Haunt to be new and warm, then be aſſured they are not far off, if not forced away by ſome diſturbance; therefore be very careful and move with leiſure, having regard to the Furrows of the Lands, to the end you may not raiſe them, and there is no doubt but that you will find the Covey; and ſo ſoon as you do, immediately wind off from them, and look not upon them, but careleſly caſt your Eye another way, and ſo fetch a large Circumference about them, and leſſen it by degrees until you have diſcovered them; and although they lie diſpers'd (as oft times they do) as being the nature of the old Ones to lie a little diſtance from the Covey, yet you need not fear the taking them.

To take Partridge *by the Juck.*

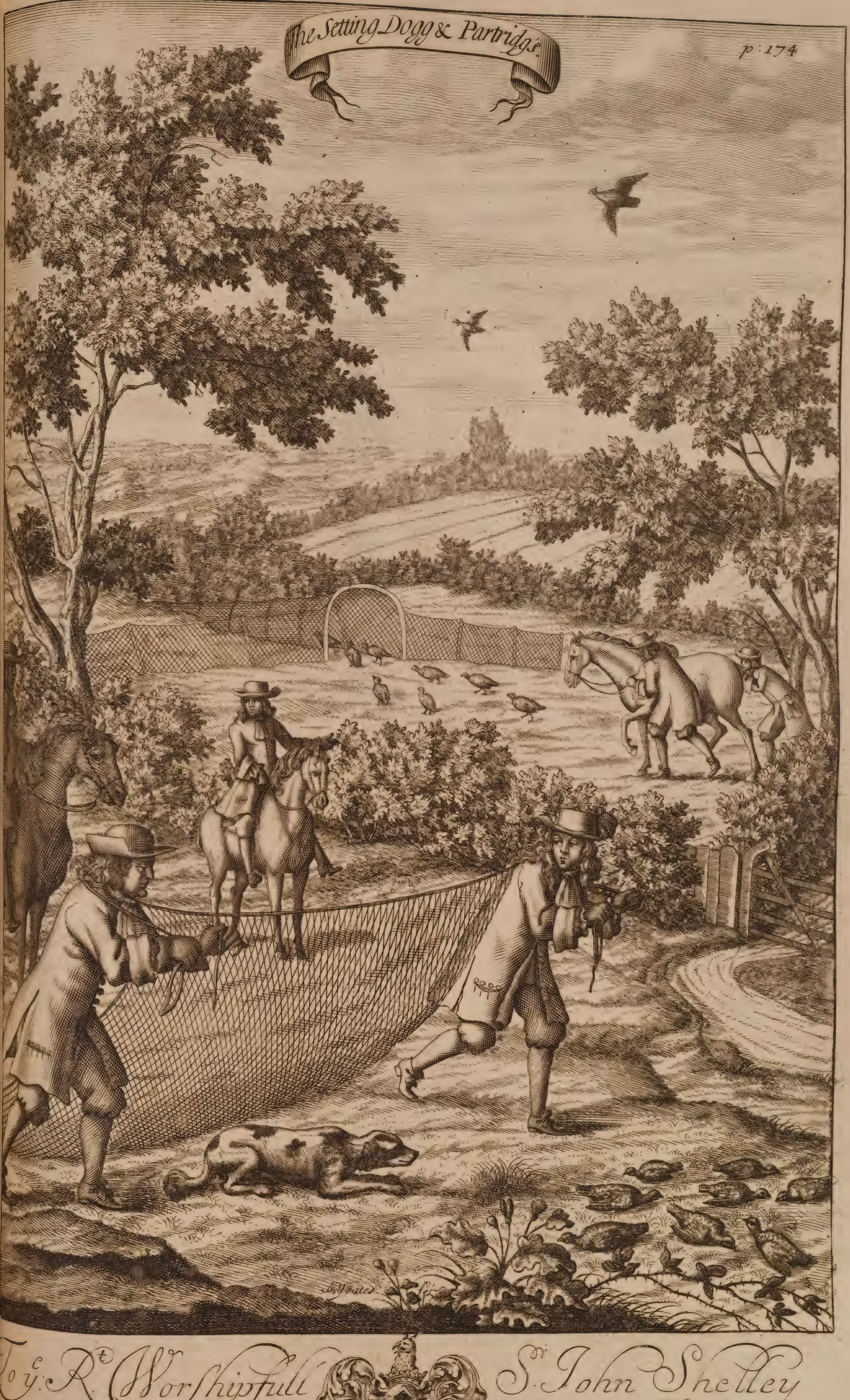
THere are others that find them out by going to their Haunts very early in the Morning, or at the cloſe of the Evening which is called Jucking-time, and there liſten for the calling of the Cock-*Partridge* which will be very loud, and with no ſmall eagerneſs, upon which the Hen will anſwer him and they ſoon come together, which you may eaſily know by their chattering, and rejoicing Notes, upon which take your Range about them, drawing in by little and little to the Place where you heard them Juck, and be ſure to caſt your Eye about, eſpecially towards the Furrows, and without doubt you will ſoon diſcover how they lie, and accordingly proceed to take them.

To take Partridge *with the Call.*

IT is an excellent Way to take *Partridges* with the Call, concerning the making of which, and the manner of uſing it, I ſhall ſpeak of more anon.

With this Call having learnt their true and natural Notes, and being expert to tune every Note in its proper Key, and arriv'd to the knowledge of the due Times and Seaſons for every Note which are as various as the *Pheaſant*, if not more; then being prepared with your Calls, go to their Haunts very early in the Morning, or late at Night, (the reſt of the Day being inconvenient) and having placed your ſelf ſecretly, ſo as to ſee and not be ſeen, as if in Wood-

lands


The Setting Dogg & Partridgs
p:174
N. Yeates

To ye Rt Worshipfull Sr John Shelley
of Michelgrove in Sussex Baronet
his Plate is humbly Dedicated by Richard Blome

COMME JE TROUVE

lands under ſome Buſhes, Brambles, or the like; If in the Champion, under ſome Bank or Ditch; if in Meadows, under the Hedges, and if in Corn-fields in the Furrows. Then liſten to hear them call, and accordingly anſwer them with your Call in the ſame Note, always altering, or doubling it over more or leſs as the *Partridge* doth, until you find it draweth nearer and nearer unto you, and not only one ſingle *Partridge* will come, but all that hear it, as being ſo natural to them.

Of the Net.

THE Net for taking *Partridges* ſhould be ſhaped and proportion'd in all Points as to Breadth and Length like the Pheſant-Net, only the Meſh muſt be ſomewhat ſmaller, but as to the Colour it may be the ſame; yet ſome are of Opinion, that it were not amiſs if it were ſomewhat longer and broader; for thereby you may catch 'em with the greater certainty, your Circumference or Walk about them being the larger, and will cover more Ground; but let not your Net be ſo long, or broad as to be cumberſome unto you; for that will rather obſtruct than further you. The Nets, if for a Covey, ſhould be ſixteen or twenty Yards long, and four or five deep; and if in Paring-time, then eight or ten Yards long, and about four deep; and let your Lines and Cords be anſwerable.

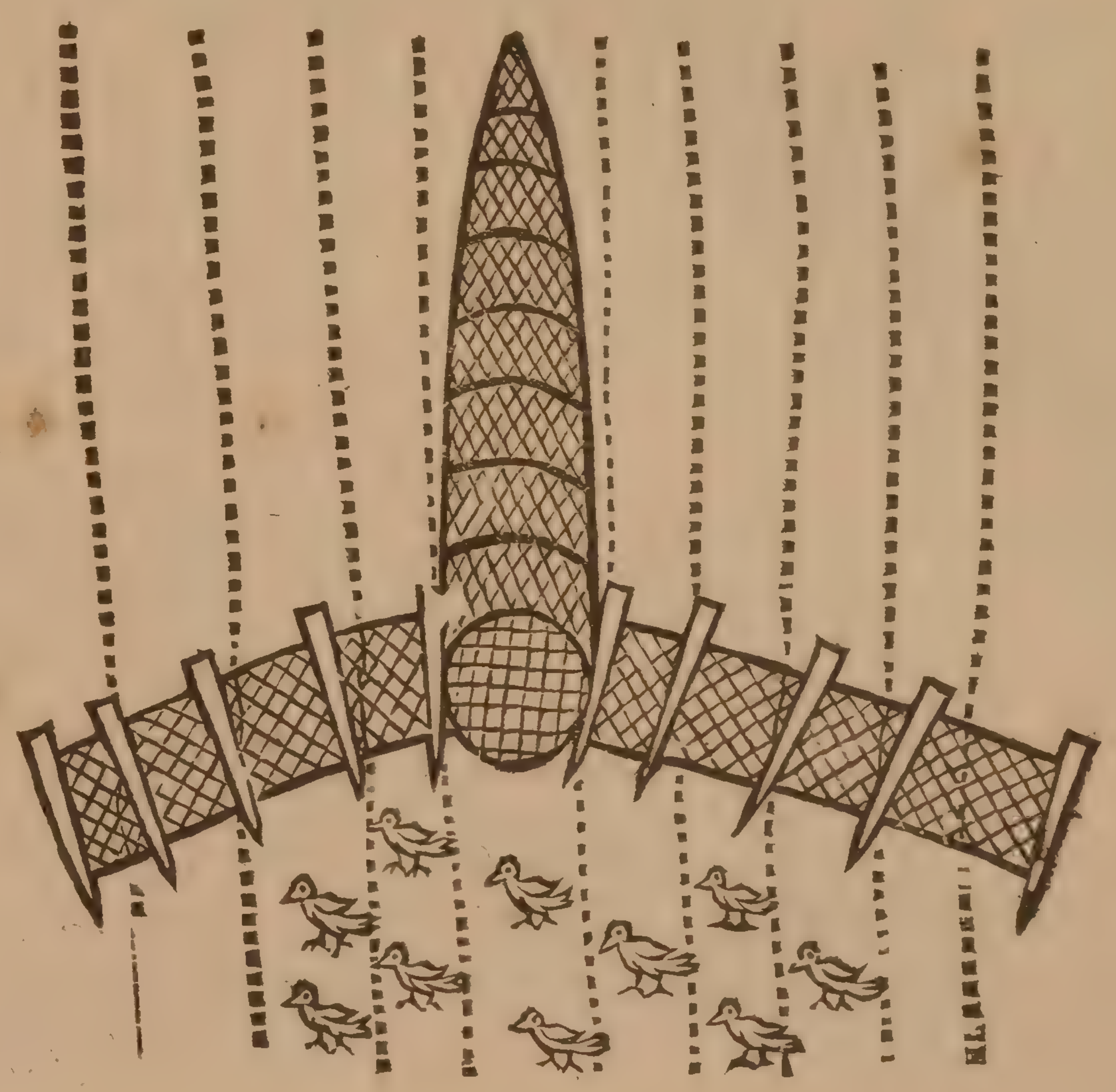
Having your things in order, and found out a Covey, draw forth your Nets. And taking a large Circuit about the *Partridges* with a quick Pace and careleſs Eye, as if you did not ſee or regard them, until you have made ready your Nets for the purpoſe, then begin to draw in your Circumference leſs and leſs, until you come within the Length of the Net; then prick down a Stick about three Foot long, to which faſten one End of the Line of your Net, and making it faſt in the Earth as you walk about without making any ſtay, you ſhall (then letting the Net ſlip out of your Hands) ſpread it open as you go, and ſo carry it and lay it over the *Partridges*; but if there be more than your Net will cover by their ſtraggling, then draw forth another Net, obſerving the ſame Method and joyning them cloſe together; and after this manner you may do with a third, if occaſion requires. And having thus covered them, ruſh haſtily in to them, and with an affrighting Noiſe force them to ſpring, and thereby they are entangled and may be taken without hurt. And in this manner you may take them at all Seaſons, and in all Places where they haunt.

The Tunnel-Net.

THE moſt uſual Way to take *Partridges* is with a Tunnel-Net, the Form of which is here repreſented as extended and pitched.

This is a Net ſo well known, that it is needleſs to give any further Deſcription of it.

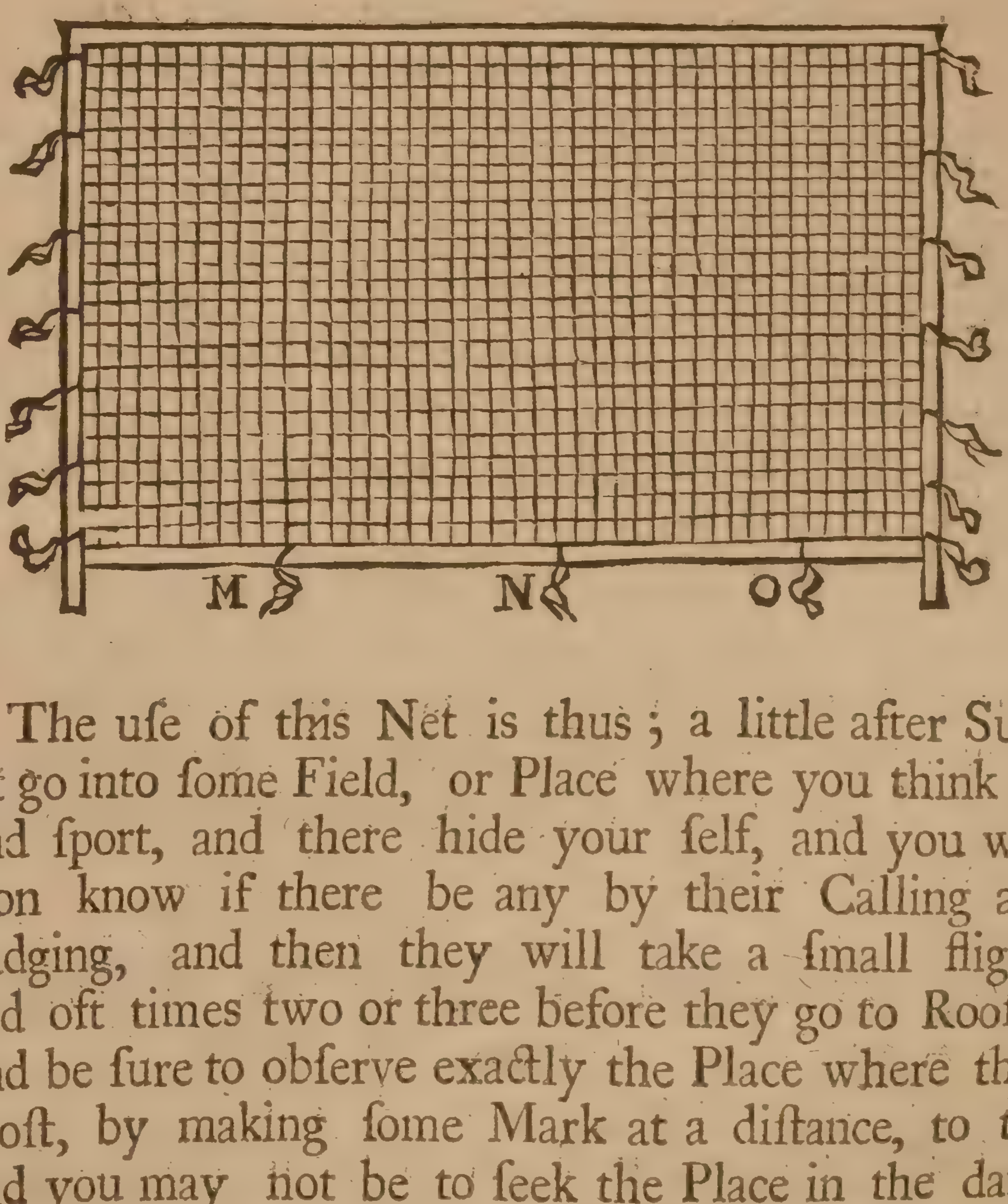
Having found out a Covey, take a compaſs, and ſo pitch the Net at a good diſtance from them, but ſometimes farther, and ſometimes nearer as the Ground falls out, and then ſurround them with your Stalking-horſe, or for want thereof with the Artificial Stalking-horſe, or Oxe, as in the fifth Chapter treated of; and gently drive them towards the Net, not coming on them in a direct Line, but by windings and turnings, and ſometimes ſtanding ſtill, as if the Horſe grazed. If the *Partridge* make a Stand, and look up, 'tis a Sign they are afraid and intend to take Wing; therefore make a Stand or a little Retreat, and when you find them quiet after a little Reſpite, and that they are buſie in ſeeking for Meat (which is a good ſign they are not afraid) you may move nearer; and if any ſingle *Partridge* lieth remote from the reſt, he muſt be fetched in by taking a Circumference about him, and thus they may be driven like as it were a Flock of Sheep into a Pen. But a live Horſe made for the Sport doth far exceed the artificial Stalking-horſe, or Ox.



The Wings of the Tunnel muſt not be pitched in a direct Line, but inclining to a Semicircle. When the *Partridges* are at the mouth of the Tunnel, the Old one's will ſtand a while as if to conſider, but preſſing gently on, ſome of the Young Ones will venture in, and then all the reſt will follow; upon which make in apace to ſecure them from returning back and making their eſcape.

Of the Spread-Net, or Drag-Net.

THere is another Way to take *Partridges* with a Spread Net, which by ſome is called a long Tramel-Net, the Figure thereof is here deſcribed.



The uſe of this Net is thus; a little after Sunſet go into ſome Field, or Place where you think to find ſport, and there hide your ſelf, and you will ſoon know if there be any by their Calling and Judging, and then they will take a ſmall flight, and oft times two or three before they go to Rooſt; and be ſure to obſerve exactly the Place where they rooſt, by making ſome Mark at a diſtance, to the end you may not be to ſeek the Place in the dark. Then prepare two ſtraight light Poles which muſt be as long as the Net is broad, which to do well ſhould be about fifteen or twenty Foot, and of a proportionable length: As to the Poles they need not be all of one piece, but of two or three, well fixed together; faſten the Poles upon the ends of the Net with ſmall Cords, and let the Tail of the Net have three or four little Cords faſtned with ſmall Buſhes to trail on the Ground, that the *Partridges* may be forced to ſpring up when they hear the ruſtling Noiſe. They are repreſented by the Letters *M, N, O.*

This Sport cannot well be performed without one to aſſiſt you: Then being near the Place, unfold your Net where the Ground is clean, and being extended each muſt lay hold on the middle of the Poles, lifting up the higher end of the Net about five or ſix Foot from the Ground, and letting the lower part follow ſloping about half a Foot from the Ground. The Cords with the Buſhes muſt drag on the Ground, and ſhould not be above two Foot long. When the *Partridges* riſe both muſt let go their Hands, and let the Net fall on the Ground upon them. Sometimes it ſo falls out that the *Partridges* riſe before the Net be over them, which may be occaſioned by the too great Noiſe you make; therefore be as ſtill as poſſible; and if ſo, then let them reſt at leaſt two or three Hours before you attempt any thing again; then march over the whole Field with your Net ready ſet, and 'tis ten to one but you will meet with them in the end.

This Way is good only in dark Nights, therefore ſome uſe to carry a Light, or ſome Fire with them, which the *Partridges* perceiving believe to be Daylight, and are diſcovered by the noiſe they make in waking and ſtretching out their Wings; then they hide the Light and draw the Net over them.

How to take Partridges *with Lime-Rods.*

TAke the largeſt and ſtrongeſt Wheat-ſtraw you can get, or for want thereof ſtrong Rye-ſtraw; cut them off between knot and knot, obſerving that the loweſt Joints are the ſtrongeſt and beſt. Theſe Straws lime with the ſtrongeſt Bird-lime you can get or make, in doing of which obſerve the ſame Way as formerly directed for preparing your Lime-Rods. Then go to the Haunts of the *Partridges* and call them, and if you are anſwered by them, then at ſome diſtance from you, prick down theſe Limed Straws in ſeveral croſs-rows, not only croſs the Lands, but the Furrows alſo, taking within your circumference two or three Lands: Then lie down cloſe, and call again, not ceaſing till you have drawn them towards you, by which means they will be no ſooner touched but intangled and beſmeared, ſo that you may take them.

By the way take notice that this manner of taking *Partridges* is proper only for Corn-Fields, and chiefly in Stubble-time. But if you would take them in Woods or Meadows with Bird-lime, then uſe the ordinary Lime-rods as before treated of, and order them as the Lime-ſtraws.

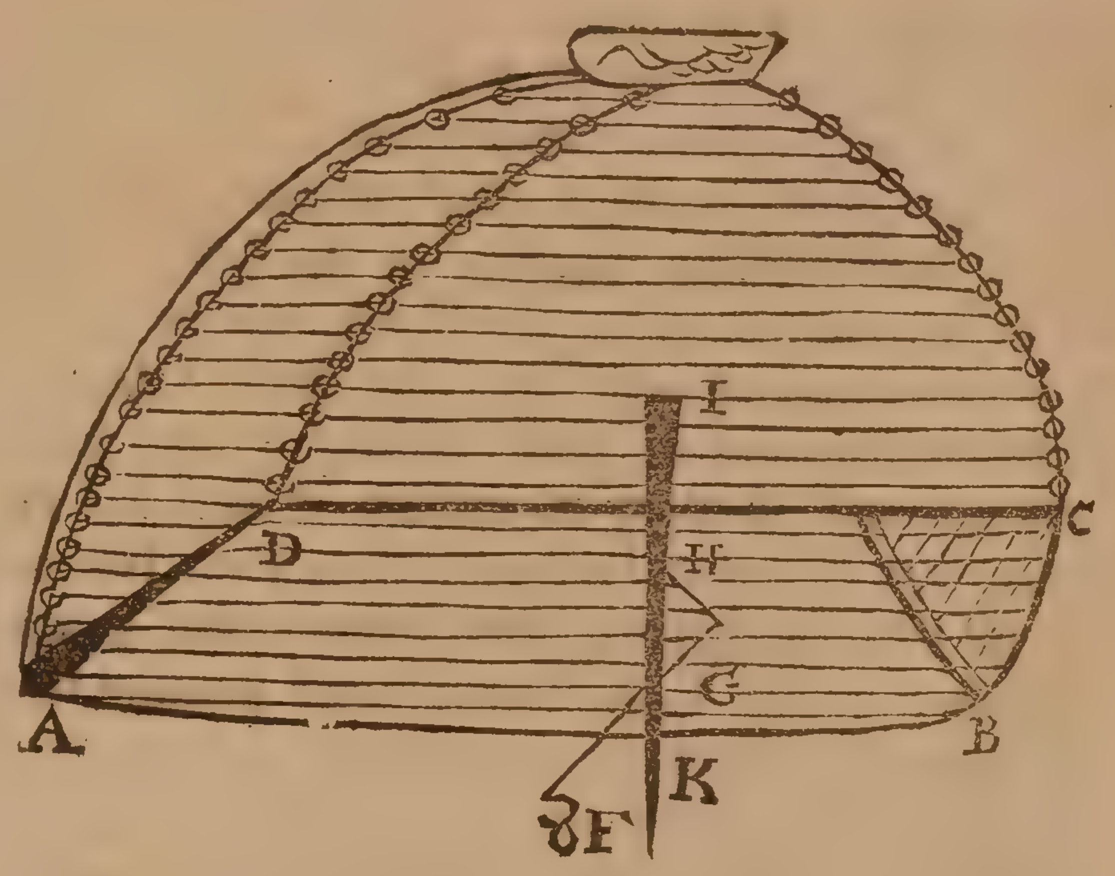
Taking Partridges *with an Engine, or Driving them.*

THE taking *Partridges* with an Engine is no leſs profitable than either of the other, and ſomewhat more delightful; you may uſe this way in any Grounds; The manner how to do it is thus; firſt make an Engine in the faſhion of a Horſe of *Canvas*, ſtuft with Straw according to the examples of artificial Stalking-Horſes, already treated of.

Having this Engine and your Nets in readineſs, go to their Haunts, and having found out a Covey, pitch your Net with the greateſt advantage of ſecrecy you can, lying on the Ground that they do not ſee you until they are intangled; for by gentle Steps you may ſteal upon them, and drive them before you, like as it were Chickens, provided you are not too haſty; if they run any By-way, or contrary to that which you would have them, then croſs them with your Engine, and they will preſently run back into any Tract you would have them; and thus by a gentle and ſlow pace you may drive them into your Net. Be ſure to take the advantage of the Wind. Let your Nets be pitched ſlopewiſe, and let your Face be veiled over with ſomething Green or Dark; Blue Sarſenet is very good.

Several ſorts of Pit-falls above and under Ground, for taking whole Covies of Partridges, *as well as ſingle ones, or indeed any other Birds.*

THere is a cheap Invention for the taking of a Covey of *Partridge*, or any other Birds in Flocks, or ſingle, by a *Pit-fall.* You are not obliged to wait upon it, except to watch others from ſtealing your Game when taken. The Engine is repreſented by this Figure.



It is compoſed of four Sticks, or Pieces of Timber *A B*, *A D*, *C D*, and *B C*, each about three Foot long, and bored through within two Inches of the end, with a Hole big enough to turn one's middle Finger in. They muſt be placed on each other in a Square, and let into each other about half the thickneſs of the Stick; then take two Hazel tough Rods about the bigneſs of one's Finger, each four or five Foot long, which muſt be fixed in the forementioned Holes, croſſing them over each other, that their other Ends may be fixed in the oppoſite Angles, as the Corner Sticks in Cages uſe to be laid; then you muſt have ſtore of light ſtraight Sticks, longer than each other by degrees, about the bigneſs of one's Finger, which you muſt compile one over another, the longeſt firſt and the ſhorteſt laſt up to the height of the croſſing of the two Rods, ſo that the whole will reſemble a kind of Bee-hive; but remember to leave a Hole at the Top, to be covered or uncovered with ſome Stone, or the like, to take out the Birds when they are in the *Pit-fall.*

You muſt at laſt bind the End of your Sticks to the two Rods with Oziers, ſtrong Packthread, or ſmall Cords; and this is all that belongs to the Pit-fall. But for the erecting or tilling it up do thus: Take a Stick *FG*, three Foot long, and the Bigneſs of one's little Finger, which muſt be ſmoothed above and below; then tie the End *F* with a little Cord to the Middle of the Foundation Stick *AB*, the other End of the Stick *FG* muſt have a ſmall Notch in it about two Inches from the End. The next Thing is to provide another Stick *IK*, about a Foot and half long, with a ſmall Cord fixed on the upper End thereof, where you may place another little Stick *GH*, half a Foot long, having the End *G* ſhaped like the ſharp End of a Wedge, the lower End of the Stick *IK* muſt be fix'd into the Earth, which being done, the Fore-part of the Pit-fall *DE* will come to be lifted up, and then place the End *H* of the little Stick *HG* under the Cage to ſupport it, and the other End ſhaped like a Wedge into the Notch of the Stick *FG*; then let the Pit-fall reſt gently on it, and it will be ready ſet, with one Side lifted up about a Foot high, and the Stick *FG* will be about three Inches from the Ground; then ſtrew your Bait under the Cage. If you are certain there is a Covey which frequents any Ground, if you can entice them to feed in one certain Place but two or three times, you may then plant your Pit-fall with good Succeſs. The ſame Pit-fall will ſerve to take ſmall Birds, Hares, Rabbets, or Vermin.

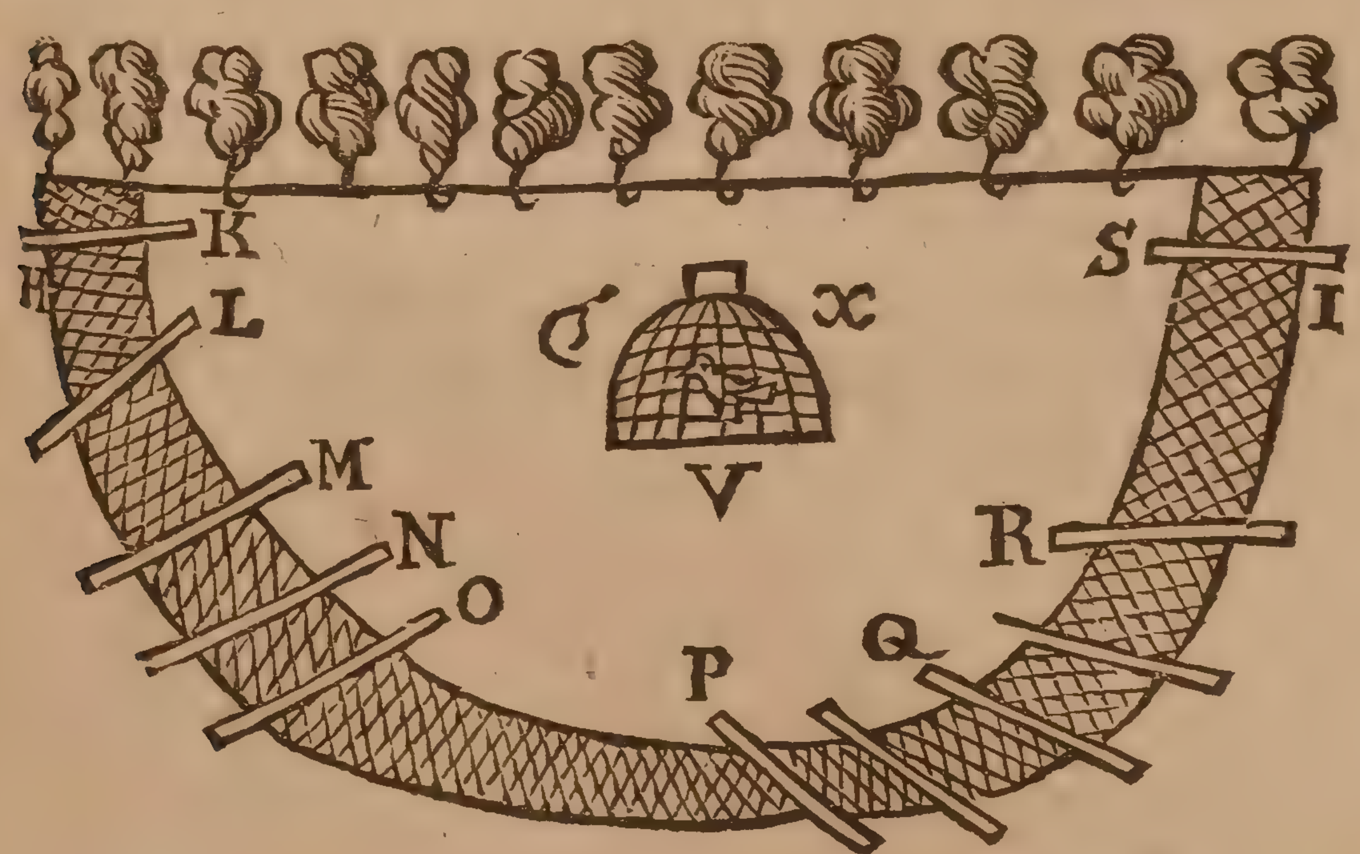
Directions to take old Cock Partridges with Natural and Artificial Calls; with Directions how to make them.

THis Way of Taking them is laborious, and requireth much Exactneſs in imitating their ſeveral Voices, and at laſt you can pretend to take but one at a Time; however, that there may be no Deficiency in giving you the Secrets in this Art of *Fowling*, I ſhall ſhew you ſeveral Ways to take Partridges with Calls.

You muſt know that Partridges begin to pare or couple about *February*, or the Beginning of *March*, if the Weather be not cold, and do continue in their Wooing until the End of *July*.

It hath been the Opinion of ſeveral, that one Hen will fly to the Call of another, moved thereto thro' Jealouſie and Fear of loſing their Cock; and that they fly on purpoſe to beat that Hen that calleth: But there is no ſuch thing, the Occaſion of this Error hath proceeded from hence, that there are ſome Cocks that call juſt like Hens.

This Sport may be practiſed every Day during the aforeſaid Wooing Seaſon, from Day-break until Sun-riſing, and from Sun-ſetting until Night. This enſuing Figure doth repreſent the Manner how to take them.



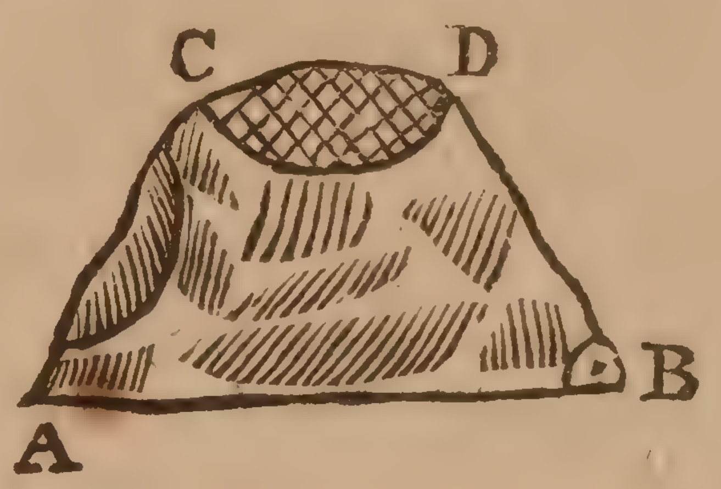
Suppoſe the Space from *H* to *I* be a Hedge, that encloſeth ſome Piece of Wheat, Barley, or other Grain; ſet your Hen-Partridge in a fine, open, thin Wire-Cage, ſo as ſhe may be ſeen at a good Diſtance, but not the Cage. The Letters *T*, *V*, *X*, is the Place where ſhe ſhould be placed; then place your Net, called a *Hallier*, quite round, as you ſee it form'd by the Letters *K*, *L*, *M*, *N*, *O*, *P*, *Q*, *R*, *S*, each Part diſtant from the Cage about twenty Foot, then retire behind the Hedge: If any Cock-Partridge on the Ground call, the Hen will preſently anſwer; nor will the Cock fail to come unto her, and ſometimes five or ſix will come together, and fight with each other juſt under the Net which of them ſhall have the Hen, until at length ſome of them find themſelves entangled. In this Caſe you are not preſently to ſally forth, for peradventure ſome more may be likewiſe enſnar'd; nor can they ſoon diſentangle themſelves.

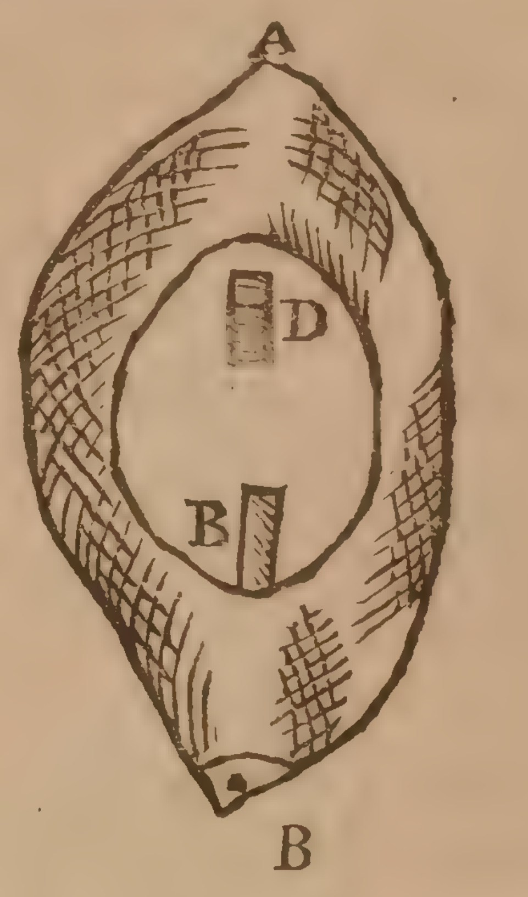
I ſhall give you one Caution to ſave a great deal of Pains, that is, Never pitch in any Place, but where you have heard ſome Cock call, and then pitch within ſixty or eighty Paces of him, that they may be within hearing of each other.

Let your Cage be colour'd Green, and let the Bars be at ſuch a Diſtance, that the Hen may thruſt out her Head and Neck to hearken and call; and if you have well train'd her to this Sport, ſhe will be induſtrious at it.

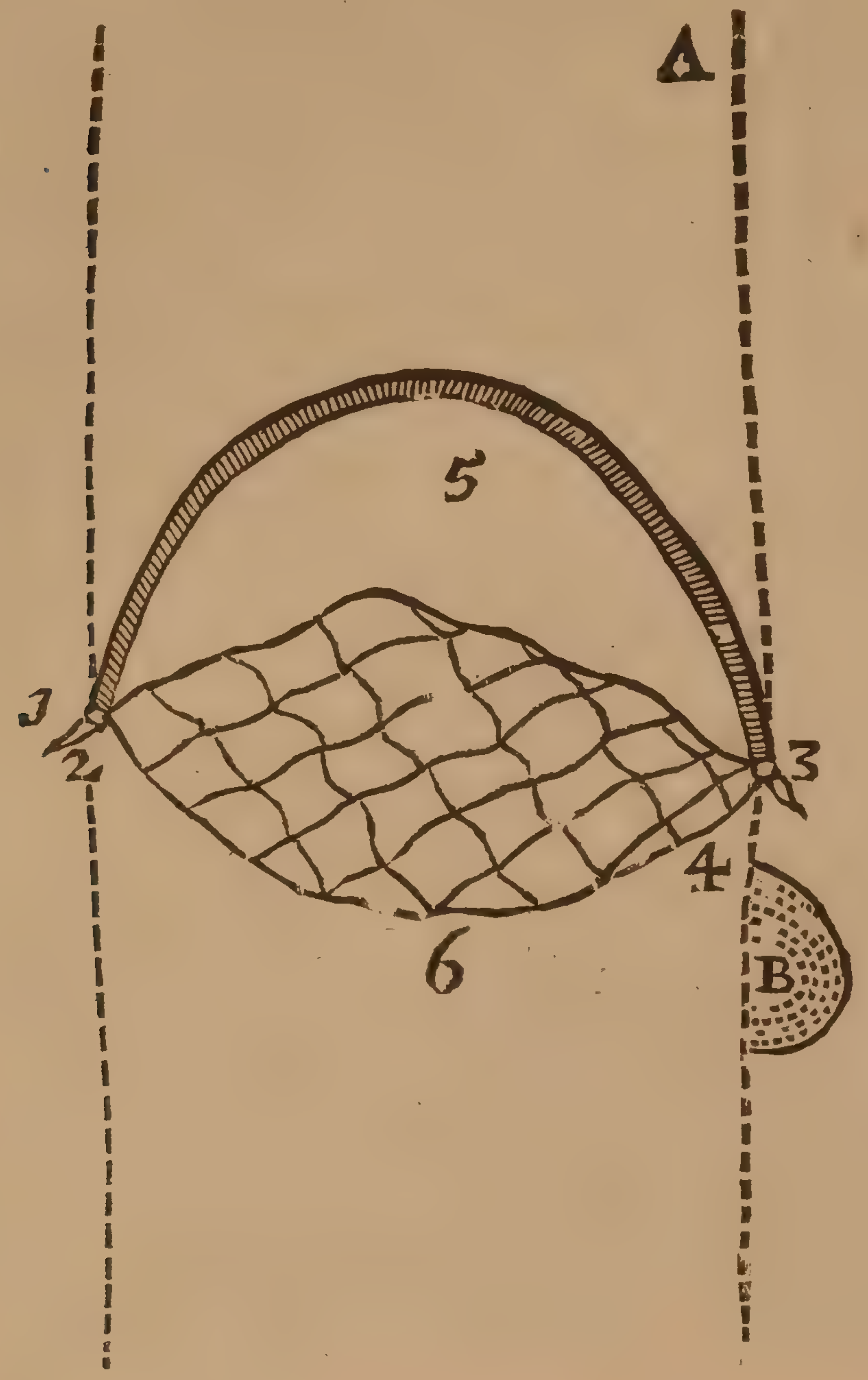
How to make Artificial Calls.

YOU have had Inſtructions as to the Natural Calls, now we are to ſpeak of Artificial ones, with Directions how to make them; theſe following Figures do repreſent the Forms thereof.





The firſt ſheweth the Outſide, and the ſecond the Inſide; they are beſt made of Box, Walnut-tree, or ſuch kind of hard Wood, and form'd, as you ſee, like a Boat, and about the Bigneſs of a Hen-Egg, with two Ends *A*, *B*, bored thro' from End to End; and that about the Middle *DC*, there muſt be a Hole about the Bigneſs of a Six-pence, hollowed within to the Bottom; then have a Pipe of a Swan's Quill, and the Bone of a Cat's Foot, open'd at one End, which you muſt convey into the Hole *A*, and ſo thruſt it on to the Opening *D*; the other End of the Bone *A* muſt be ſtopt: Then take a Gooſe-Quill, open'd at both Ends, which muſt be put in at the Hole *B*, until the End *C* be near the End *D* of the Bone, and that blowing at the End *B*, you make the Noiſe of the Cock-Partridge, which varieth much from the Call of the Hen; and you muſt remove further or nearer the End *C* of the Quill, from and to the End of the Bone *B*, until you have found out the exact Note; for it is not ſoon done, your Call being fixed, and that you are expert in the Notes, get a Net, called a *Pocket-Net*, the Form of which is here deſcrib'd.



To this Net fix a pliant Stick of about four or five Foot long; and ſo you may go abroad early in the Morning, and late in the Evening, or as Occaſion ſerves. When you hear a Partridge call, the Manner of Pitching the Net, and the placing your ſelf, is repreſented in the ſaid Figure: For Example, Suppoſe you heard the Partridge call at *A*, then hide your ſelf flat on your Belly at *B*, having planted your Net juſt in the Way or Furrow, betwixt your ſelf and the Partridge, but within ten or twelve Foot of the Net, eſpecially if there be any Buſh or Advantage of Ground to ſhelter you. The Way to ſet the Net is thus: Tie the Packthread, *Numb.* 1, which paſſes into the Buckle, *Numb.* 2, of the Net, unto the End of the Stick, which muſt be ſtuck in the Ground, and ſo bending it like a Bow, faſten the other End of the ſaid Stick in the Ground on the other Side or Furrow, having in like manner tied to it the End of the Packthread *Numb.* 3, which paſſeth through the Buckle *Numb.* 4, ſo that the two Buckles 2 and 4 may come pretty near each other; then take one End of the Pocket-Net, *Numb.* 5 or 6, and caſt it over the bended Stick, ſo that it may lie thereon; the other End may lie on the Ground in ſuch manner, that if any thing endeavour to paſs by that Way, it muſt needs run into the Net. Every thing being in Order, and that you hear the Partridge call, you muſt return two or three Anſwers louder or ſofter, according to the Diſtance from whence you hear the Call, and only ſo loud as to be heard, and the Partridge will preſently make near you; then give him a ſoft Call: when he has anſwer'd your firſt Call, he will begin to run, and coming near the Net, will make a little Pauſe, and forthwith ruſh on ſo, that the upper Part will fall on him, and entangle him; then take him out, and after this Method you may take ſeveral. But this Way of taking them laſts only during the Time of their Breeding, which is in *April*, *May*, *June*, and *July*.

Another Way to take Partridges with the Call, and a Broad-Net.

HAving found out the Partridges by your Call, as aforeſaid, pitch up your Broad-Net, which ſhould be about fourteen or fifteen Yards long, and ſeven or eight deep. This Net ſpread over the Ground near them, the lengthways to them; then peg down the Net to the Ground on all Sides, except that towards them, and that raiſe up in the midſt by a Stick about four Foot long, with a Notch in the Top, the better to hold the Line of the Net from ſlipping, and bend the Stick from the Net to make it ſtiffer, which Stick muſt be thruſt into the Ground, the better to hold it.

Your Net being thus fix'd, you muſt have either a Natural or an Artificial Stalking-Horſe, to drive them into the Net; but I hold the Natural one the beſt, which muſt be one that is train'd up for the Sport, as already taken notice of in the Fifth Chapter.

Directions to take Partridges in hard froſty Weather with Slipping-Knots.

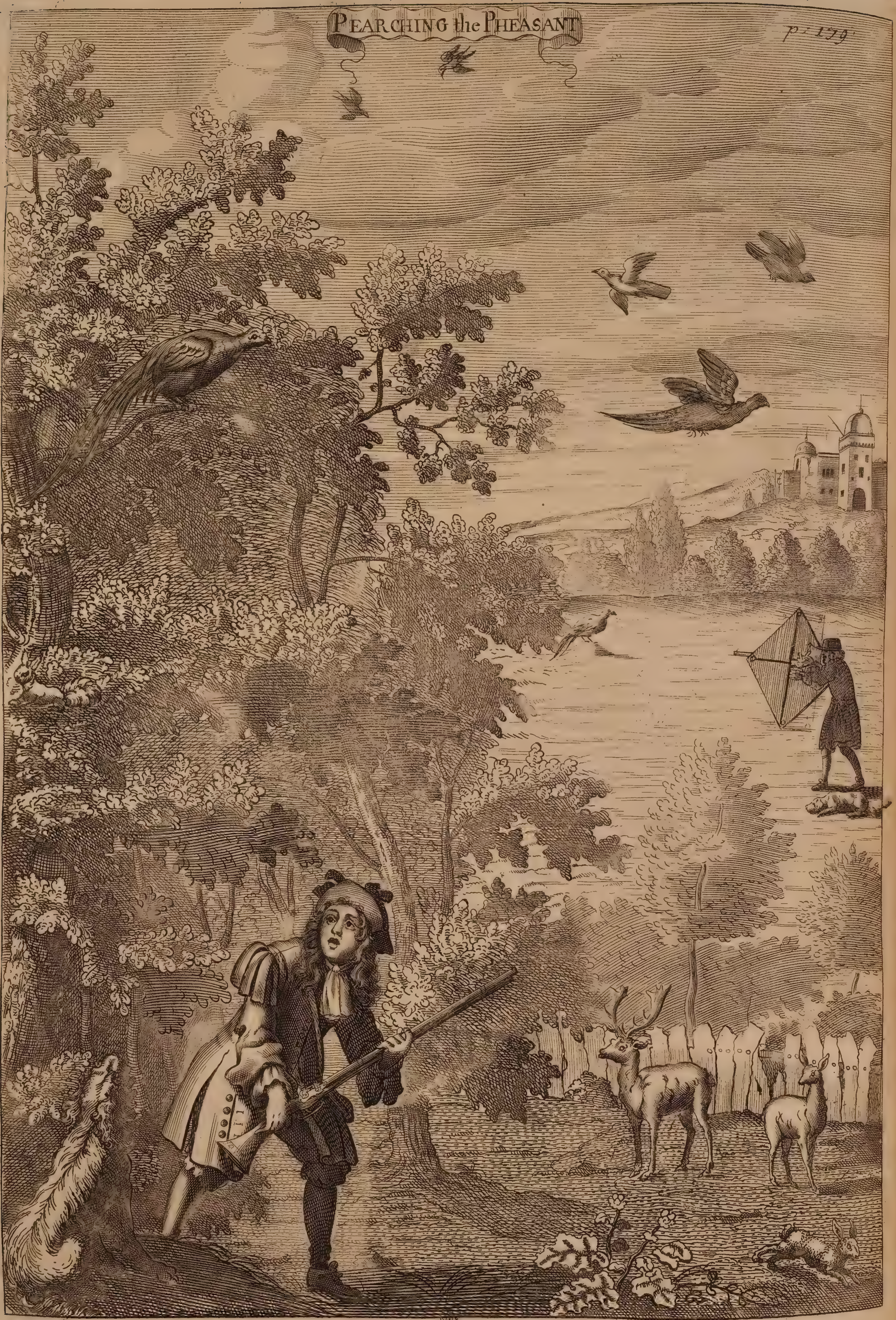
IN hard Weather, whilſt the Snow is on the Ground, and that Birds are very hungry, make your Search in ſmall Coppice-Woods, and in Corn-Lands, eſpecially near little Springs, where the Snow doth commonly lie; and if you find, either by the Tracts of their Footing, or by their Dung, that they have been there, then cleanſe away the Snow about 30 Foot ſquare, and place your ſmall Hedge, as before directed, athwart the Lands that are ſow'd, and in the Bottom of each Furrow plant the Snare or Running-loop of Horſe-hair, juſt the Height of the Partridge's Neck; then ſtrew a little Oats or Barley on both Sides the Hedge, and let it be ready fitted by Sun-ſet, and by Morning you may expect to take ſome, eſpecially if you had given them a Bait twice or thrice before; for the Expectation of finding Food will entice them to come.

The ſame Art may be uſed when there is no Snow: If you are ſure the Partridges frequent any certain Place, and if it be Paſture-Ground, it is then in vain to make your Hedge-Rows: You need only in that Caſe to plant the little Stakes confuſedly up and down in good Quantities, with little Running-Slips and Loops, and throw ſome Grains of Corn near every one of them. I will not ſay, you may take a whole Covey; but queſtionleſs if a Covey light amongſt them, you will take the greateſt part.

If you plant theſe Devices in *April*, *May* and *June* for old Cock-Partridges, you muſt then be ſure to make a kind of a Sloping in your Paſſage where your Collar is placed, that the Partridges may be forced to ſtoop with their Heads; for elſe they run at thoſe times to couple with each other, and then carry their Heads aloft; and without this Caution you will not take one in an Hundred.

I ſhould here ſpeak ſomething of the *Setting-Dog*, but by reaſon I deſign a Chapter for that Purpoſe, I ſhall omit it here.

CHAP.


PEARCHING the PHEASANT
p. 179

To The Right Hon:^{ble} Kenneth M'Kenzie
Earle of Seafort; Lord M'Kenzie, &
Kentaill, Baron of Ardelu, Islandonan, &
Lews, Shiriff principall of the Shires of Roſs,
& North Naſs. &c.
This Plate is humble dedicated by Richard Blome.

Lucio non uro

Arth: Soly fecit

CHAP. IX.

Directions for taking Pheaſants *ſeveral Ways.*

Pheaſants, as well as other Fowl, are to be taken divers Ways. I ſhall name thoſe in moſt Uſe, which are perform'd with the Gun and Spaniel, with Nets, with the Call, with the Lime-buſh, or with particular Engines, of which there are divers Kinds, and of ſundry Shapes, according to the Seaſon of the Year they are to be uſed in, and the Manner of the Place in which they are to be uſed.

Pearching of Pheaſants, *and ſhooting them.*

YOU muſt be provided with a good Spaniel, that will range well about, and when he hath pearched the Pheaſant, to bay ſoundly, which will cauſe them to keep the Pearch the better; then hearing whereabouts he is, make up to him as privately as poſſible, and having eſpied him, (being at a reaſonable Diſtance) make your Shot; and for your Dog's Encouragement, let him bring it to you, and make much of him.

For your Dog, it may be, either a Land or Water-Spaniel, or one betwixt both, provided he is train'd up to a Gun, and to bring his Game to you.

If you deſire to take them in the Night, (provided it is Moon-ſhine) the Places where they uſually pearch (if it be windy) are upon the lower Boughs, near the Body of the Tree; but if in a clear and fair Night, or altho' a little rainy, they will ſit at the further Ends of the Boughs, and when you find them, make your Shot.

You may have a Dog to fetch them to you, in caſe they are not kill'd dead, but run away, as having broken a Wing; but your Dog ſhould not bay and make a Noiſe, as in the Day.

They are to be found in Corn-Fields and Hedge-Rows at other times, where they may be ſhot and pearched, as aforeſaid.

Taking Pheaſants *with Nets.*

FOR the Taking *Pheaſants* with Nets, which is only in Crowing-time, that is, about the End of *February* and in *March*, before they begin to breed: It is done either generally or particularly. Generally, when the whole *Eye*, that is, both the old Cock and Hen, with all their young ones, or *Powts*, as they flock and run together in the thick Woods or Coppices, are taken; or particularly, when you take none but the Old, and ſuch of the Young as are of Age fit for coupling, ſo that you cannot have any Aſſurance with your Nets to ſtrike at more than one or two at a time; for the Pheaſant is of a melancholy and ſullen Diſpoſition, and when once they have coupled do not accompany in Flocks, as other Birds.

Now for the greater Facility of taking them, you muſt be acquainted with their Haunts, and their uſual Places of Breeding, which are in thick young Coppices well grown, and free from the Annoyance of Cattle, or the Path-ways of Men; for being of ſo fearful a Nature, they eſteem the Strength of their Covert their only Safety, and do not abide or breed in open or plain Fields, nor under the Covert of Corn-Fields, low ſhrubby Buſhes, or in large and tall Trees.

Having found their Haunts, the next Thing will be to find out their *Eye*, or Brood, which may be done ſeveral Ways; but take notice, that *Pheaſants* do uſually come out of the Woods and Coverts, where they lie at Shelter, thrice a Day, to feed in freſh Paſtures, green Wheat, or other Corn, that is about Sun-riſing, about Noon, and a little before Sun-ſet. Now the Courſe you are to obſerve is thus, Go to that Side of the Wood where you ſuppoſe they make their Sallies, and watch the Places where they come out, or by ſearching their Haunts; for you may ſee the young *Powts* in that Seaſon flock and run together after the Hen like Chickens.

Alſo if you go to their Haunts early in the Mornings, or late in the Evenings, you will hear the old Cock and Hen call their young ones, and how the young ones anſwer them, and accordingly direct your Path as near as you can to the Place where they are; then lie down as cloſe as poſſible not to be diſcern'd, but withal to take your Obſervation how they lodge together, the better to know how to pitch your Nets with the greateſt Advantage, both of Wind, Weather and Place; and be ſure that all be done with as little Noiſe as poſſible, otherwiſe they will betake themſelves to their Legs, and not to their Wings, unleſs forced thereto by a cloſe Purſuit.

But the moſt certain Way to find them out is, to have an Artificial Pheaſant-call, in which you muſt be exceeding expert as to the Imitation of their Notes, and the Time when, and to what Purpoſe ſhe uſeth them; which Calls are much the ſame as Hens uſe in chucking their Chickens.

Your principal Times for uſing your Call, is in the Morning early, or about Sun-ſet, at which Times they ſeek their Food, and then your Note muſt be to call them to feed. But altho' theſe are the beſt Times, yet you muſt uſe your Call at other Times, only altering your Notes, as for calling them together, or the like.

Having the perfect Uſe of the Call, the Knowledge of their Haunts, and the Times to take them, chuſe ſome private Place not to be diſcover'd; and then call at firſt very ſoftly, leſt any ſhould be lodged very near you, and ſo be affrighted by your loud Note. But if nothing reply, then raiſe your Note higher and higher, till you extend it to the utmoſt Compaſs; and if there be any within hearing, they will anſwer in a Note as loud as your's, provided it be tunable, otherwiſe all will be ſpoil'd.

So ſoon as you hear any *Pheaſant* anſwer, if at a good Diſtance, creep nearer and nearer, ſtill calling, but not ſo loud, and as you come nearer, ſo will the *Pheaſant* to you; ſo that you will come in Sight of her, either on the Ground, or at Perch, always imitating her in the true Note: Then ceaſe calling, and ſpread your Net between the *Pheaſant* and your ſelf, in the moſt convenient Place you can find, making one End of the Net faſt to the Ground, and holding the other End in your Hand by a long Line, ſo that when any thing ſtraineth it, you may pull the Net cloſe together; which done, call again, and as ſoon as you perceive the *Pheaſant* to come underneath your Net, riſe up and ſhew your ſelf, upon which being affrighted, ſhe will ſpring, and ſo become entangled in the Net.

If it ſo fall out, that you hear divers to anſwer your Call, and that from ſundry Parts in the Wood, then keep your firſt Station, and as you hear them to make towards you, ſo prepare your Nets ready, ſpreading them conveniently about you, *viz.* one Pair of Nets on the one Side, and another on the other, lying cloſe without Noiſe, only of your Call, until you have allured them under your Nets; and then ſtand up to affright them, as aforeſaid, that they may be entangled in the Nets.

Of the Pheaſant-Nets.

AS concerning the Subſtance, Faſhion, or Proportion of theſe Nets, they ſhould be made of the beſt double-twiſted brown Thread you can get; and it were not amiſs if the Thread were dy'd Green or Blue: The Meſh ſhould be reaſonable large and ſquare, that is, about an Inch betwixt Knot and Knot. It ſhould be in Length about three Fathom, and about ſeven or eight Foot broad, and verged on each Side with a ſtrong ſmall fine Cord, and as it were ſurfled thereon; and the Net placed not ſtraight, but thick and large, ſo that when extended it may lie Compaſs-wiſe and hollow; alſo let both the Ends be verged with ſmall Cord.

Some make uſe of larger Nets, but they are cumberſome, and not well to be ruled with one Hand, ſo that thoſe are inconvenient.

There is another Way for the Taking *Pheaſants*, being adjudged better than the former, and that is, to be provided with a *Stale Pheaſant*, that is a live Cock, which muſt be tied down under your Net, and by his Crowing will draw others in. You muſt lie conceal'd in ſome Buſh, or ſecret Place; and when you ſee any *Pheaſant* come to your Net, then draw your Line, and the Net will fall on him, and take him.

To take Pheaſants *by Snares.*

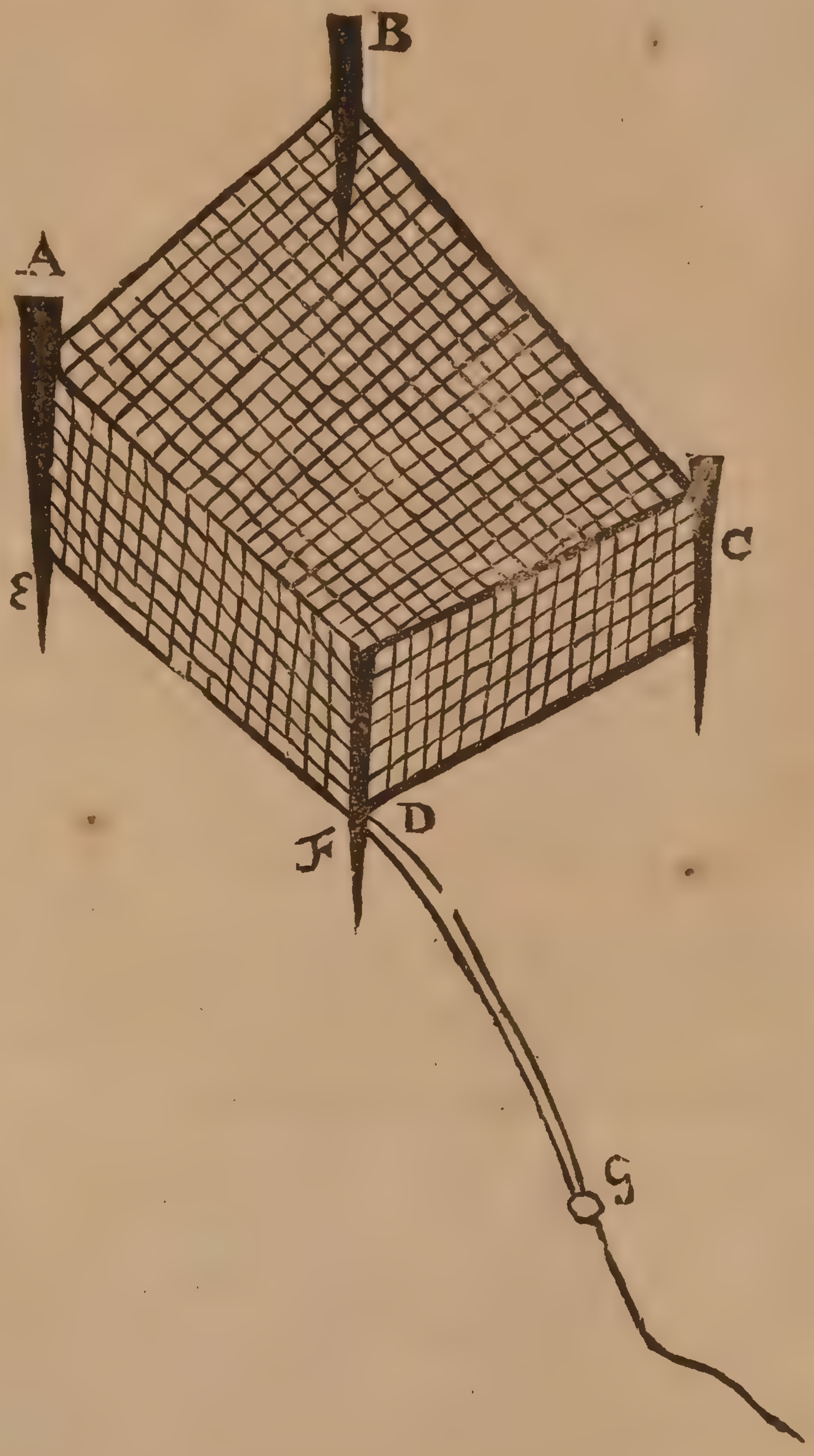
HAving found out their Paſſage out of the Woods to their uſual Places of Feeding, there plant your little Stake, with a couple of Snares of Horſe-Hair, one to lie flat on the Ground for their Feet, and the other about the Height of their Head, to take them by the Neck; and in caſe there be more Paſſes than one, you muſt do the like to every one of them; and having ſo done, fetch a Compaſs about, and when you are in a direct Line with the *Pheaſant*, and the Snares that you have fitted, then make a gentle Noiſe to affright them.

If you perceive by their Dunging and Scraping that they frequent any Place, you may then make uſe of ſuch Hedge-rows as be directed to take Fowl with Lines and Bird-lime, only plant your Running-Lines from them of a convenient Height, and ſtill place one to lie flat to entangle their Legs.

To take Pheaſants, *as alſo* Partridges; *and to preſerve the Game in a Man's own Ground.*

SOme there are, who, tho' they want Intereſt and Power to keep others from taking the aforeſaid Game off from their own Ground, yet would be glad to preſerve them for their own Uſe, and ſo to manage the Game, that they might always have ſome thereon, as well to pleaſe themſelves as to delight a Friend that deſires to ſee ſome Field-Sport. For the Benefit of ſuch, this following Invention is very proper and delightful. When you perceive an *Eye* of *Pheaſants* or *Covey* of *Partridges* to haunt ſuch a Ground, go thither, and in ſome Place thereof, diſtant from any Hedge, Buſh, or Gate, about forty or fifty Paces, pitch up four Sticks, each a Foot long in a Square; and in the Middle of the Sticks ſcatter four or five Handfuls of Oats, Barley, or Wheat; and as you walk through the Ground from the Sticks, ſcatter a few Corns, which may ſerve as a Train to draw on the Game to the great Heap in the Middle of the Sticks. The *Pheaſants* or *Partridges* coming to feed, according to their Uſe, will ſoon find out the Train, and conſequently the great Bait. The next Morning they will not fail to return thither, in hopes of another Repaſt, againſt which Time let it be laid ready for them, and pitch up by every one of the four Sticks a Buſh of Furz: If they eat the ſecond Time, (which you may diſcern by their Dung) notwithſtanding the Furz-Buſhes; then againſt the next Coming croſs ſome Lines of Packthread in Form of a Net; and if for all this they come and eat, you may be aſſured to take them when you pleaſe with this following Device.

Take away the Sticks, Furz-Buſhes and Packthread, and then pitch the Net as is here deſcribed.



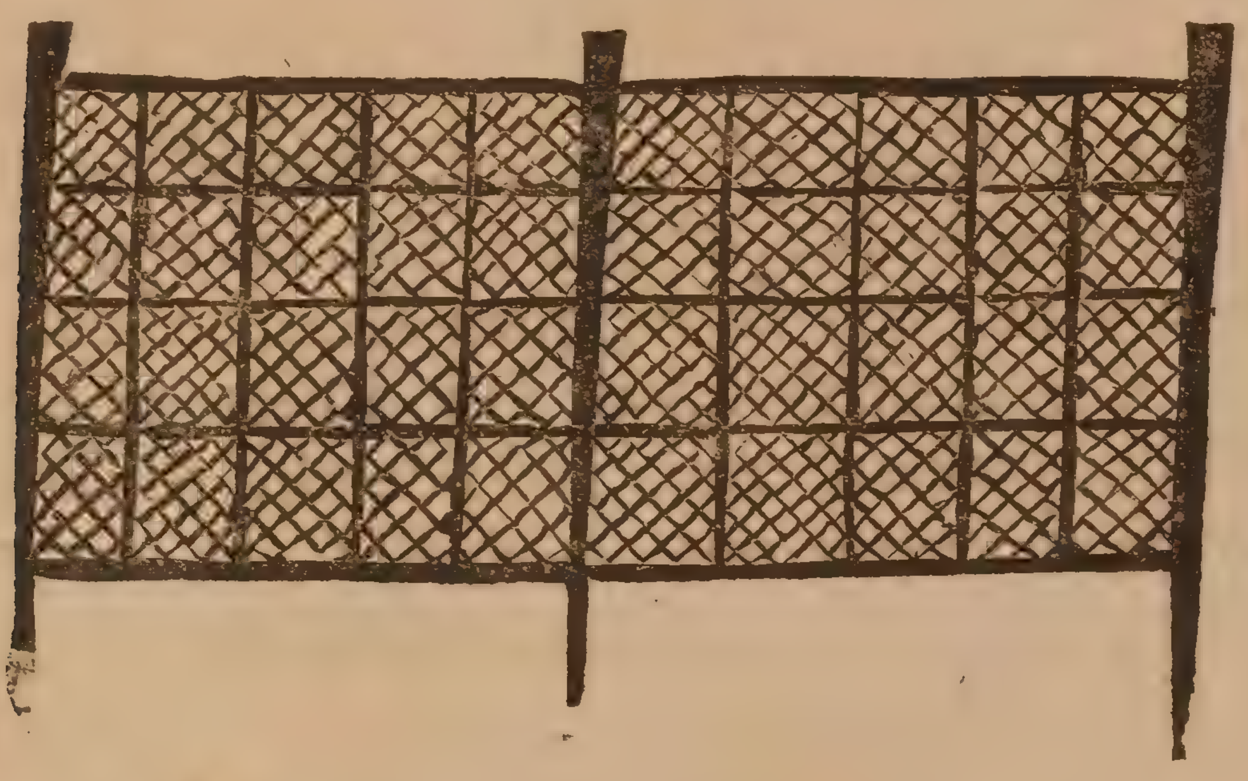
The four main Supporters of the Net, *A, B, C, D,* muſt be fixed ſtrongly in the Ground, that the Net may be light ſpread on the Top. The four Sides of the Net muſt be order'd in the ſame manner as ſhall be now directed by the Example of one of them, according to the Deſcription in the ſaid Figure. Lift up the Side of the Net deſign'd by the Letters *E, F,* over the Top of the Net that is ſpread; for the Side muſt not lie flat, but ſtand ſloping like a Penthouſe,

houſe ſupported by ſmall Twigs; the Bottom faſtned in the Earth, and the Cord or Verge of the Net reſting on them; then place the four Furz-buſhes at each Corner of the Net, the more to embolden them; and be ſure the running Cord of the Net be exact and right, the two Ends whereof muſt be tied to a ſtrong Cord, deſigned by the Letter *G*, which Cord muſt reach to the next Buſh or Shelter where you lie concealed, but within view of the Net. When all is fixed, ſpread your Bait as formerly; but try once or twice how the Net will draw, that upon occaſion all may be in good Order. The beſt time to wait their coming is at Day-break; when they are all buſie in Eating the Bait, then draw your Line with a quick Motion, and preſently fix it to the Buſh where you are, and make all poſſible haſte to the Net, to prevent their eſcaping.

If you have a deſire to preſerve a Breed in your Grounds, then kill the Cocks and keep the Hens until towards *Lent*, in ſome convenient Room, and then put them out into your Grounds, and they will ſoon find Cocks for a Breed.

To take Pheaſants *without hurting them, for preſerving the Breed.*

FOR taking ſome alive without hurting, for the ſtoring your Grounds, or accommodating a Friend; having found their Haunts (which is eaſie to be done by their Calls, Crowing, and little Paths which they make, eſpecially in the Dew) then place your ſelf for the better view on ſome Tree without Noiſe; and when you find they are there, ſtrew a little Barley, Oats, or Wheat, in thoſe little Tracts for a Train, and in ſome likely Place lay five or ſix handfuls together, to which they will come, as being drawn thither by the Train; then provide for them after this manner: Plant your Pocket-Net, deſcribed by the laſt Figure in the Eighth Chapter, the Uſe of which is in the ſaid Chapter at large treated of. You may ſet two or three of them in other Places, and plant croſs their Walks ſome ſhort Nets, called Pocket-Hayes, made as here deſcribed;



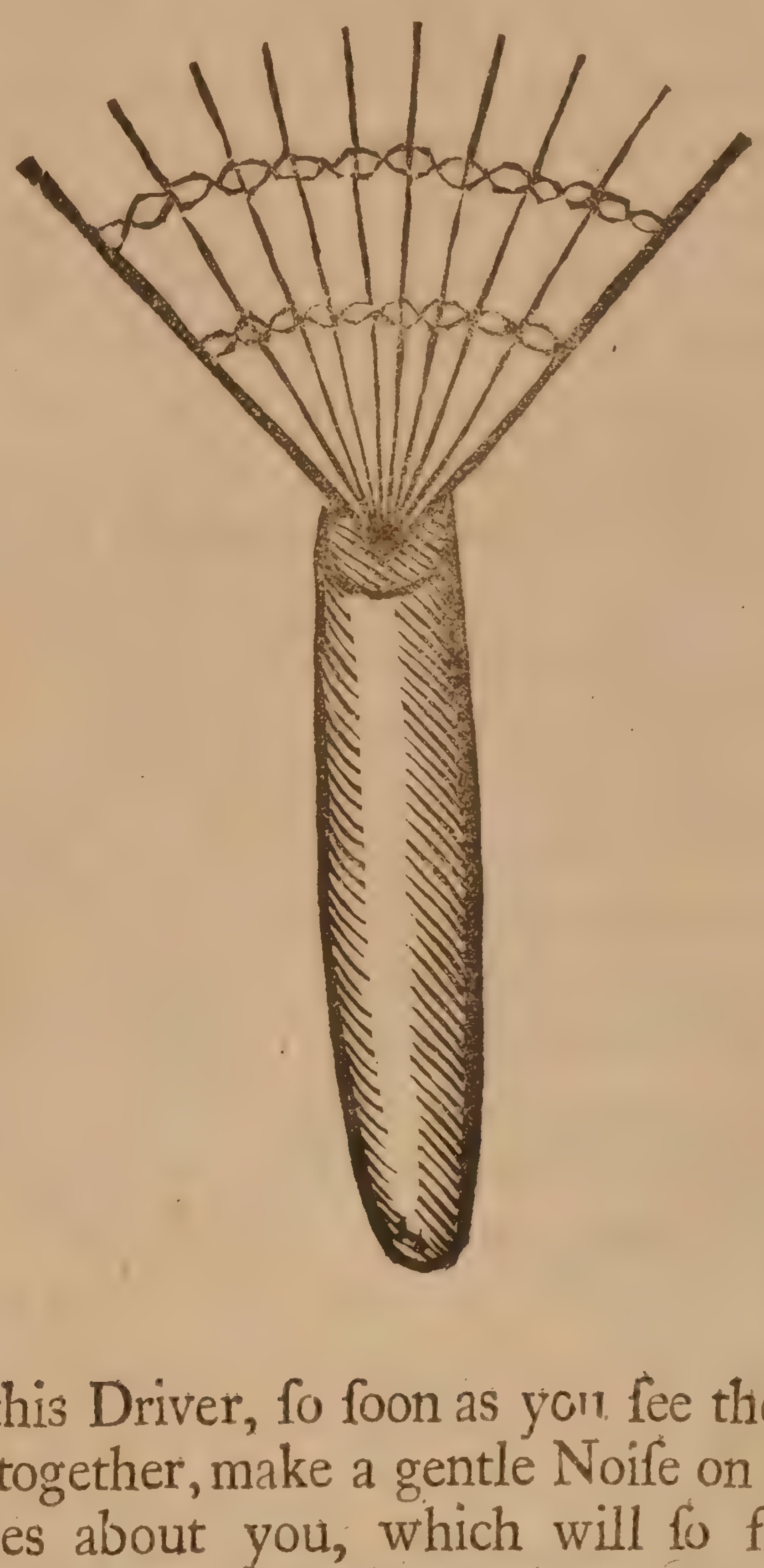
They are about a Yard long, and ſixteen Inches deep. You may alſo in other Paths place three or four of your Collars of Horſe-hair in certain fit Paſſes athwart their Paths, to take them by their Legs, and be ſure to watch out very narrowly; the firſt that is taken will ſtruggle hard to get off, ſo that ſpeed is required to prevent it; he will alſo make a great Cry, which may occaſion the frighting away the reſt that are near at hand, ſo that Nimbleneſs is required; beſides, if any be taken by the Strings, they will hazard the breaking the Lines and their own Legs; and you ſhould not forget to bait the Paſſes to the ſeveral Snares.

Of Driving of Pheaſant Powts.

FOR the Driving and Taking young *Pheaſants*, called *Pheaſant Powts*, in Nets, obſerve theſe Directions.

Having by your Diligence and Skill found out an Eye of *Pheaſants*, place your Nets croſs the little Pads and Ways that they have made, which are much like Sheep-Tracts; and if poſſible, you ſhould find out one of their principal Haunts, which may eaſily be known by the Bareneſs of the Ground, their Mutings, and the Feathers that will lie ſcattered about; and always take the Wind with you, for it is their cuſtom to run down the Wind; place the Nets hollow, looſe, and Circular-wiſe, the nether Part thereof muſt be faſtned to the Ground, and the Upper-ſide lying hollow, looſe and bending, ſo that when any thing ruſheth in, it may fall and entangle it.

Having ſo fixt your Nets go to the Haunts, and with your Call, if you find the Eye ſcattered, Call them together; and when you find that they begin to Cloock and Peep one to another, then forbear Calling, and take an Inſtrument, called by ſome a Driver, which is made of good ſtrong white Wands, or Oſiers, ſuch as *Basket-Makers* uſe, which muſt be ſet in an Handle, and in two or three Places; it muſt be twiſted or bound about with ſmall Oſiers, according to this Figure.



With this Driver, ſo ſoon as you ſee the *Pheaſants* gathered together, make a gentle Noiſe on the Boughs and Buſhes about you, which will ſo fright them, that they will get all cloſe together, and run away a little diſtance, and ſtand to hearken; then make the ſame Noiſe again, which will cauſe them to run again; and obſerve the ſame way until you have driven them into your Nets, for they may be drove like Sheep. But if it happen that they take a contrary Way, then make a raking Noiſe, as it were in their Faces, which will preſently turn them the right way, as you would have them.

Obſervations in Driving.

IN uſing the Driver, there are two chief things to be obſerved; The firſt is Secrecy, in keeping your ſelf from their ſight, for if they eſpy you they will run and hide themſelves in Holes under Shrubs, and will not ſtir till Night: And the other thing is Time and Leaſure; for raſhneſs and too great haſte ſpoils this, and indeed any other Sport.

To take Pheaſants *with the Lime Buſh, or Lime Rods.*

IN taking *Pheaſants* this way, you muſt know their Haunts; and be provided with good ſtrong Bird-Lime, and trim them therewith according to Art.

The Lime-Buſh uſed for this purpoſe, ſhould not contain above eight Twigs, and ſhould be the Top Branch of a Willow-Tree, with an indifferent long Handle, made ſharp to ſtick into the Ground, or into ſome Shrub or Buſh; and it were not amiſs if you planted your Buſh near that Branch of a Tree that the *Pheaſant* uſeth to perch upon; and you ſhould be furniſhed with two or three of them, to fix up and down for the ſurer taking them.

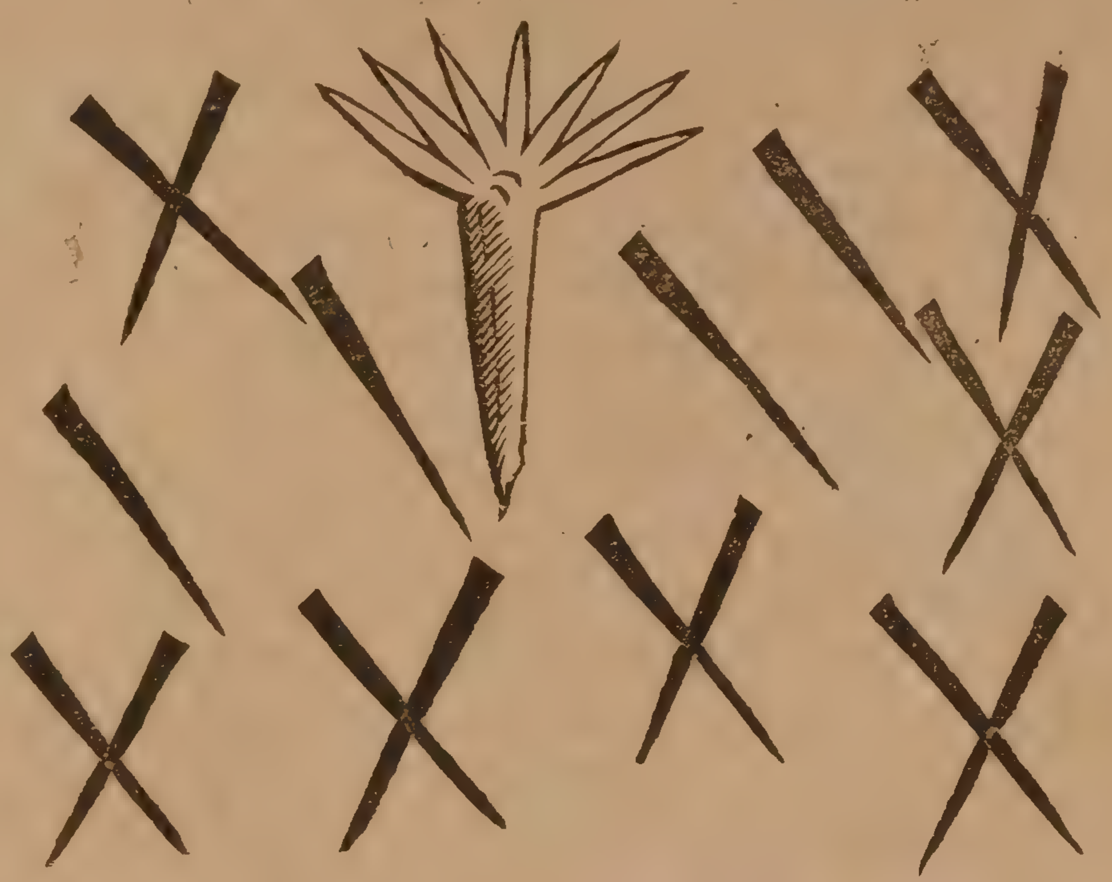
The uſe of the Lime-Buſh.

WHen you have placed theſe Lime-buſhes, take forth your Call, and uſe it as before directed, keeping your ſelf ſecretly and in one Place, until you have enticed them about you; which will not be long, if your Call is good, and that you are expert therein: And as they are taken by the Rods on the Ground, ſo you will ſurprize them with your Buſhes; for being ſcared from below they will take Perch, as is natural unto them, to ſee what becomes of their Fellows; and when one is Limed, what by her ſtriving and ſtruggling, and by the reſt coming and gazing, to ſee what is befallen her, the reſt will be in danger of being Limed.

It is the Nature of old Cock *Pheaſants* when you call, to come flying from Pearch to Pearch till they come near you, and not to run upon the Ground, eſpecially in the Winter Seaſon, which is the chiefeſt time for the uſing the Lime-Buſh, and as ſoon as they light on any of thoſe Pearches where your Lime Buſhes are placed, upon the leaſt touch they will be taken.

It is very requiſite to count all your Lime Rods; for when you have gathered up all the *Pheaſants*, and ſee what Rods are wanting, you may conclude that ſome *Pheaſants* are run with them into the Buſhes; ſo that it will be neceſſary to have a good ſtaunch Spaniel, that is well trained up to Hunt, and bring his Game to you with a ſoft Mouth without hurting it.

The Form of the Lime Buſh and Rods.



THeſe Rods, as well as the Buſh, may be placed upon Buſhes, Shrubs and Trees, as well as upon the Ground, and in any open Place where any Bird may paſs from one Place to another.

The Lime Rods muſt be ſet ſlope-wiſe, and for the generality croſs one another, and not only one way, but the quite contrary way, ſo that the Points be ſevered a good diſtance from one another, and place them in Rows; which being duly obſerved, no Fowl can come any way but they muſt be in danger of touching: And, for a Caution, place them not too thick, for that will occaſion fear in them, ſo that you will loſe your labour.

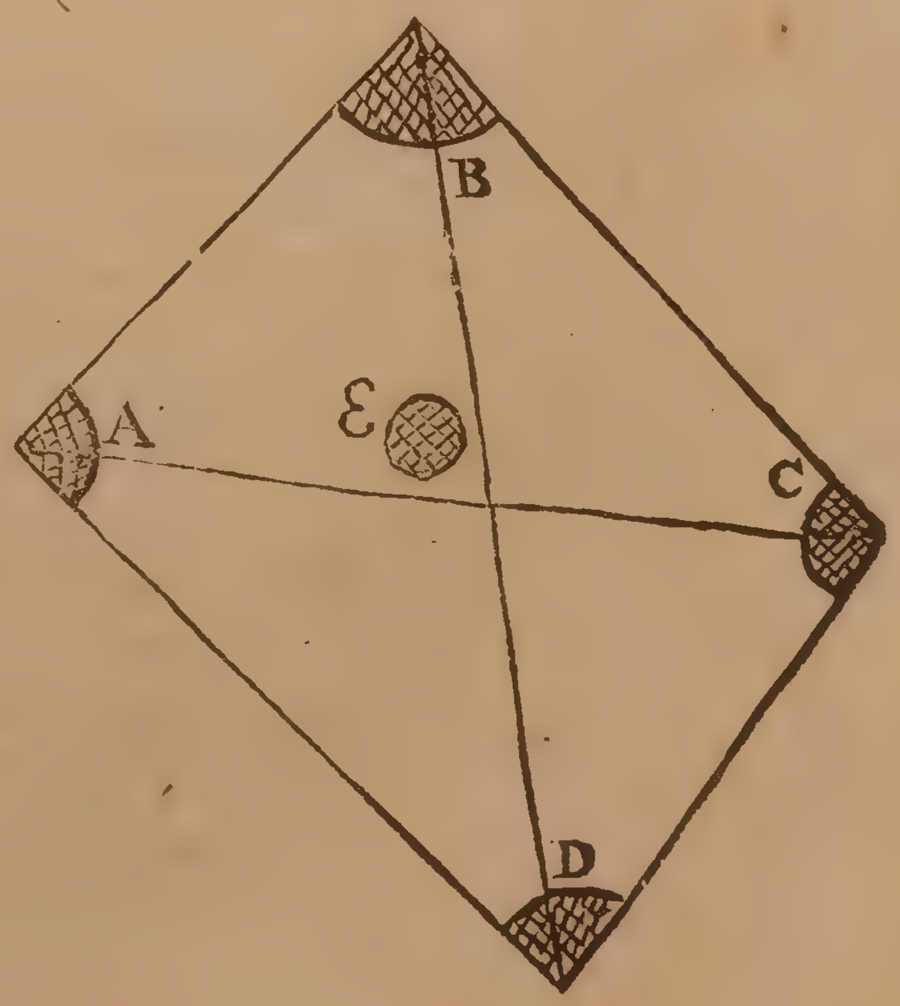
The Seaſon to be obſerved for the uſe of the Nets, Lime-Buſh and Rods.

THE Uſe of the Nets is from the Beginning of *May*, till the latter End of *October*.

The uſe of the Lime-Buſh, and Rods, is for the Winter Seaſon, *viz.* from the Beginning of *November* until *March* or *April*, ſo that there is no time of the Year (but their Breeding time) but that they may be taken in.

To take Pheaſants *with a Cocking-Cloth, in Crowing-time.*

TAke a Cloth of courſe Canvas about an Ell ſquare, which put into a Tan-Pit to colour it, which will be ſoon done; then Hem it about, and to each Corner of the Cloth ſow a Piece of Leather about three Inches ſquare, and put two Sticks to go croſs-wiſe to keep it out, as *A*, *B*, *C*, *D*, and there muſt be a Hole in the Cloth to look out of, as *E*; the Figure deſcribeth it.



And being provided with a ſmall ſhort Gun, when you are near enough hold out the aforeſaid Cloth at Arms end, and put the Noſel of the Gun out of the Hole, which ſerves as a Reſt for the Gun, and ſo let Fly, and you will ſeldom miſs; for *Pheaſants* at this time will let you come near them, and the Cocks will be ſo bold as to fly at it.

In this Seaſon the *Pheaſants* uſe Hedge-rows and Coppices, and by their Crowing you will know where to find them.

Another way to take Pheaſants.

BY an experienced Sports-man, amongſt divers Ways to take *Pheaſants*, this following Way is found moſt effectual for the taking them in the Winter-Seaſon, provided there is no Snow.

Be provided with a Net in the ſhape of a Caſting-Net, but larger, with the Meſhes about five Inches wide. Then take ſome Peaſe or Wheat, and knowing their Haunts, which will be in young Coppices about three or four Years growth, in ſuch Places ſeek out their Paths and their Droppings, that is, their Dung; theſe Paths generally lead from the Young Coppices to thoſe that are Older; and having found any Path out, lay about a Pint of the Corn in a Place, obſerving where you lay it, ſo that they may come to eat. Thus do for ſeveral Days for about a Fortnight, by which time they will be ſo accuſtomed to it, that they will come to expect ſome Food; and by this means all or moſt of the *Pheaſants* in that Part will be gathered to it. Having thus trained them to it, and that you certainly know when you come in the Morning that they have been there, which you will find by their Eating, and by their Dung: Then in ſuch Places ſet your Nets, that is, one in a Place, which is thus done. Tie the Top of your Nets to a Bough, then ſpread it at the Bottom and Peg it down to the Ground on all parts except one, which muſt be raiſed up about a Foot and an half, like an arched Door, with an Aſhen-Stick; then fix to the ſaid Arch ſeveral Rods made of Hazel, with the Taper Ends to the Earth within the Net, ſo that the *Pheaſants* may come in by parting the Sticks, but not go out again.

Having thus ſet your Nets, which muſt be made of courſe Thread, ſuch as Rabbet Hayes, and of a tann'd Colour (by putting it into a Tan-Pit,) cover your Nets with Boughs, to prevent others from finding them, and be ſure to ſet them ſome diſtance into the Wood.

CHAP. X.

How to take Quails, Moor-Powts, Rails, *&c. with Calls; with Directions to make the ſaid Calls; as alſo with Nets.*

THE beſt Way to take theſe Birds, as well as thoſe aforeſaid, is to know their Haunts, and to learn their perfect Notes on the Call.

The *Quail* delights in Corn-Fields and Mowing-Graſs. The *Moor-Powt* in Heaths and Foreſts, and the *Rails* in long Standing-Graſs, where they may lie obſcure.

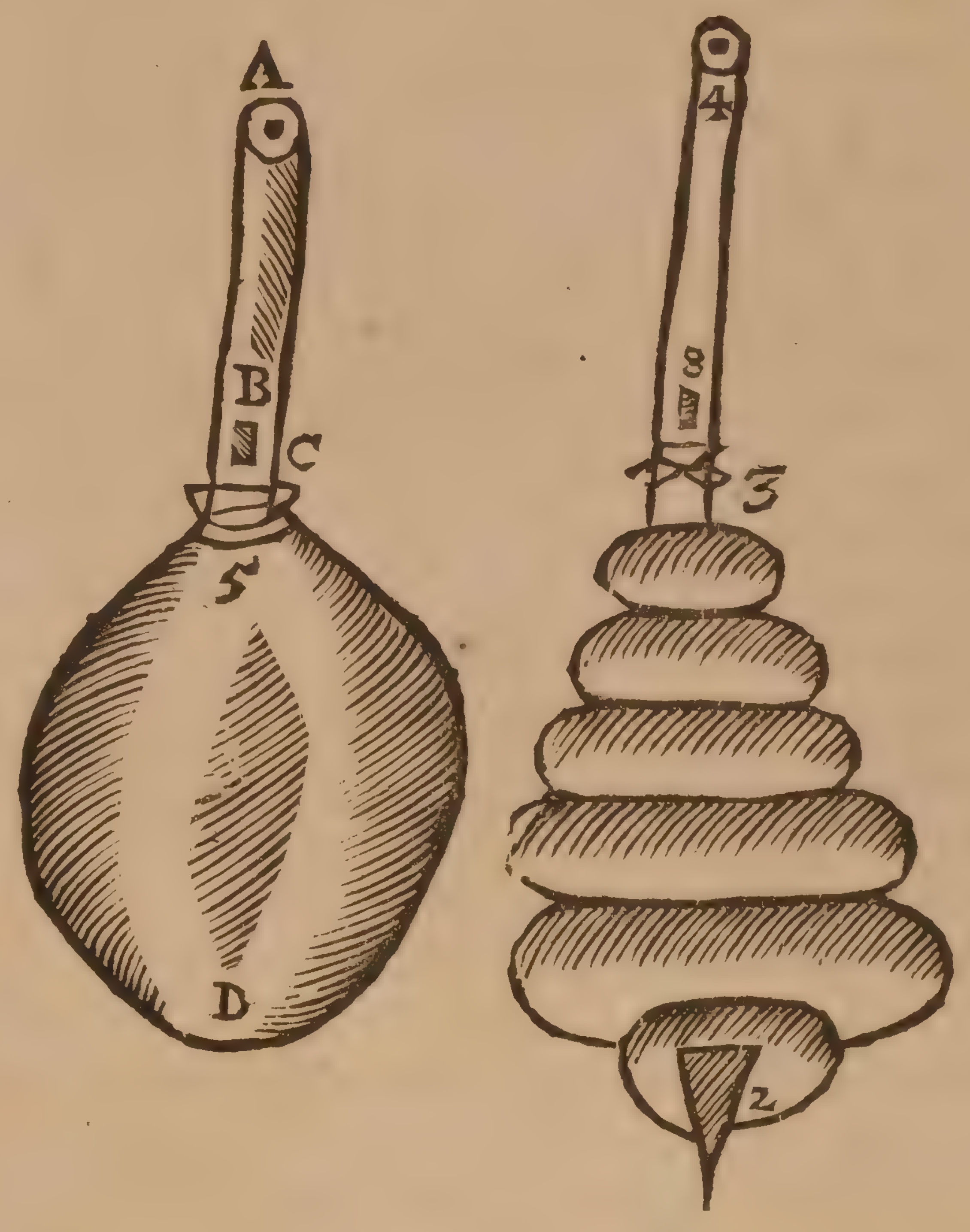
Quails are to be taken by Calls, whilſt they are in their Wooing, which is from *April* to *Auguſt*. The *Quail* will Call at Sun-riſing, about Nine a Clock, about Twelve, about Three in the Afternoon and at Sun-ſet. The Notes of the Cock differ much from the Hen, ſo that you muſt be expert in both if you intend to do any good in taking them; and when you hear the Cock call, anſwer in the Hen's Note, and ſo contrary-wiſe anſwer the Hen in the Cock's, and thus you will have both come to you, ſo that you may caſt over your Net and take them.

If it be a ſingle *Cock-Quail*, he will come at the firſt Call; but if he have a Hen with him, he will not forſake her. Sometimes you ſhall hear only one to anſwer your Call, yet Three or Four will come to the Net, ſo that you need not make too great haſt when you find one entangled, for in a ſhort time ſome more may be taken.

Quails are a neat cleanly Bird, and will not much run in Dews or Wet Places, but chooſe rather to fly, that they may not dirty themſelves; you muſt therefore at ſuch times place your ſelf as near your Net as poſſible.

If by Accident the *Quail* paſſeth by one End of the Net, lie cloſe for ſome time and let her go a little way, then gently remove your ſelf on the other ſide of the Net, and Call her back again, and ſhe will ſoon come to your Net.

The Form of the Calls, and how to make them are as follows.



THE firſt is made of a Leather-Purſe, about two Fingers wide, and four long, in faſhion like a Pear; it muſt be ſtuft half full of Horſe-hair: In the End marked with the Figure 5, faſten a ſmall Device marked *C*, made of a Bone of a *Cat's*, *Hare's* or *Coney's Leg*, or of the Wing of a Hen, which muſt be about three Fingers long, and the end *C* muſt be formed like a Flagelet, with a little ſoft Wax; alſo put in a little to cloſe up the Hole *A*, which open a little with a Pin, to cauſe it to give the clearer and ſhriller Sound. This Pipe faſten in your Purſe, and then to make it ſpeak hold it full in the Palm of your Hand, and place one of your Fingers over the Place marked 5; you muſt ſtrike on the place *D*, with the hinder part of your left Thumb, and ſo to counterfeit the Call of the Hen *Quail.*

The other *Quail* Call muſt be four Fingers long, made of a piece of Wire, turned round in ſuch form as the Figure deſcribes. It muſt be covered over with Leather, and one End thereof cloſed up with a piece of flat Wood marked 2; about the middle you muſt have a ſmall Thread, or Leather-Strap wherewith you may hold it, ſo as to uſe it with one Hand, and at the other End place juſt ſuch a Pipe, as was deſcribed before in the making up the firſt Call.

Now for the Calling with it, hold the Strap, or piece of Leather, with your left Hand cloſe by the piece of Wood No. 2, and with your Right Hand hold the Pipe juſt where it is joined to the Flagelet No. 3.

The Net to be uſed ſhould be made of Silk, or very fine Thread, about Twelve Yards ſquare, with a Hole in the midſt, large enough to ſit in, ſo that when the *Quail* comes within the Compaſs of the Net, your riſing up will cauſe her to fly, and ſo ſhe will be taken: The Places to pitch theſe Nets muſt be in Corn-Fields, as Barley, Oats, or the like.

Another way to take Quails.

THere is another way to take *Quails* with the ſmall Calls, but with a different Net, made alſo four Square, about Twenty, or Two and Twenty Foot every way, and of Green Silk or Thread, with a couple of ſtrong Straps at any two of the Corners. There muſt be two in company to uſe it, and each muſt hold one of the ſaid Straps, when they uſe the Net, and ſo to draw it over the *Quails*, the Bottom hanging a little on the Ground. The manner is that when you hear any *Quail* Call, liſten exactly whereabouts it is, and go ſoftly thither; if it Call no more, give it a light touch with your Pipe, to make it ſpeak. This way is moſt fit to be uſed in ſtanding Graſs, or in Stubble-Fields.

You muſt have a nimble Ear to diſcern the Place, and ſo go thither with your Net drawn, and when you are juſt at it, let fall, and beat with your Hat, or the like, to cauſe it to riſe, and by this means you may take many in a Day.

If you are alone, then pitch your Net in ſuch manner as the Fore-part may Reſt clear from the Ground about Eight or Nine Inches by the help of the Benty-Graſs, or ſome ſmall Sticks; then give a Call, and they will come under the Net.

CHAP. XI.

Concerning the taking Birds great and ſmall, eſpecially Wild-Fowl, *with Lines, Springs, Strings, Bird-lime,* &c. *in Woods, Meadows, Splaſhes, and the like.*

WHen you have found out any place where Fowl reſort, either great or ſmall, obſerve this Device. Get a good Bundle of Sticks ſharpned at one end, and forked at the other, and about a Foot in length; ſtick theſe into the Ground ſlightly, only to bear up the Lines or Cords of which we come now to ſpeak, and the Sticks muſt be placed in ſtraight Lines, and at equal diſtances over the whole Haunt where they reſort. You muſt get ſuch a proportion of Pack-Thread, or ſmall Cord as you intend to uſe, which muſt be daubed all over with ſtrong Bird-Lime, if it be for ſtrong Fowl, or that you uſe it in the Water, otherwiſe ordinary Bird-Lime may ſerve. Your Rows of Sticks ſhould not be above Two Yards diſtance from each other, and the Sticks of ſuch proportions as to ſupport your Lines, which muſt be laid all along over the Forks. You muſt faſten the Ends of your Lines to your laſt Sticks with ſlipping-knots, that when any Bird comes to touch on any part of the Line, the whole Line may give way to enſnare it, ſo that the more the Fowl ſtriveth to get away, the more faſt it becometh.

If you ſet againſt the Morning, fix your Rods over Night, and ſet the Lines at leaſt an Hour before Day; for if you go later, 'tis twenty to one but the Fowl will be there before you; and if you ſet for the Evening, all muſt be fitted by Sun-ſet, or before, leaſt the Birds finding you there do avoid the Place: And 'tis not amiſs that in all theſe Places you embolden the Fowl by ſtrowing ſome Baits to entice them thither.

If you ſet in the Water, your Lines ſhould not be above five or ſix Inches out of the Water, that the Fowl may not touch on them as they Swim to and fro; and you may then fix one End of your Line, and only let the other End be with a running knot, and ſo you may be aſſured of finding what you take. If you ſet over any Water, your Sticks muſt be longer or ſhorter according to the depth of the place. In light Nights this Device is not ſo good, but in dark and great Fogs it is excellent, for you need not watch them, only repair thither every Morning and Evening, and when you have tried one Place you may remove to another Haunt, and ſtill preſerve and ſupply your Sticks, Lime, and Lines as you ſee occaſion.

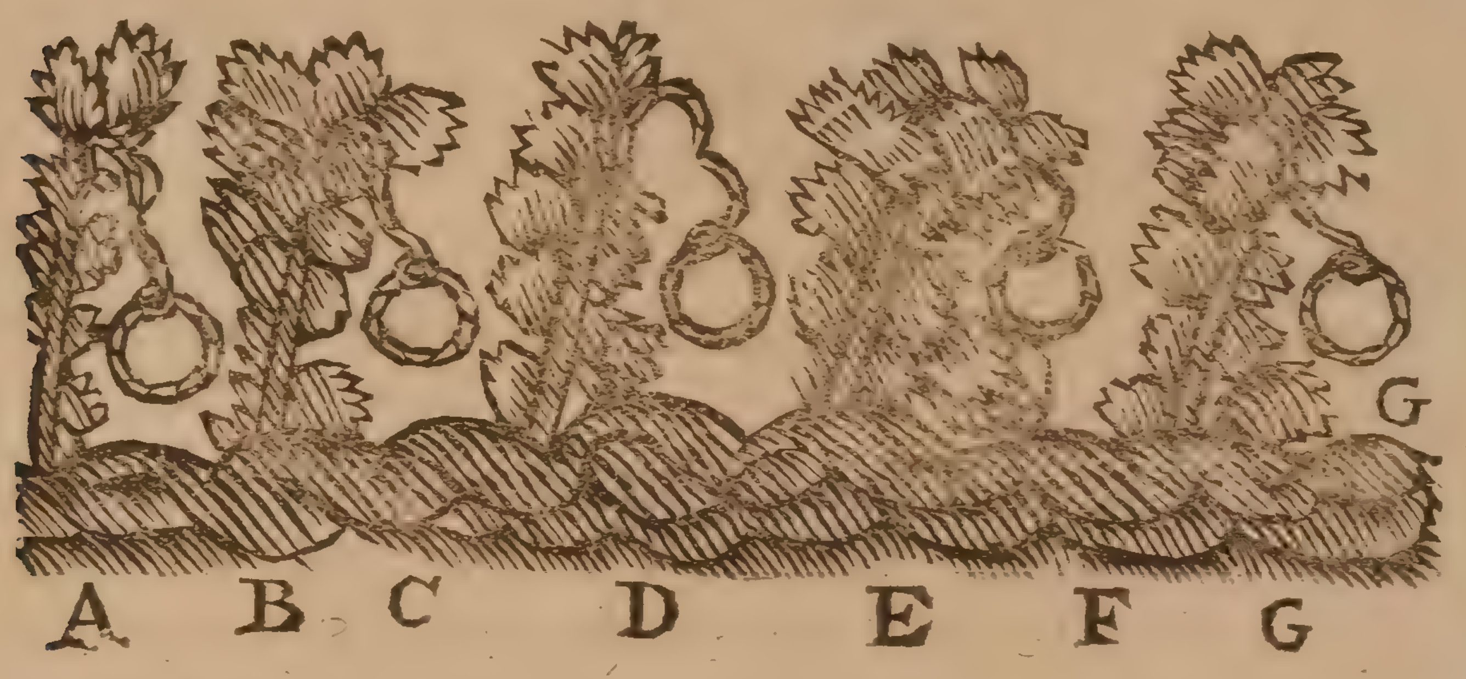
It were not amiſs in caſe you ſet for Water-Fowl, that ſome of your Lines be about two Foot high above the Water, to enſnare the Fowl as they make their Flights, before they deſcend into the Water; for you cannot but have obſerved that they uſe to fly about that diſtance at ſuch times.

CHAP. XII.

How to take Fowl and Birds by the Legs, Necks, or both, in Noozes made of Horſe-Hair, *with Running Knots.*

THE Devices to take Fowl and Birds by the Necks or Legs, and ſometimes by both, is very ſure; the moſt fitting Places for this purpoſe are amongſt Buſhes and ſmall Coppices, and the manner is thus: Make as many little Hedg-rows of about half a Foot high (by ſticking ſmall Furz Buſhes, Brambles, Thorns, or the like in direct or crooked Lines, and of ſuch length and in ſuch number as you think fit, and according to the Game you think the Place may afford.)

At ſeveral Diſtances leave little open Spaces big enough for the Birds to paſs through. This enſuing Figure repreſents unto you the ſame.



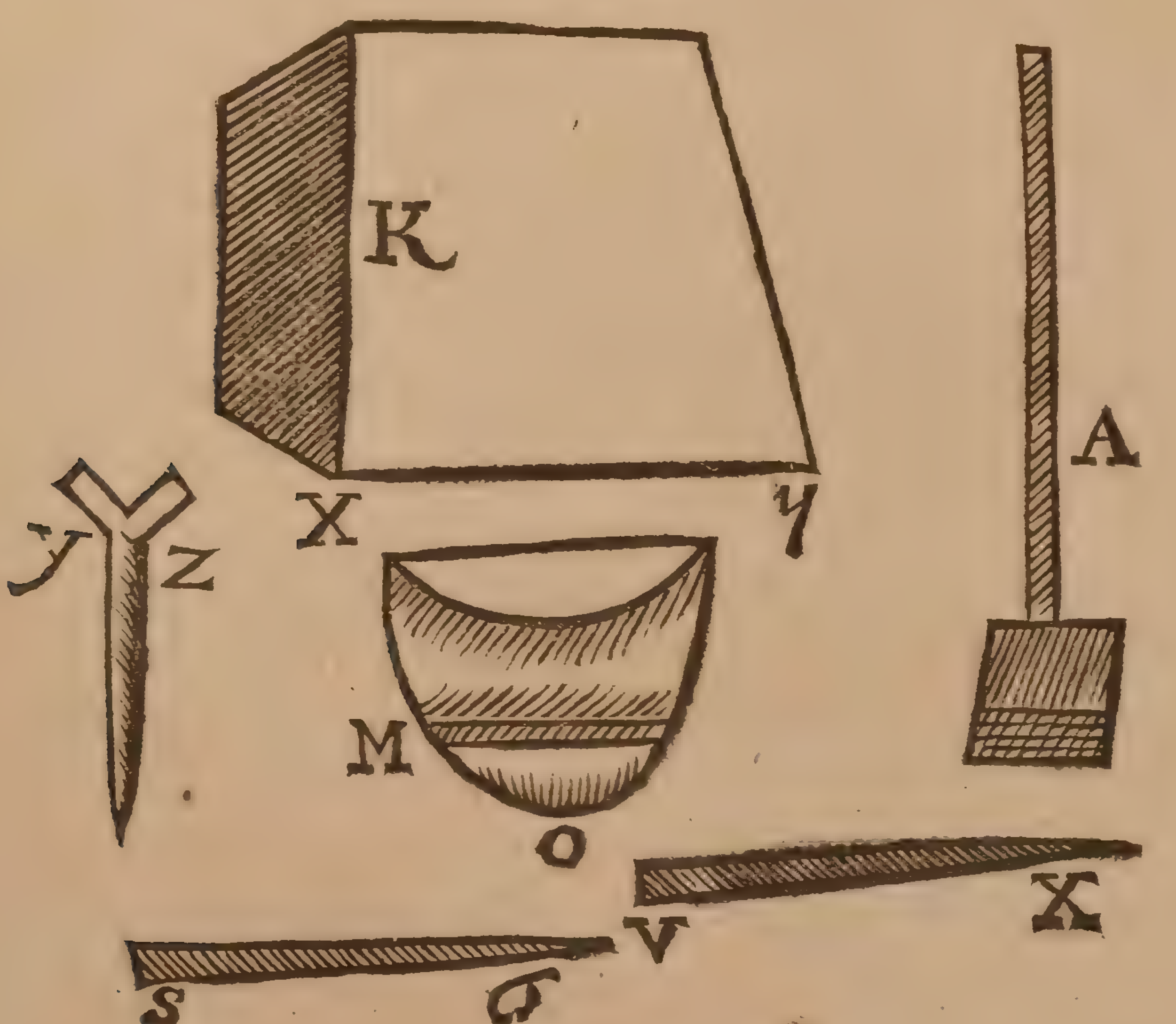
The Letters *A*, *B*, *C*, *D*, *E*, *F*, *G*, repreſent the Paſſages, or void Places, in each of which fix a ſhort Stick of the Bigneſs of one's Finger, and tie thereunto a Nooſe of Horſe-Hair finely twiſted, with a Slipping-Knot, as the aforeſaid Nooſes do demonſtrate, that the Fowl endeavouring to paſs thro', may draw upon his Neck, and ſo become ſtrangled.

For Wood-Cocks, lay thoſe Strings flat on the Ground, to take them by the Legs. If you make the ſame Devices acroſs plow'd Furrows, place your Strings in the Bottoms thereof; you may take ſtore of Partridges, provided there be any in the Ground; and for the enticing the Fowl it were good to ſcatter in and about the Knots or Nooſes ſome Grain.

CHAP. XIII.

Directions to take ſmall Birds *in* Pit-falls.

HAving given Directions for the Taking *Partridges* with Pit-falls, I ſhall now proceed to ſome of the like Nature for the Taking ſmall Birds; but the former was above the Earth, theſe in, and under it, and are excellent for taking Black-birds, Thruſhes, Feldivers, and ſuch like Birds that feed on Worms. The beſt Seaſon for this Sport, is from the Beginning of *November* to the End of *March*. The Device is cheap, profitable, and ſo common, that ſcarce any School-Boy but what is acquainted therewith; however theſe enſuing Figures will demonſtrate it unto you.



The Figure mark'd *A* is a plain Paddle-Staff, ſuch as Country-men uſe to carry in their Hands as they go about their Grounds. With this you are to cut the Turfs wherewith the Pit-fall is to be cloſed, which Turfs muſt be cut at leaſt two Inches larger than the Pit. The ſame Paddle may likewiſe ſerve to dig your Pits, which ſhould be always made in the Sun, near ſome Hedge where Birds frequent. They may be alſo made in great Woods, near ſome Holly-Buſhes, for in hard Weather Birds uſe to reſort to ſuch Places in Expectation of Worms, by picking up and removing the dead Leaves that lie on the Ground. The Holes may be about ſeven Inches deep; on the oppoſite Side let it be about four or five Inches long, as is deſign'd by the Letter *O*; and from *X* to *O*, there may be a Diſtance about ſix Inches. Then take a ſmall Stick *V*, *X*, not quite ſo big as one's little Finger, and about five Inches long, which cut ſloping at the End *V*, the other Part of the Stick toward *X* being taper'd, or cut ſmall by Degrees. Prick the ſmall End *X* into the Side of the Pit mark'd *M*, and let the End *V* lie upon the Ground. Then have another Stick mark'd as *S*, *T*, about the Bigneſs of a Swan's Quill, and four Inches long, which cut flat and ſmooth on one Side, and at the End *S* on the other Side cut a Notch.

In the next Place you muſt have a forked Stick, mark'd as *Y*, *Z*, ſomewhat bigger than the other Sticks, and about five or ſix Inches long, the End *Z* being cut like the End of a Wedge.

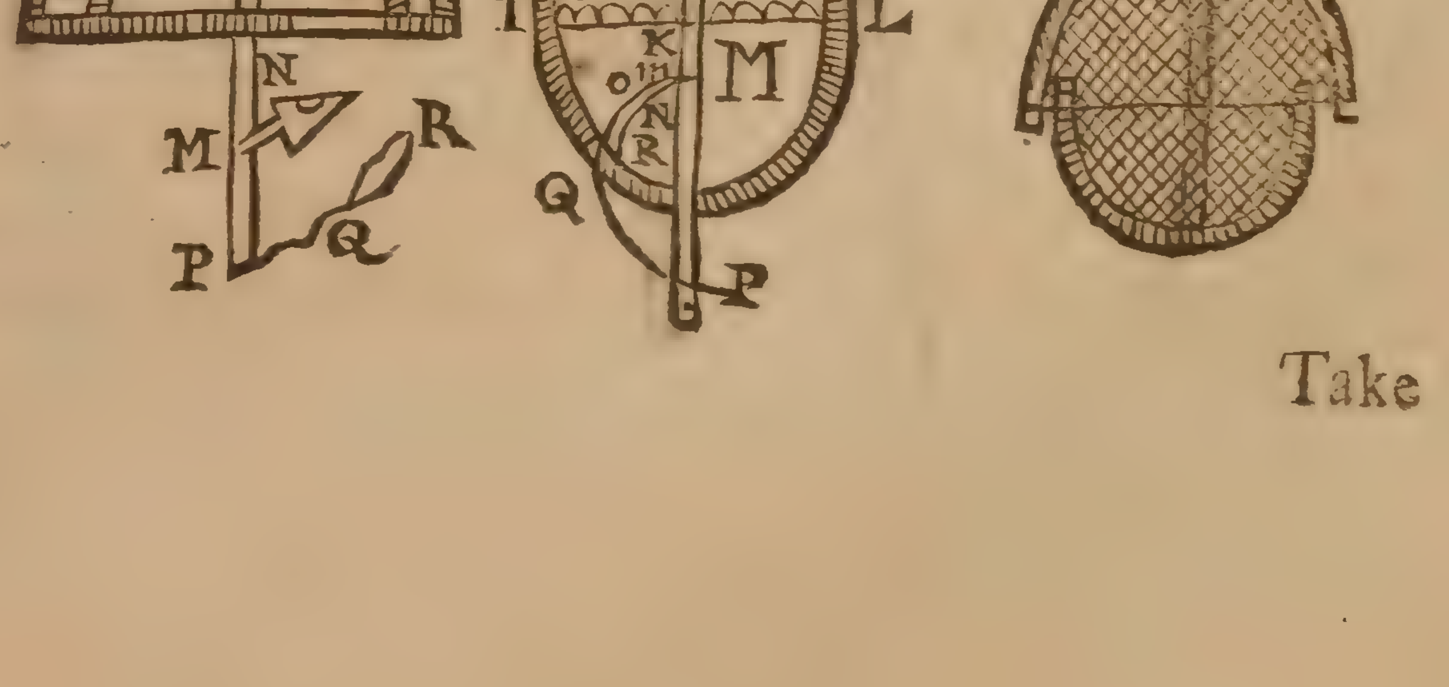
Your next Buſineſs is to make uſe of your Turf, which muſt be four or five Inches thick, the bigger Side to be laid over the largeſt Side of the Pit.

Take the End *S* of your little Stick, and lay the flat Side on the Place *M*, upon the End of the Stick, which is prick'd into the Ground; then place the End *Z* of your fork'd Stick into the Notch *S*, and lay on the Turf, making the End of the fork'd Stick, mark'd *Y*, to be juſt under the Place of the Turf, mark'd *K*; then move and place the ſmall Stick, which holds the Fork in ſuch manner, that the leaſt Bird that comes to tread upon the End of the Stick *Y*, the Turf may fall down, and ſo catch the Bird in the Hole.

For inticing the Birds to come to your Pit-falls, get ſome Earth-worms, and ſtick four or five of them through the Body with ſome long Thorns, or ſmall Sticks for that Purpoſe, and ſo ſet them in your Pits to be ſeen by the Birds that come near it; and be ſure that the Birds cannot come to the Pits any other Way than by that mark'd O, you may plant a little Hedge-row of ſhort Sticks about the two Sides of the Pit.

If in hard froſty Weather, ſtir up ſome freſh Earth about the Fore-front of the Pit, which will much entice Birds to come.

There is another Kind of Pit-fall, which is not ſo troubleſome as the former, nor ſo many Sticks or Devices required, you may uſe it in any Hedge, Buſh, Tree, or the like, and in all Weathers. It is to be made and uſed after this manner as it is here deſcribed.



Take a Holly-Stick, about the Bigneſs of one's middle Finger, and about a Foot and a half long: Alſo another Stick of the ſame Bigneſs, but about two Inches ſhorter; bend them both like a Bow with a good double Packthread, between which place a certain flat Stick about eighteen Inches long, as the Letters *P*, *M*, *K*, *G*, do denote, by turning of which you may bend the ſaid Sticks; then tie the End of the ſaid Stick *G* unto the Middle of the leſſer Bow, to try if it be right; and hold with one Hand the End *P* of the flat Stick, and with the other Hand pull towards you the leſſer Bow; and if when you let it fly back, it doth return with a good Force, 'tis a Sign it is well done. Then tie upon your flat Stick, about three Inches from the End of it, by the Letter *P*, a ſmall Packthread, about nine Inches long, and as big as a good Quill; between the ſaid Packthread at *P*, and the Letter *K*, about the Letter *M*, tie the Thread double as *N*, *O*; then ſpread a ſmall Net over the two Bows, and let the whole be like a Folding-Stool. The Way to bend it is thus, Lift up the greater of the Bows, and bring it over the little Stick *Q*, *R*, then paſs athwart the Net the double Thread *N*, *O*, with the Bait faſtned therein at *N*; and opening the End *O*, put it on the End of the Stick *R*, and it is ready ſet.

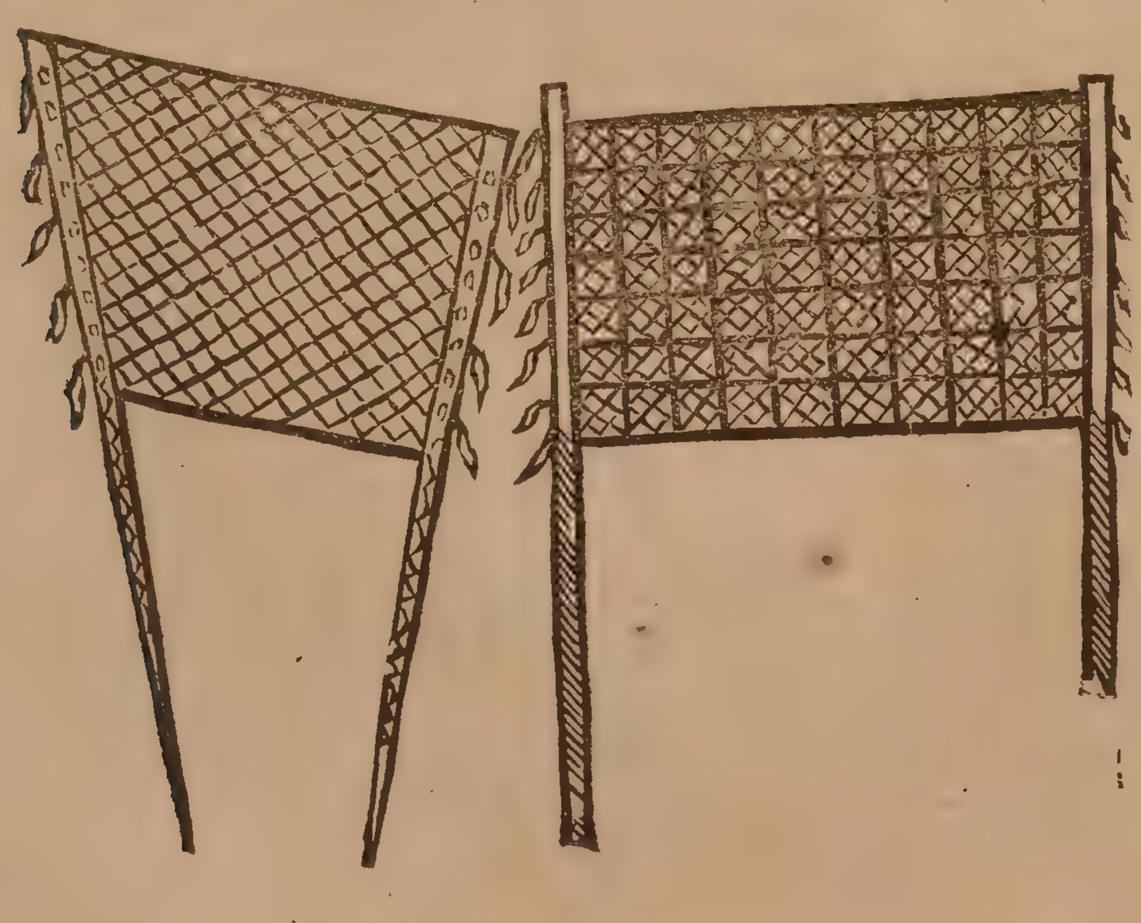
For the better comprehending it, there are three Figures deſcribed; the Letters are all the ſame; one ſheweth how to make it, another how to bend it or ſet it, and the laſt repreſents it ready bent.

When you fix it in any Place, ſtrew ſome Leaves behind it, and alſo upon the Bottom of it before, to the End the Birds may not unbend it, unleſs in the Fore-part. You muſt bait it according to the ſeveral Seaſons, and Natures of thoſe Birds you deſign to take. In *May* and *June* for Pies and Jays in Gardens and Orchards, either two or three Cherries, or a Piece or two of green Pear or Apple may do well. In Winter, for Black-birds, Thruſhes, or the like, two or three Worms will do the Buſineſs; at other times, and for ſome Birds an Ear of Wheat or Barley is very good.

CHAP. XIV.

How to take Birds *in the Night with a* Fold-Net *and* Fires, *and with a double* Hay, *&c.*

THere is a Way to take ſmall Birds in the Night with Nets, called the *Fold-Net*, the Figures of which are here ſet down.



The firſt of theſe Nets may be carried by one Man, but the other muſt have two to manage it. The Manner of uſing it is thus: Your Net being fix'd on both Sides unto two ſtrong, ſtreight and light Poles, you muſt have at the leaſt two or three luſty Men to aſſiſt you, which muſt keep all poſſible Silence; for the leaſt Noiſe ſpoils your Sport. The Poles whereon your Nets are tied ſhould be about twelve Foot long, to the end they might be held up the higher, as Occaſion requires. The darker the Night is the better, by reaſon the Light will be the more conſpicuous.

He that beareth the Lights, which are ſmall Bundles of Straw ſet on Fire, (or Torches, which are beſt) muſt carry them behind the Nets, in the midſt of them, about two Yards from them; and ſo order it as to carry the Nets between the Wind and the Birds; for 'tis the Nature of all Birds to rooſt on the Perches, with their Breaſts againſt the Wind; and by this means he that beats the Buſhes on the other Side of the Hedge will drive them out that way towards the Light. He muſt be arm'd with a good ſtrong Pole, and muſt lay on ſtoutly after the Signal is given, all which muſt be by ſome ſilent Shew.

If you uſe the former of the two Nets, when you find any Bird in it, preſently clap your Net cloſe, and ſo take them. But if you uſe the other Net, you need not make ſuch Haſte; for it will enſnare them of it ſelf, and they can't get away ſuddenly.

Both theſe Ways are very good by the Sides of Hedges, Coppices, or the like, but not in them.

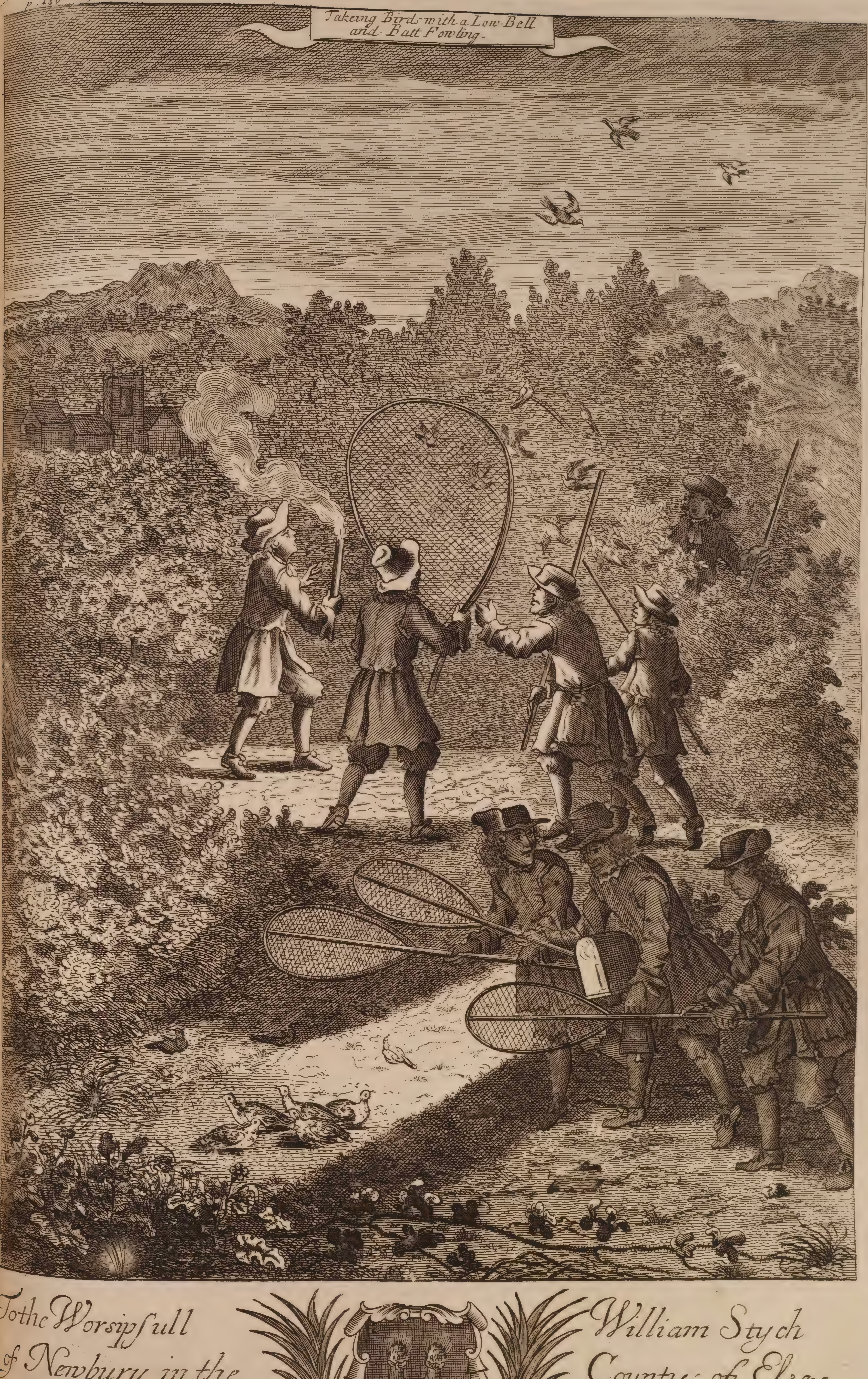
In great Timber-Woods, under which Holly-Buſhes grow, there Birds do uſually rooſt, and where good ſtore of Game may be found: And by this Way twenty or thirty Dozen of Birds hath been often taken in one Night.

CHAP. XV.

How to take Birds *in the Night with the* Low-Bell, Net, *and* Light.

THIS Sport is uſed in Plain and Champion Countries, alſo in Stubble-Fields, eſpecially that of Wheat, from the Middle of *October* to the End of *March*, and that after this Manner.

About Nine a Clock at Night, the Air being mild, and the Moon not ſhining, take your Low-Bell, which muſt be of a deep and hollow Sound, and of ſuch a reaſonable Size, that a Man may carry it well in one Hand; which toll juſt as a Sheep uſeth to do whilſt it feedeth. You muſt alſo have a Box, much like a large Lanthorn, and about a Foot and a half ſquare, big enough for two or three great Lights to be ſet in; and let the Box be lined with Tin, and one Side open to caſt forth the Light. This Box fix to your Breaſt to carry before you, and the Light will caſt a great Diſtance before you very broad, whereby you may ſee any thing that is on the Ground within the Compaſs of the Light, and by Conſequence the Birds that rooſt on the Ground. After the taking them, have two Men with you, one on each Side, but a little after you, to the End they may not be within the Reflexion of the Light that the Lanthorn or Box caſts forth; and each of them muſt



Takeing Birds with a Low-Bell and Batt Fowling.

To the Worsipfull William Stych
of Newbury in the County of Essex
Esq
This plate is humbly Dedicated by Ric Blome

muſt be provided with a Hand-Net, of about three or four Foot ſquare, the Figure repreſents the Form, which muſt be fixed to a long Stick to carry in their Hands; ſo that when either of them ſeeth any Birds on his Side, he muſt lay his Net over them, and ſo take them up, making as little Noiſe as poſſible, and withal be not over-haſty in running to take them up, but let him that carrieth the Light and Low-Bell be the foremoſt, for fear of raiſing others, which their coming into the Limits of Light may occaſion; for all is dark, except where the Light caſts its Reflexion, ſo that by no means there muſt be any Light.

Note, That the Sound of the Low-Bell doth cauſe the Birds to lie cloſe, and not dare to ſtir whilſt you put the Nets over them; and the Light is ſo terrible to them, that it amazeth them. And for Caution you muſt uſe all imaginable Silence, for fear of raiſing them.

If you would uſe this Sport by your ſelf, then in one Hand carry the Low-Bell, as before directed, and in the other a Hand-Net, about two Foot broad, and three Foot long, with a Handle to it, made as the Figure repreſents, which is to lay upon them ſtill as you eſpy them; and ſome like this Way better than the former.

If you have Company with you, one may have a Birding-Piece, to the end that if you eſpy a Hare, the beſt Way is to ſhoot it; for it is hazardous to take it with the Net.

Some there are, that inſtead of fixing the Light to their Breaſt, as aforeſaid, do tie the Low-Bell to their Girdle by a String that hangs to their Knees, and their Motion cauſeth the Bell to ſtrike; and then they carry the Light in their Hand, extending their Arm before them; but the Lanthorn or Box muſt not be ſo large as that which you fix to your Breaſt. Your beſt Way is to try both, and uſe that which liketh you beſt.

CHAP. XVI.

The Way to take ſmall Birds, *called* Bat-Fowling.

Bat-Fowling is likewiſe a Night Exerciſe, and takes all Sorts of Birds, both great and ſmall, that rooſt not only on the Ground, but on Shrubs, Buſhes, Hawthorn-Trees, and the like Places, and is therefore proper for woody, rough and buſhy Places.

The Depth of Winter is the beſt Seaſon for this Sport, and the darker the Night, and the colder the Weather, 'tis ſo much the better.

For the Manner of *Bat-Fowling*, it may be uſed with Nets, or without, according to your Pleaſure and Fancy. If without, ſuppoſe your Company be twelve or fifteen, let one Third-part carry Poles, to which little Bundles of dry Wiſps of Hay or Straw, (or inſtead thereof Pieces of Links or Hurds, dipt in Pitch, Roſin, or the like, that will blaze) muſt be bound at Top; another Third-part muſt attend upon the ſaid Fires, with long Poles, rough and buſhy at the upper Ends, to knock down the Birds that fly about the Lights; and another Third-part muſt have long Poles to beat the Buſhes, and other Places, to cauſe the Birds to fly about the Lights, which they'll do as if amaz'd, not departing from it; ſo that they may be knock'd down at Pleaſure. And thus you may ſpend as much of the Night as is dark, and find good Diverſion.

It will be convenient for one in the Company to carry a Candle and Lanthorn, that in caſe all the Lights are extinguiſh'd, they may be kindled at Pleaſure; and be ſure to obſerve the greateſt Silence imaginable, eſpecially till the Lights are kindled.

The other Way with Nets is thus done: Let two or three go with Lanthorns and Candles lighted, extended in one of their Hands, (juſt ſuch as before deſcribed to carry in your Hand, in the Chapter of the *Low-Bell*) and in their other Hands ſmall Nets, ſomething like a Racket, but leſs, which muſt be fix'd at the End of a long Pole, to beat down the Birds as they ſit at Rooſt, which being ſurprized with the great blazing Light, will ſit until they are knock'd down: Then there are others, whoſe Buſineſs is to gather the Birds up, and to put them into a Basket or Bag to carry Home.

A Croſs-Bow for this Sport is very uſeful, to ſhoot them as they ſit.

CHAP. XVII.

Of the Tramel-Net, *and its Uſe.*

THERE is another Way to take great and ſmall Fowl by Night in Champion-Countries; and that is with a long Tramel-Net, which is much like the Net uſed for the Low-Bell, both for Shape, Bigneſs and Meſh.

This Net is to be ſpread upon the Ground, and let the nether or further End thereof (being plum'd with ſmall Plummets of Lead) lie looſe on the Ground; and then bearing up the former End by the Strength of Men at the two foremoſt Ends, only trail it along the Ground, not ſuffering that End which is born up to come near the Ground, by at leaſt a Yard.

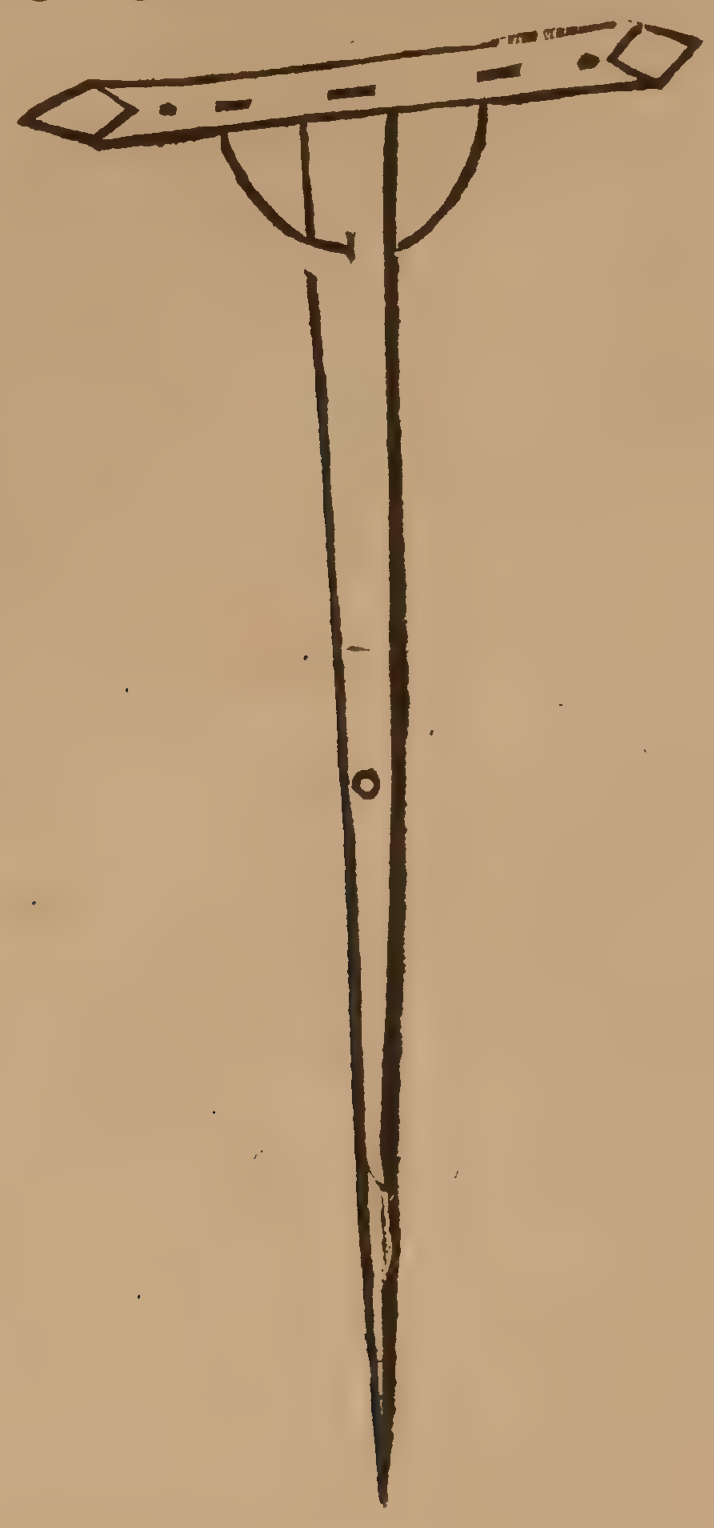
Then at each Side of the Net muſt be carried great blazing Lights of Fire, ſuch as were formerly ſpoken of; and by the Lights Men muſt be with long Poles to raiſe up the Birds as they go, and as they riſe under the Nets to take them. And in this manner you may go over a whole Corn-Field, or other Champion Ground, which will afford both Pleaſure and Profit.

CHAP. XVIII.

Of the Sparrow-Net, *and its Uſe.*

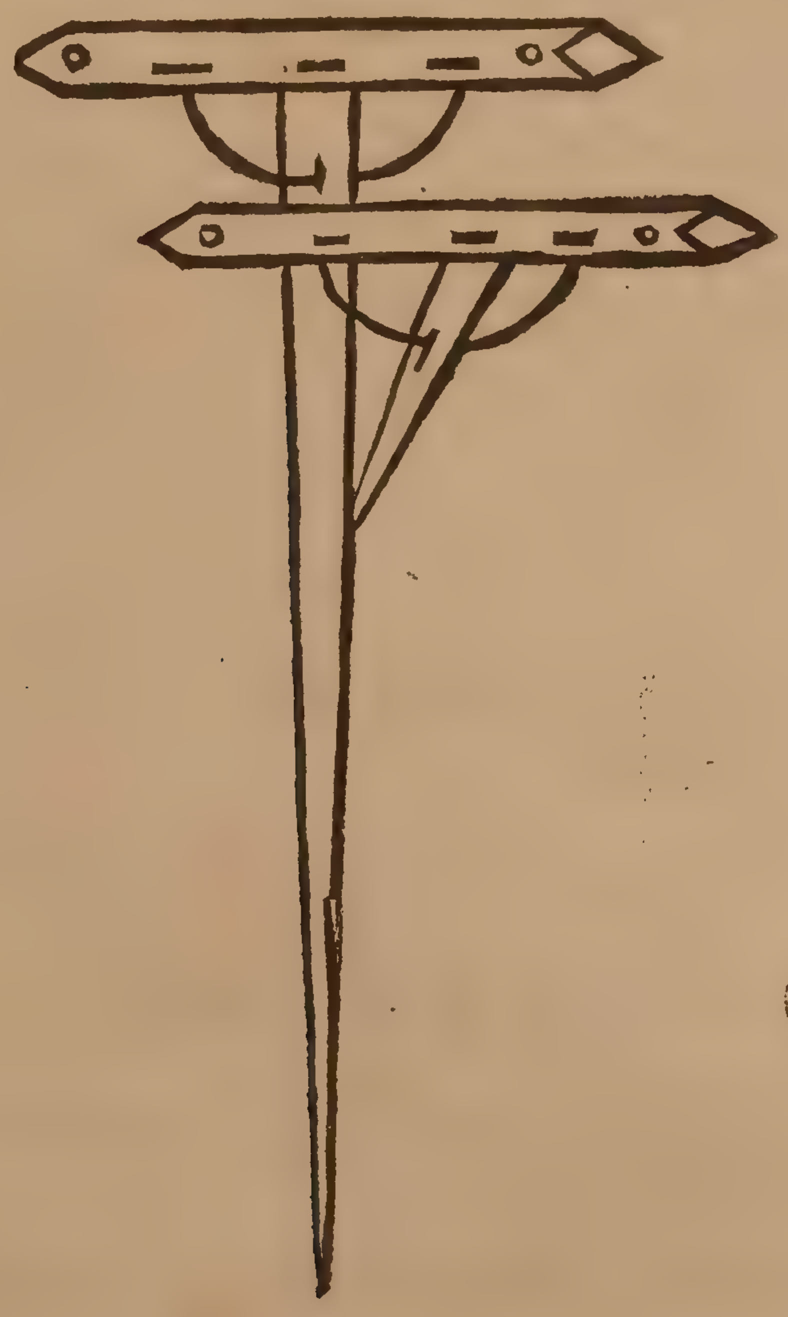
THE *Sparrow-Net* is an Exerciſe uſed after Sun-ſet, and before Sun-riſing, being the Times after the Birds go to Rooſt; and before their Stirring in the Morning.

The Engine or Sparrow-Net is to be thus made: Firſt have a long Pole, much like a Hawk's Pole, and at the upper End muſt be faſten'd ſtrongly, either with one, two, or more Grains, a ſmall, ſquare, croſs Piece of Wood, like to the Head of an ordinary Hay-Rake, but much larger for Length and Size, and of a little longer Square, according to the Faſhion of this following Figure.



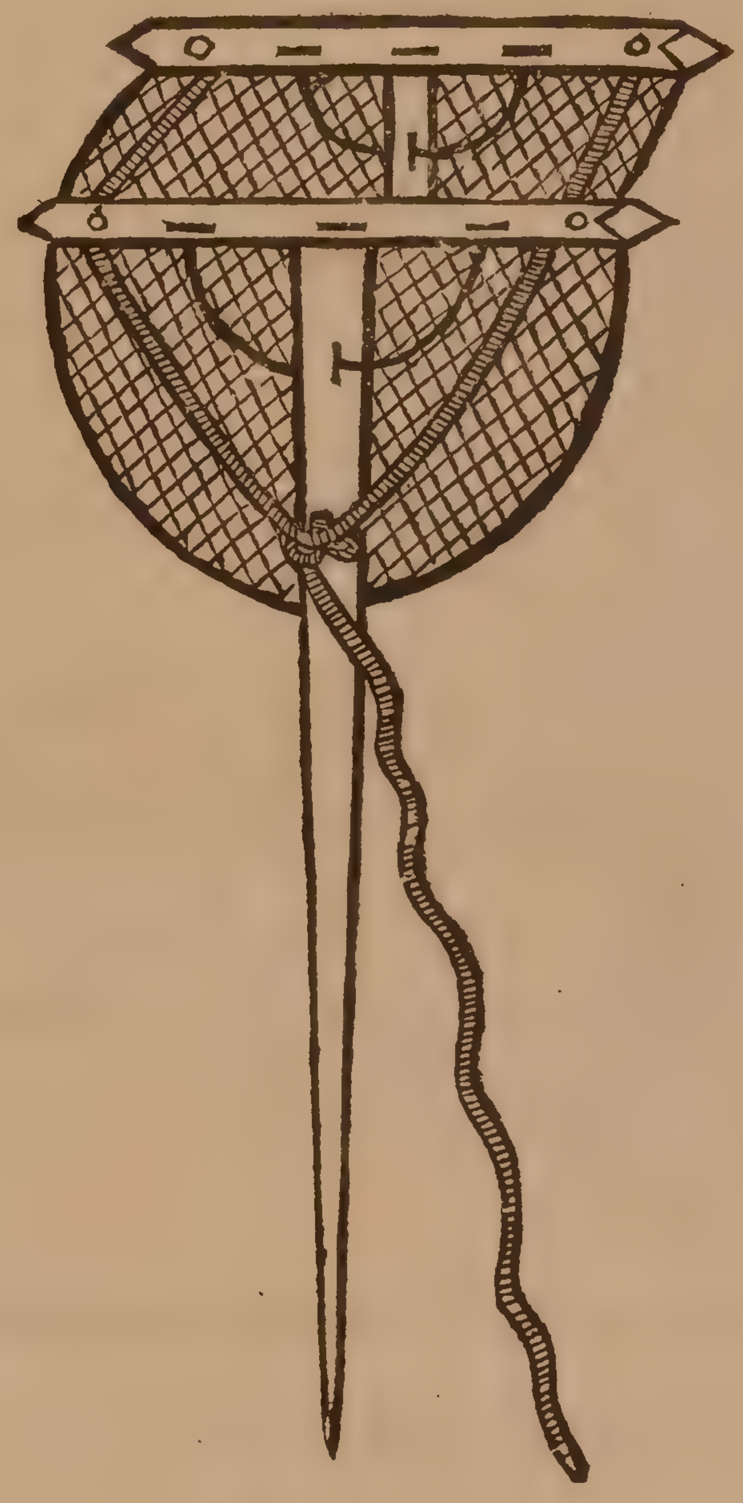
Then make another Staff like unto this, but not above a Third part in Length, and join it to the longer with a ſtrong ſmall Cord ſo looſely, that at Pleaſure it may fall too and fro from the longer Croſs-Staff; and when both the Croſs-Staves meet together, they may be both of one equal Length and Heighth, and join together without any Difference; for otherwiſe they will be out of Order, and ſo be ineffectual.

The Form and Manner of the ſecond Croſs-Staff.



THeſe two Croſs-Staves being thus join'd, fit to meet together, fix both to the one and the other a large and wide Purſe-Net, having that Liberty at the Top, that the Croſs-Staves may fall, and part the one from the other a pretty Diſtance; and the lower End of the Net muſt be ſtreight and narrow, and made faſt to the ſame Hole in the lower Croſs-Staff, to which the ſhorter Croſs-Staff was before faſtned; then take two ſmall Cords or Lines, which muſt be faſtned with Knots to each of the ſhorter Croſs-Staves, paſſing through the two Holes, and ſo through the Holes of the lower Croſs-Staff, through which they may go and come at Pleaſure; and then ſhall the two Ends of the Wards be tied on a Knot together at ſuch an even Diſtance, that the ſhorter Staff may fall at pleaſure from the lower as far as is convenient, or the Wideneſs of the Net permits; and then another ſingle Ward being made faſt to that laſt Knot of the two Cords, (which ſingle Ward always carry in your Right Hand) draw the Croſs-Staves cloſe together, and cloſe up the Net as you find Occaſion; and make with it the Staves and Net fly open and widen as the Place requires where you are to ſet it.

The Form and Manner of the Sparrow-Net, *as it is fixed together.*



THis Sparrow-Net is to be uſed early in the Morning, or late at Night, as before Noted, and muſt be ſet, or fixed againſt the Eaves of Houſes, Barns, Dove-houſes, and ſuch like Places, as alſo againſt Stacks of Corn or Hay; and if they were Thatcht it were the better, and being ſet cloſe againſt them to knock and thruſt the Croſs-Staves cloſe againſt the ſame, making a Noiſe to force them to fly out into the Net, and immediately draw the long ſingle Line, and ſhut up the Croſs-Staves cloſe; and ſo take out the Birds.

The chief Benefit of this Net is either to deſtroy the Sparrows that lie about your Yards, Orchards, and Fields, devouring the Corn and ſpoiling the Fruit, or for the Mewing of *Hawks*, or getting ſuch as are Weak and Sick into Strength; for with this Net you may take Morning and Evenings ſuch quantities as are ſufficient to give them warm to your *Hawks*, which is a great Nouriſhment, and makes them Mew faſter; or if for a weak Perſon, enough to make ſome Broath.

CHAP.

CHAP. XIX.

How to take Wild-Fowl *with a Net, called a* Crow-Net.

THere is an Invention for taking Wild-Fowl in Winter with the *Crow-Net*, which may be uſed in the Day time. It is made of double twiſted Thread, or fine Packthread; the Meſhes ſhould be two Inches wide, the length about ten Yards, and three in depth; It muſt be verged on the Sides with good ſtrong Cord, and extended out very ſtiff upon long Poles made for that purpoſe.

When you are on the Place you intend to ſpread your Net, open it, and lay it out at its full length and breadth; then faſten the lower End of the Net all along on the Ground, ſo as only to move it up and down. The upper End of the Net ſhould ſtand extended on the long Cord, the further End thereof being Staked faſt to the Earth by a ſtrong Cord about five Yards diſtant from the Net, which Cord place in an even Line with the lower edge of the Net; the other End of the Cord muſt be at leaſt twenty five Yards, to reach unto ſome natural or artificial Shelter, by the help of which you may lie concealed from the Fowl, otherwiſe you can expect no good Succeſs.

Your Net muſt be in that exact order, that it may give way to play on the Fowl upon the leaſt Pull of your Cord, which do ſmartly leſt the Fowl be too quick for you.

This Device may be uſed for Pigeons, Crows, or the like, in Corn-fields newly ſown; as alſo in Stubble-fields, provided the Stubble conceal the Net from the Fowl.

It may alſo be uſed for ſmall Birds at Barn-Doors; but then lay for them ſome Train of Corn or Chaff, to entice them to the Net, lying concealed.

This *Crow-Net* may alſo be ſpread to great Pleaſure and Profit in the Mornings and Evenings, where you know their Haunts are; at which times in hard Weather Fowl uſe to fly in great Flocks to and from the Land, with and againſt the Wind; and then they fly cloſe to the Ground in open Countries and low Lands, which generally are not full of Incloſures; and when they are within reach of your Net, let go, and it riſeth over them, and brings them back to the Ground with a notable Blow.

CHAP. XX.

Of the Day-Net, *for taking of Birds.*

THis *Day-Net* is generally uſed for taking ſuch ſmall Birds as play in the Air, and will ſtoop either to Stale, Prey, Gig, or the like, as *Larks*, *Lennets*, *Buntins*, &c.

The Seaſon of the Year to uſe this Net is from *Auguſt* to *November*, and the beſt time is very early in the Morning; and by the way obſerve, that the milder the Air, and the brighter the Sun is, the better will your Sport be, and of longer continuance.

As to the Place where to lay your Net, let it be Plain and Champion, either on ſhort Stubbles, green Lays, or flat Meadows, near Corn-fields, and ſomething remote from Towns or Villages; be ſure let your Net lie cloſe to the Ground, leſt the Birds creep out, and make their eſcape.

The faſhion of this Net appears by the following Figure; and 'tis made of fine Packthread, with a ſmall Meſh, not exceeding half an Inch ſquare; the Length muſt be three Fathom, and the Breadth but one; the Shape is like the *Crow-Net*, and muſt be verged about after the ſame manner with a ſmall, but ſtrong Cord, and the two Ends extended upon two ſmall long Poles, ſuitable to the Breadth of the Net, with four Stakes, Tail-Strings, and Drawing-Lines.

This Net is compoſed of two, but are both of one length, breadth and faſhion, and are to be laid oppoſite to each other, ſo cloſe and even, that when they are drawn and pulled over, the Sides muſt meet and touch each other.

This Net ſtake down with ſtrong Stakes very ſtiff on their Lines, to the end you may with a nimble Twitch caſt them to and fro at Pleaſure. Then faſten your Drawing-Cords, or Hand-Lines, (which muſt be at the leaſt a Dozen, and each two Yards long) to the upper end of the fore-moſt Staves, and ſo extend them of ſuch a reaſonable ſtreightneſs, as with little ſtrength they may raiſe up the Nets, and caſt them over.

When your Nets are thus laid, place your Gigs, or Playing Wantons, about twenty or thirty Paces beyond, and as much on this ſide your Nets. Theſe Gigs muſt be faſten'd to the Tops of long Poles and turned into the Wind, ſo as they may play and make a noiſe therein.

Theſe Gigs are certain Toys made of long Gooſe-feathers, like Shettle-cocks, and with little ſmall Tunnels of Wood running in broad and flat Swan Quills made round like a ſmall Hoop, and ſo with longer Strings faſtned to the Pole, will with any ſmall Wind or Air move after ſuch a manner, that Birds will come in great Flocks to wonder and play about them. The following Figure ſheweth the ſame.

Your Gigs being placed, then place your Stale (which is a ſmall Stake of Wood to prick down into the Earth) having in it a Mortice-Hole, in which a ſmall, long and ſlender piece of Wood about two Foot long is ſo faſtned, that it may move up and down at pleaſure; and to this longer Stick faſten a ſmall Line, which running through a Hole in the aforeſaid Stake, and ſo coming up to the Place where you ſit, you may by drawing the Line up and down with your Right-hand, raiſe up the longer Stick from the Ground, as you ſee occaſion.

To this longer Stick faſten a live *Lark*, or ſuch like Bird, which with the Line making it to ſtir up up and down by your pulling, will entice the Birds to come to your Net, and ſo are taken.

There is another Stale, or Inticement, to draw on theſe Birds, which is called a *Looking-Glaſs*, and that is a round Stake of Wood as big as a Man's Arm, and made very ſharp at the lower end to thruſt it into the Earth. It is made very hollow in the upper part above five Fingers deep, into which Hollowneſs is placed a Three-ſquare Piece of Wood about twelve Inches long, and each Square two Inches broad, lying upon the Top of the Stake, and going with a

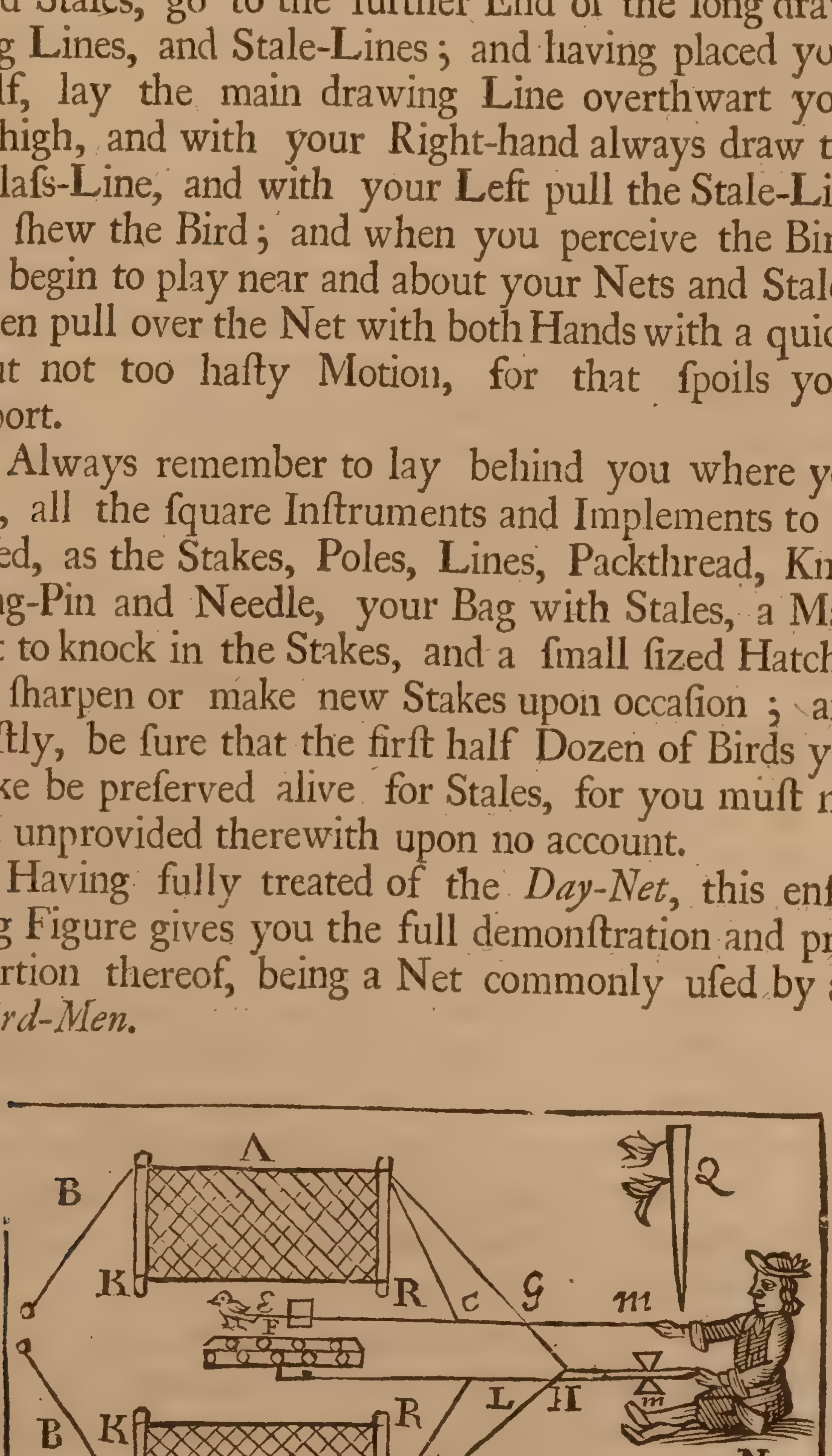
Foot into the hollowneſs; which ſaid Foot muſt have a great Knob at the Top, and another at the Bottom, with a deep ſlenderneſs between; to which ſlenderneſs faſten a ſmall Packthread, which running through a Hole in the ſide of the Stake, muſt come up to the Seat where you ſit. The Three-ſquare Piece of Wood, that lies on the Top of the Stake, muſt be made of ſuch a true Poiſe and Evenneſs, and the Foot in the Socket ſo ſmooth and round, that upon the leaſt Touch it will twerle and turn round, winding the Packthread ſo many times about it, which being ſuddenly drawn, and as ſuddenly let go again, will keep the Engine in a conſtant round Motion. Thus done, faſten with Glew upon the uppermoſt flat Squares of the Three-ſquare Piece, about twenty ſmall Pieces of Looking-Glaſs, and paint all the Square Wood between them of a light and lively Red, which in the continual Motion will give ſuch a reflexion, that the Birds will play about it to admiration until they are taken.

Both this and the other Stale are to be placed in the midſt between the two Nets, and about two or three Foot diſtance from each other, ſo that in the falling of the Nets, the Cords may not touch or annoy them; neither muſt they ſtand one before or after another, the Glaſs being kept in a continual Motion, and the Bird very oft fluttering.

When you have thus placed your Nets, your Gigs and Stales, go to the further End of the long drawing Lines, and Stale-Lines; and having placed your ſelf, lay the main drawing Line overthwart your Thigh, and with your Right-hand always draw the Glaſs-Line, and with your Left pull the Stale-Line to ſhew the Bird; and when you perceive the Birds to begin to play near and about your Nets and Stales, then pull over the Net with both Hands with a quick, but not too haſty Motion, for that ſpoils your Sport.

Always remember to lay behind you where you ſit, all the ſquare Inſtruments and Implements to be uſed, as the Stakes, Poles, Lines, Packthread, Knitting-Pin and Needle, your Bag with Stales, a Mallet to knock in the Stakes, and a ſmall ſized Hatchet to ſharpen or make new Stakes upon occaſion; and laſtly, be ſure that the firſt half Dozen of Birds you take be preſerved alive for Stales, for you muſt not be unprovided therewith upon no account.

Having fully treated of the *Day-Net*, this enſuing Figure gives you the full demonſtration and proportion thereof, being a Net commonly uſed by all *Bird-Men*.



For Explanation of this Figure, obſerve the ſeveral Letters which denote the Parts.

A ſheweth the Bodies of the main Net, and how they ought to be laid.

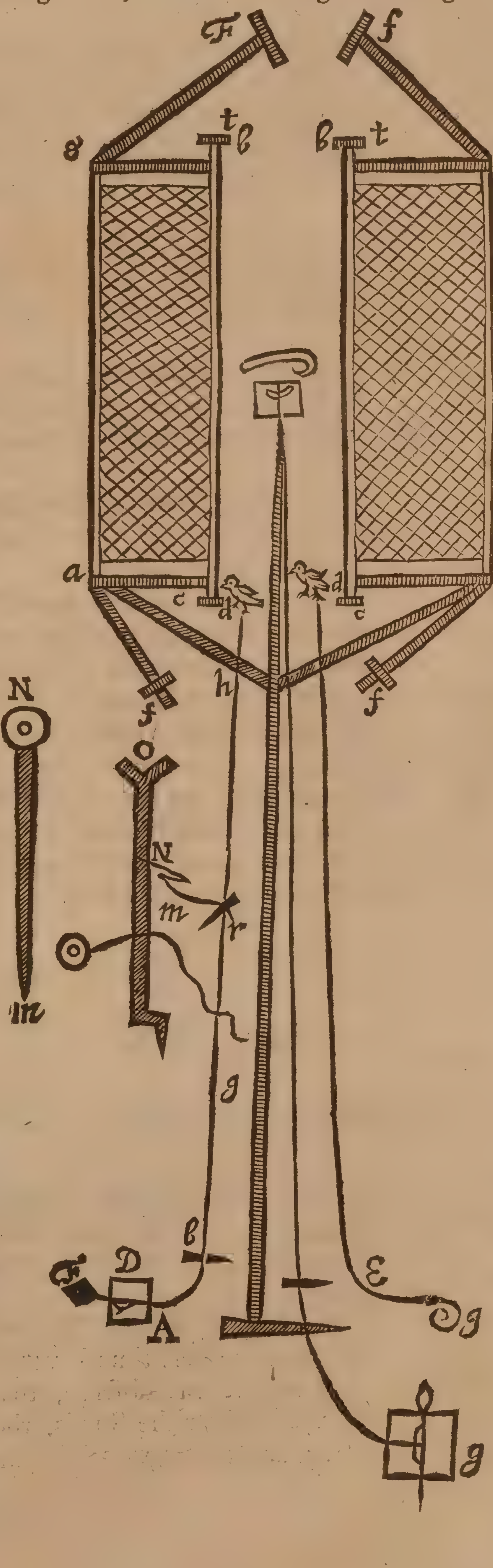
B the Tail-Lines, or hinder Lines, ſtaked to the Earth.

C, the fore Lines alſo ſtaked to the Earth. *D*, the Knitting-Needle. *E*, the Bird Stale. *F*, the Looking-Glaſs Stale. *G*, the Line that draws the Bird Stale. *H*, the Line that draws the Glaſs Stale. *I*, the Drawing double Lines of the Nets, which pulls them over. *K*, the Stakes that ſtake down the four nether Points of the Net, and the two Tail-Lines. *L*, the Stakes that ſtake down the fore Lines. *M*, the ſingle Line with the Wooden-Button, to pull the Net over with. *N*, the Stake that ſtakes down the ſingle Line, and where the Man ſhould ſit. *O*, the Wooden-Mallet. *P*, the Hatchet: And *Q*, the Gig.

And thus much for the Day-Net.

How to take Larks *with a Looking-Glaſs and Clap-Nets, alſo with a Draught-Net*, &c.

I Have obſerved two or three ways purpoſely for the taking of *Larks*; the firſt ſhall be with a Looking-Glaſs, called a Doring or Daring.



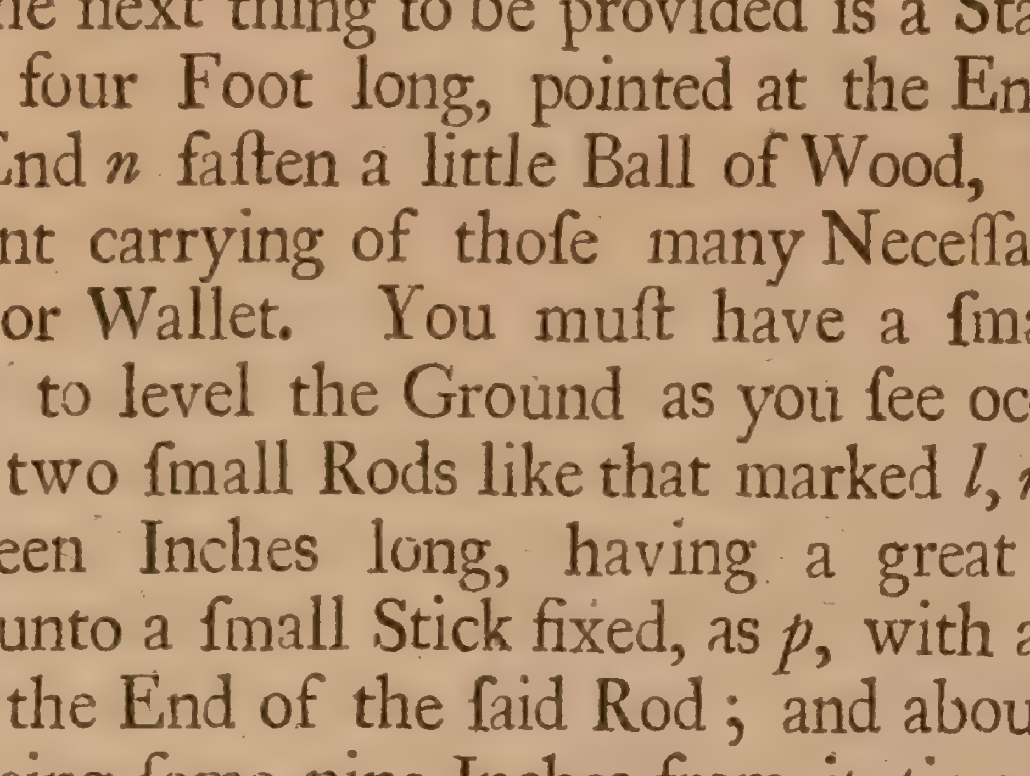
I ſhall not trouble you with Inſtructions what Bag you ſhall uſe for the carrying the many little Implements uſed in this Sport, leaving it to your Diſcretion; yet in a place more convenient I ſhall give you two or three Forms which are moſt uſeful: Neither ſhall I trouble you with Inſtructions how to make the Net, which may be bought at moſt Shops that ſell Nets; but my Buſineſs ſhall be to give you a full Deſcription of the thing it ſelf.

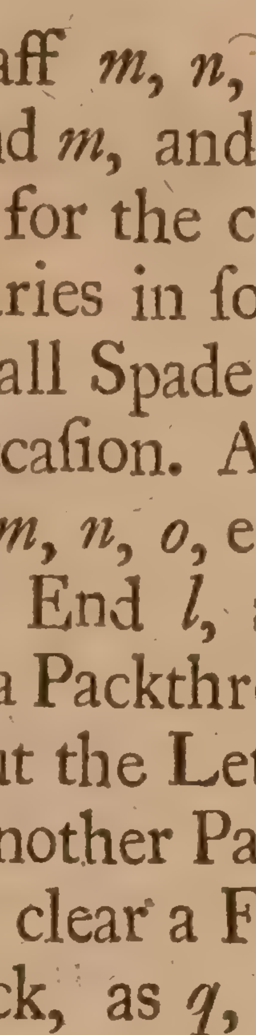
You muſt provide four Sticks very ſtraight and light; about the Bigneſs of a Pike, two of which ſhould be four Foot nine Inches long, the other two five Foot long; they ſhould be all notched at the Ends, as it is in thoſe Sticks marked with the little *a* and *b*; at the End *b* faſten on one Side a Stick of about a Foot long, of the ſame Bigneſs with the other four Sticks, and on the other Side a ſmall Peg of Wood marked *A*, three Inches long. Then provide four other Sticks, each a Foot long, as the Letter *f*; each muſt have a Cord nine Foot long, faſtned at the bigger End of them, as *e*, *f*; every of theſe Cords muſt have a Buckle at the End *e*, for the commodious faſtning them to the reſpective Sticks when you go about to ſpread your Net.

The next thing to be provided is a Cord *a*, *k*, *h*, *g*, which muſt have two Branches *a*, *k*, one of them muſt be nine Foot and an half long, the other ten Foot, with a Buckle at each End; the reſt of the Cord from *h* to *g*, muſt be between 22 and 24 Yards long.

All theſe Cords, as well the Long ones as thoſe with the Sticks, ſhould be ſtrong twiſted, about the Bigneſs of one's little Finger.

The next thing to be provided is a Staff *m*, *n*, about four Foot long, pointed at the End *m*, and at the End *n* faſten a little Ball of Wood, for the convenient carrying of thoſe many Neceſſaries in ſome Sack or Wallet. You muſt have a ſmall Spade of Iron, to level the Ground as you ſee occaſion. Alſo have two ſmall Rods like that marked *l*, *m*, *n*, *o*, each eighteen Inches long, having a great End *l*, and thereunto a ſmall Stick fixed, as *p*, with a Packthread near the End of the ſaid Rod; and about the Letter *m*, being ſome nine Inches from it, tie another Packthread with two Ends, each hanging clear a Foot long; at each End tie a little piked Stick, as *q*, *r*; At the ſmaller End of the ſaid Rod tie a Packthread with four Doubles, which muſt form two Loops, as *o*, which tie at the Legs of ſome *Larks*. You muſt alſo have two ſmall Reels, as *F*, *G*, by the help of which you may make the *Larks* fly as you have occaſion. The laſt thing you are to prepare is a Looking-Glaſs, according to theſe following Figures.





Take a Piece of Wood about an Inch and an half thick, and cut it like a Bone, but ſo as there may not be above nine Inches ſpace between the two Ends *a* and *c*, and let it have its full thickneſs at the Bottom, to the end it may receive into it that falſe Piece mark'd 1, 2, 3, 4, 5, 6, in which the Figure 6 is the loweſt, and the upper 3 is but half an Inch large. The five Corners 1, 2, 3, 4, 5, muſt be let in, to receive as many Pieces of Looking-Glaſs.

In the Middle of the ſaid Piece of Wood, in the Bottom or Under-part thereof, by the Letter *b*, make a Hole to receive a little Peg of Wood, as *l*, *j*, *b*, ſix Inches long, and about the Bigneſs of one's Finger, pointed at *l*, and a little Hole in the Middle *i*. You muſt likewiſe have another Piece of Wood, *n*, *m*, *o*, *q*, a Foot long, and two Inches ſquare, ſharpen'd at the End *q*. Make a light Ingraving in it at *o*, about two Inches high, and one Inch and a half broad; then bore or pierce a Hole into the ſaid Piece above the End *n* to receive the Peg *r*, which muſt come down an Inch into the Hole *o*, and ſo turn eaſily about.

When it is thus fix'd, put a ſmall Line, into the Hole *j*, and your Glaſs is finiſhed. You muſt place it between the two Nets near the Middle of them, as the Letter *j*, and carry the Line to the Hedge, (of which hereafter) ſo that pulling the Line you may make the Looking-Glaſs play in and out as Children do a Whirlegig made of an Apple drawn through a Net.

Always keep it turning that the twinkling of the Glaſs againſt the Sun may provoke the *Larks* to come to view it.

The true Seaſon for this Sport is from *September* to *March*, eſpecially in cold, clear and Sun-ſhiny Weather. When you intend to pitch your Nets, be ſure to have the Wind either in front or behind your Nets, leſt if it be on either ſide it hinders the playing of your Nets. Cloſe ſome open place, and let it be remote from Trees or Hedges, at leaſt an hundred Paces. The Ground being clear from all Stones and Rubbiſh, ſpread your Net in the manner deſcribed by the Figure, *viz.* The longeſt Sticks faſtned to that part of the Net which is largeſt, as for Example in the Figure, that on your Right Hand is bigger than the other. You muſt drive the Peg *c* into the Ground, and paſs the End *a*, of the Stick into the Buckle of one of the Cords of the Net, and the Peg *d* into the other Loop of the ſame End. Alſo do the ſame with the other Stick at the End *e*, *l*. But before you drive your Peg into the Ground ſtrain the Cord *c*, *t*, as much as you can; then take two of the Sticks as *f*, *e*, whereof one hath a Cord Nine Foot and an half long, and the other half a Foot leſs. Put the Knot *e*, of the longeſt Cord about the End of the farther Stick, and then retiring drive your Peg *f* into the Ground juſt oppoſite to the two little Pegs *c*, *t*, and then coming to the other End paſs your Stick *a*, into one of the ſhorter Cords, and ſo drive your Peg juſt with the others in a direct Line as *c*, *t*; *f*, that your Cord *a*, *e*, of the Net may be throughly ſtrained.

Having thus directed you to ſet one Net, your own Judgment will lead you to do the like with the other; only obſerve ſo to place them that when they are drawn, one may clap about half a Foot over the other.

The next thing to be done, is to take the grand Cord which is to make your Net play, and place the longer Branch *a*, about the End of the Stick *a*, and the other Branch *K*, about the Stick *K*; then tie the Knot *b*, ſo that it may reſt in the middle, and carry the End to your Lodge; ſtrain it a little, and then faſten it with a Peg *A*, and about *B*, make ſome kind of Hold-faſt for the better ſtraining it, and that it may not ſlip again through your Hands, and juſt even with the ſaid Hold-faſt make two Holes *D*, *E*, in the Ground to thruſt againſt with your Heels.

Your Lodge muſt be made of Boughs in ſuch manner that you may have a full and clear View of your Nets before, and it ſhould be covered over head, nor be very high, and that you may have a Proſpect of all Birds coming and going.

The laſt thing is the placing your Calls (for ſo are the live *Larks* called); you ſee by the Figure in what Place you are to ſet them; ſet your little Stick *p* in the firſt place, and let the upper part be about ſix Inches out of the Ground, then place the two others *q*, *r*, on the right, and the other on the left, juſt at *m*, of the Rod, where the Cord of the ſaid Pegs is fixed. Then tie the end of one of the Packthreads of one of the Reels about three or four Inches from *m* near the place marked *n*, and then carry your Reel to the Letter *F*, the like you muſt do with the other Rod tied at the end *o*, and at equal diſtances tie the *Call-Larks* by the Feet, ſo that when you ſee any Birds near you, 'tis but twitching your Cords, and you force the *Larks* to mount a little, that thereby thoſe others may take notice of them; when they are within your diſtance pull your main Cord and your Net flies up, and claps over them.

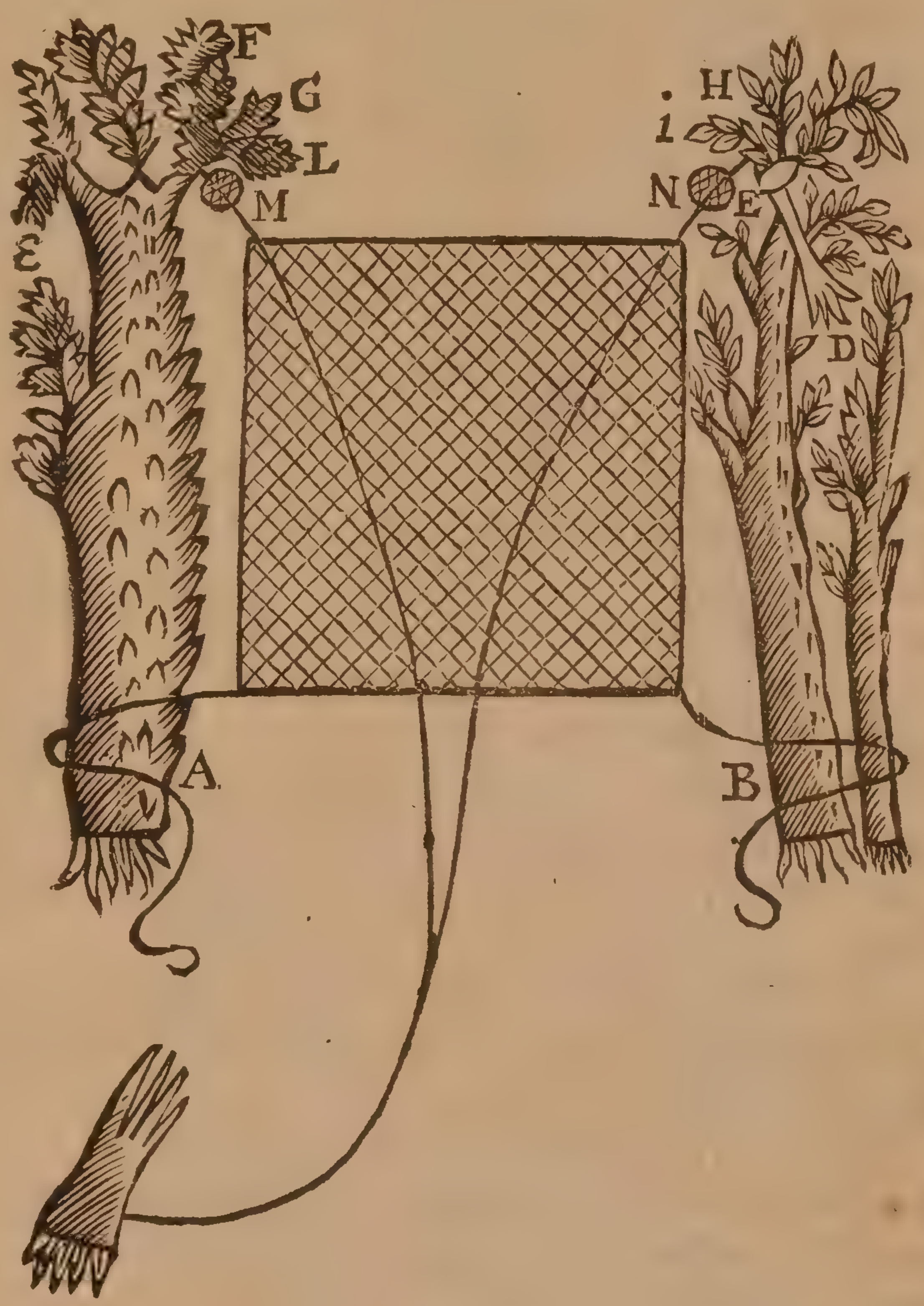
They that have obſerved any great Flight of *Larks* towards Evening, may take many of them by the help of a large Drag-Net, the Deſcription whereof, together with its Uſe, is treated of in the Eighth Chapter under the Head of the *Spread-Net*, or *Drag-Net*; only for *Larks* the Meſhes muſt not be above an Inch Square, and your Net ſhould be large. You need no other Directions.

CHAP. XXI.

Inſtructions and Directions touching Cock-Roads *for the taking of* Wood-Cock, *and to ſupply the defect of a Tree in a convenient Place for a* Cock-Road.

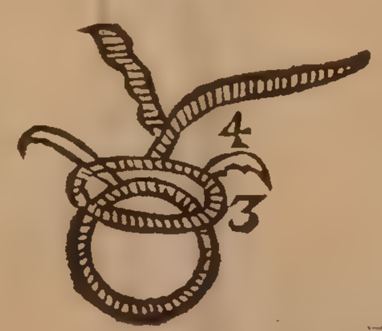
Cock-Road's are eaſily made, and being once done, coſt nothing the preſerving, yielding a conſiderable Profit as well as Pleaſure, when in an Evening, either by one's ſelf, or his Servant (if he be truſty, and that you live near no great Markets), you may perhaps take Three or Four Brace, and as many in the Morning of excellent Wood-Cocks; and one ſo taken is worth two that are Shot.

The Nature of the Wood-Cock is to lie cloſe all Day under ſome Hedge, or near the Roots of Old Trees, picking for Worms under dry Leaves, nor will he ſtir unleſs ſome Accident or Noiſe ſpring him up, being of a fearful Nature, and doth not ſee well his Way before him in the Morning early: And towards the Evening they uſe to take Wing that they may get to Water (for they ſeldom meet with any but at thoſe times) and then they would hardly ſtir, did not meer Thirſt compel them. When they fly 'tis generally low, to the end they may not be ſo well diſcovered, and when they find any Thorough-fare through any Wood or Range of Trees, they uſe to venture through. In ſuch Places therefore it is that you ought to make your *Cock-Roads*, and plant your *Cock-Nets*, according to the following Figure.



Suppoſing then, that your Range of Wood be about thirty Paces long, then cut a Walk through it, near about the Middle, about 36 or 40 Foot broad, which muſt be directly ſtreight, with all the Shrubs and Under-wood carried away; likewiſe all the Boughs that hang over the ſaid Walk muſt be cut off; then chuſe out two Trees oppoſite to each other, as it is repreſented in the ſaid Figure mark'd *A*, *B*, and prune or cut off all the Front Boughs to make way for the Net to hang and play.

The next Thing is to provide two ſtrong Logs of Wood, which open or cleave at the biggeſt Ends, as mark'd *C*, *D*, the middle Parts tie faſt unto ſome Boughs of the Tree, as the Letters *E F* direct, and let the Tops hang over, as *G H* repreſent. You ſhould always have in Readineſs good ſtore of Pullies or Buckles, made of Glaſs, Box, Braſs, or the like, according to the Form deſign'd by the Figure, which ſhould be about the Bigneſs of a Man's Finger, and faſten one at each End of the Perches or Logs *G*, *H*, having firſt tied on your Pullies about the two Branches mark'd 3, a certain Cord of the Thickneſs of one's little Finger, and then tie another Knot on the ſaid Cord, about the Diſtance of a Hand's Breadth from the firſt Knot mark'd 4, and ſo let the two Ends of the Cord hang down about a Foot long, that therewithal you may faſten them to the Pullies, which are at the Ends of the Pearches or Legs, as is mark'd by *I*, *L*, cloſe to the Notches *G*, *H*, then clap into each Pully a ſmall Packthread, the End



End of each ſhould reach to the Foot of the Trees, that by the Help of them you may draw up two ſtronger Cords into the ſaid Pullies where you hang the Net, and not be forced always to climb up into the Tree.

Theſe latter you may let hang, always provided you live by honeſt Neighbours.

The laſt Thing to be provided is a Stand to lie conceal'd, about half a Dozen Boughs pitched up together may ſerve for that Purpoſe, with a ſtrong crooked Stake forced into the Ground juſt by the Stand, whereon faſten the Lines of the Net when it is drawn up. Remember to tie a Stone to the End of each of the two Cords of about four or five Pound Weight apiece, that when you let go, the Weight of the Stones may force down the Net with a ſtrong Fall, and pull up both the Stones and the upper Part of the Net cloſe to the Pullies *I*, *L*; the Stones are mark'd *M*, *N*, and the Figure repreſents the whole Net ready for Uſe. The Ends of both Lines muſt be drawn to your Lodge or Stand, and wound twice or thrice about the crooked Stake to prevent the falling of the Net until you think fit, that is, until ſome Game flyeth againſt the Net. Sometimes it ſo falls out, that a Covey of Partridges have been taken by this Invention, and now and then a Hare; ſo that you ſhould be ſure to look diligently againſt all Occaſions.

If any Beaſt come athwart you, let them paſs under your Net about five or ſix Foot; then make a Noiſe with a Shout, and ſo let go. The Beaſt at the firſt Noiſe will retire back, and ſo become enſnared. To be ſure if you let go whilſt he is juſt under the Net, he will either ſpring forwards or backwards, and not be taken, but he will moſt likely retire back.

It often happens, that a Man perceives a great Thorough-fare of Birds between ſome Coppices or Timber-woods over a certain Piece of Ground, where he wanteth the Conveniency of a good Tree to oppoſe ſome other, which poſſibly ſtands according to his Mind; but whether he wants one or two, if he find the Place likely, and that in a Probability it will quit his Coſt, let him then take one or two young Trees fit for the Purpoſe, and plant them deep in the Ground, that they may ſtand all Weathers.

To take Wood-cocks *by* Nets *in high Woods by driving them into* Nets.

YOur Net muſt be like your Rabbet-Hays, but not ſo ſtrong, and about twenty Fathom long; and of theſe you ſhould have two or three.

Being provided with Nets, and having the Aſſiſtance of five or ſix to go into the Wood with you, which ſhould be at the leaſt ſeven or eight Years Growth, (for the elder the better;) then go into ſome Part thereof, about the Middle, if it be not too large, and pitch your Nets along as you do for Rabbets (but one joining to the other) ſlopewiſe, hanging over that Way which you deſign to drive the Cocks. You may make Room for the Nets, if there be no Paths, by ſplaſhing away the Shrub-wood. Your Nets being thus fixed, let your Company go to the End of the Wood, at about ten Rod aſunder; and having Sticks in their Hands, make a Noiſe, as alſo uſe your Voices as if you were driving Cattle along, and ſo go forward and forward, till you come to the Place where your Nets are ſet, and you will not fail to catch thoſe that are in that Part of the Wood.

Then when that Part of the Wood is thus drove, turn your Net ſlopewiſe on the other Side, and go to the other End, obſerving the aforeſaid Directions.

This Way you may uſe to take them at any time of the Day with great Eaſe and Pleaſure.

CHAP. XXII.

Several Sorts of Strings, Springs, Engines, &c. *for the Taking of* Fowls *and* Birds, *either on Hedges, Trees, or on the Ground.*

THERE are ſeveral Devices for the Taking of Fowl and Birds, both great and ſmall; and that either thoſe peculiar to the Water or Land, or for both; and that on Hedges, Boughs, Trees, or on the Ground. The firſt Way I ſhall repreſent is to take Fowl with Strings or Lines.

Let the Strings or Lines be made of long ſmall Cord, knotted here and there, and containing in Length as many Fathoms as the Places or Haunts where you are to lay them require. Theſe are of great Uſe for the Taking of all Sorts of large Wild-Fowl, as alſo for the Plovers of both Kinds.

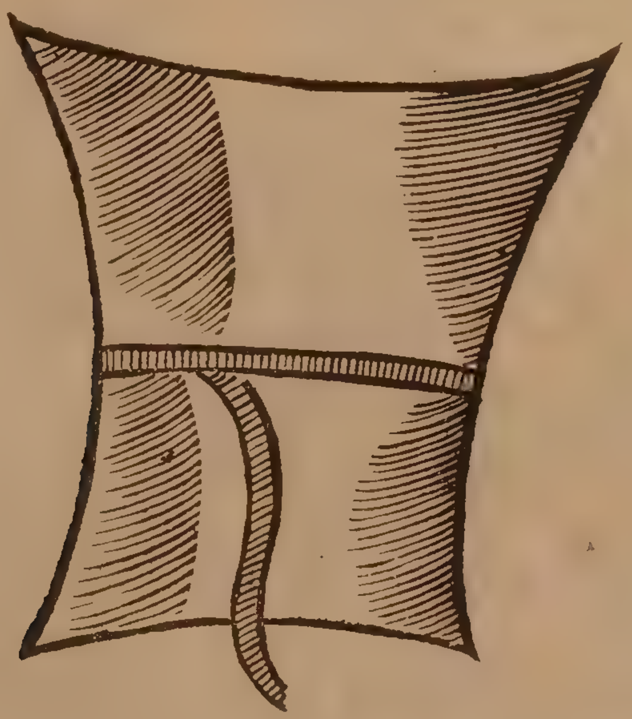
When you ſhall uſe theſe Strings, they muſt be well limed with the ſtrongeſt Bird-lime; then coming to their Haunts, if it be for the Evening Flight, then before Sun-ſet; if for the Morning Flight, then at leaſt two Hours before Day; and having a Burthen of ſmall Sticks, about two Foot long, ſharpen'd at the lower End, and with a little Fork at the upper End, let them be prick'd into the Ground in even Rows, all over the Place of their Haunt, one Row diſtant from another about a Yard or two, and one Stick ſiding another within four or five Yards, as they may conveniently bear up the String, and let them be prick'd a little ſlantwiſe, ſo as they may be within a Foot and an Half of the Ground. Then ſhall theſe limed Strings be drawn, and laid upon the Forks, ſome Rows higher than others, and higher in one Place than in another, like the Waves of the Water, till every Row be filled, and the Haunt cover'd all over. Then faſten the Ends with a ſlipping Loop in ſuch wiſe, that upon any violent Strain the whole String may looſen, and lap about any thing that toucheth it, and by this Invention great ſtore of Fowl, eſpecially of Plovers, may be taken, by reaſon of the great Flocks they come in; and they are commonly taken at their coming to the Ground, whoſe Nature is to ſwoop cloſe to the Ground for a pretty Diſtance before they light, and ſo falling amongſt the Strings, are taken. You need not be conſtantly at Watch; for being entangled, they cannot looſen themſelves. When you have done your Sport, lay them up for another time, only new dawbing them with freſh Bird-lime.

You may make uſe of theſe Strings and Lines for the Taking Water-Fowl, and then uſe the beſt and ſtrongeſt Water Bird-lime, ſuch as before ſhew'd you. Theſe Strings muſt be laid over the Rivers, Ponds, or Plaſhes of Water where you deſign to take any, which muſt be in ſuch Places where their Haunts are, and let the ſaid Strings almoſt touch the Water, and be as thick laid as before noted for Land-Fowl. And be ſure to take this Caution, not to uſe ſuch Strings in Moon-ſhiny Nights; for the Shadow of the Lines will create a Jealouſie in the Fowl, and ſo fruſtrate your Sport.

Of the great and leſſer Springs.

SPrings are thus made, and thus to be accommodated: Firſt, well knowing the Fowls Haunts, and the Places where the Flocks or Couples of great Fowl do uſually feed in the Mornings or Evenings, and obſerving well the Furrows and Water-Tracts, where they uſually ſtalk and paddle for Worms, Flot-Graſs, Roots, and ſuch like Things on which they feed; and be ſure to obſerve where ſeveral Furrows or Water-Drains meet into one, and after a ſmall Courſe divide themſelves again into other Parts or Branches, this middle Part being the deepeſt, and as it were feeding the reſt; and alſo obſerve which is moſt paddled, and fitteſt for them to wade in, and ſuch are the likelieſt Places for your Purpoſe. Then take ſmall and ſhort Sticks, and ſtick them croſs-wiſe overthwart all the other Paſſages, one Stick within about half an Inch of each other, making as it were a kind of Fence to guard every Way but one, which you would have the Fowl to paſs.

All Ways, except one, being thus hemm'd out, take a good ſtiff Stick, cut flat on one Side, and pricking both Ends into the Water, make the upper Part of the flat Side of the Stick to touch the Water, and no more: Then make a Bow of ſmall Hazel or Willow in the Faſhion of a Pear, broad and round at one End, and narrow at the other, and at leaſt a Foot long, and five or ſix Inches wide, and at the narrow End a little ſmall Nick or Dent; then take a good ſtiff young grown Plant of Hazel, Elm, or Withey, being ruſhy grown, and clean without Knots, three or four Inches about at the Bottom, and about an Inch at the Top; and having made the Bottom-End ſharp, faſten at the Top a very ſtrong Loop of about an Hundred Horſe-hairs, platted very faſt together with ſtrong Packthread, and made ſmooth and pliable to ſlip and run at Pleaſure; and this Loop ſhall be of the juſt Quantity of the Hoop made Pearwiſe, as before mention'd: Then hard by this Loop, with ſtrong Horſe-hair, within an Inch and an half of the End of the Plant, faſten a little broad, but thin Tricker, made ſharp and equal at both Ends after this Proportion. And then the bigger ſharp End of the Plant being thruſt and fix'd into the Ground, cloſe by the Edge of the Water, the ſmalleſt End with the Loop and the Tricker ſhall be brought down to the firſt Bridge, and then the Hoop made Pearwiſe being laid on the Bridge, one End of the Tricker ſhall be ſet upon the Nick of the Hoop, and the other End againſt the Nick made on the ſmall End of the Plate, which by the Violence and Bend of the Plant ſhall make them ſtick, and hold together until the Hoop be moved. This done, the Loop ſhall be laid upon the Hoop in ſuch Faſhion as the Hoop is proportion'd; then from each Side of the Hoop prick little Sticks, as aforeſaid, as it were making an impaled Path-way to the Hoop; and as you go farther and farther from the Hoop or Spring, ſo ſhall you widen the Way, that the Fowl may be entred a good way in before they perceive the Fence: The firſt Entrance being about the Wideneſs of an indifferent Furrow, ſo that any Fowl falling, they may be enticed to go and wade upon the ſame, where they ſhall no ſooner touch the Spring with their Head, Feet, or Feathers, but they ſhall be taken; and, according to the Strength of the Plant, you may take any Fowl, either great or ſmall.

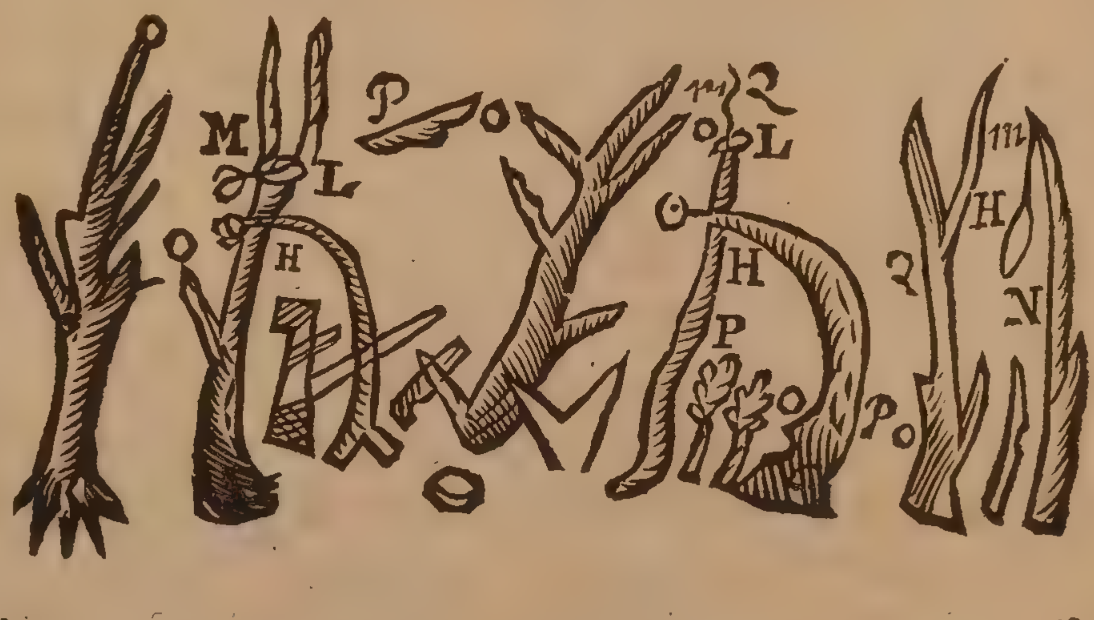


To take ſmall Fowl *with the Engine.*

FOR the Taking ſmaller Fowl with this Engine, as the Snipe, Wood-cock, Pewit, or the like, that uſeth to feed in wet and marſhy Grounds, and amongſt Water-Furrows or Rillings, from thence ſucking the Fatneſs of the Soil, the Device and Engine is the ſame without Alteration; only it may be of much leſs Strength and Subſtance, according to the Fowl it is ſet for, eſpecially the Sweeper, or main Plant, which, as before is preſcribed, is to be of Hazel, Elm, or Withey; or ſo in this caſe may be of Willow, Sallow, or ſtrong grown Oſier, or any yielding Plant that will bend, and come again to its own Streightneſs. And this kind of Engine is only for the Winter-Seaſon, when much Wet is on the Ground: But if there happen any great Froſts, ſo that you are deprived of the Waters, then ſearch out where theſe ſtanding Waters have any Deſcents, or ſmall Paſſages, ſo as by the ſwift Current the Water is not frozen, and there ſet your Springs, and the greater the Froſt is, the apter are they to be taken.

To take Birds *and* Fowl *on Trees, Boughs, or Hedges.*

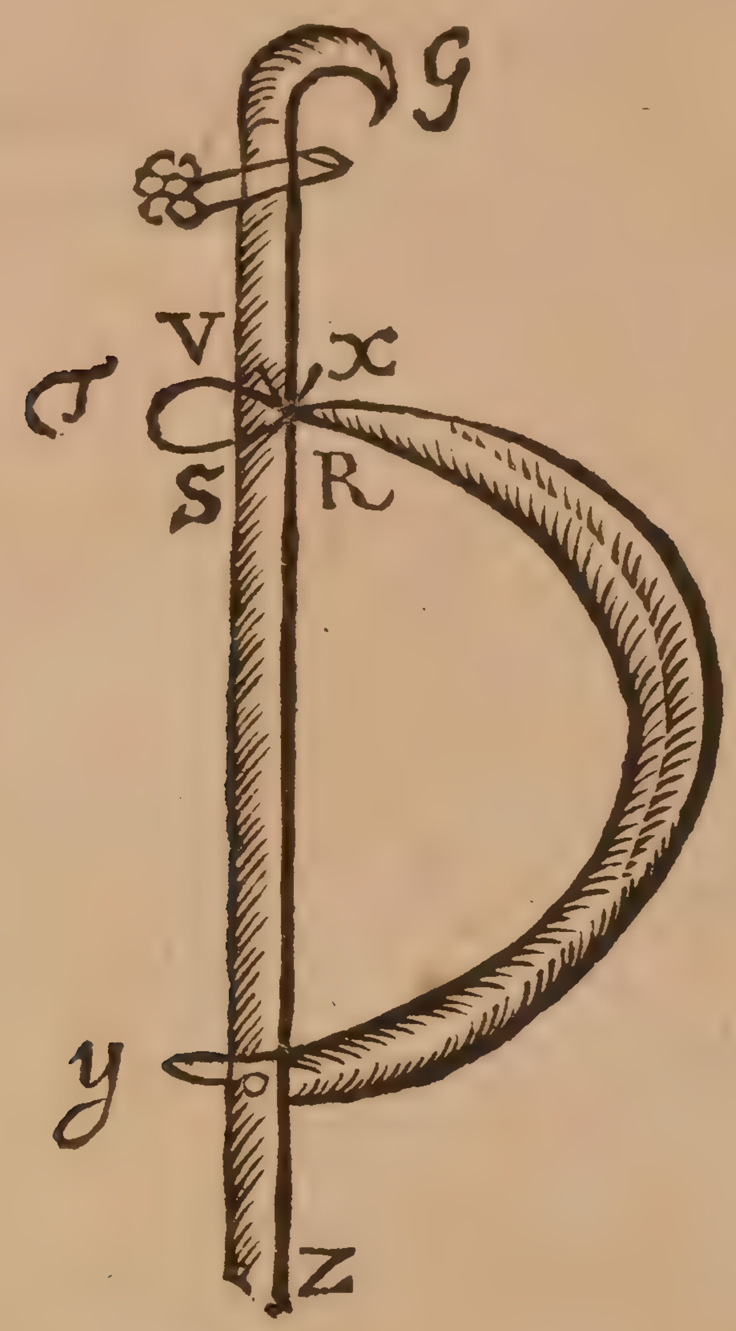
WHen you have obſerv'd any Hedge, Tree, or Buſh, to which Birds do reſort, as in this Figure is repreſented, then chuſe any Branch thereof: As for Example,



The Letter *O*, which is tall and ſtraight, cut off all the little Twigs that grow about it from the Bottom, until you come within four or five Foot of the Top; then pierce a Hole through the ſaid Branch with a Wimble at the Letter *H*, which muſt be about the bigneſs of a Gooſe-Quill; then chooſe out another Twig diſtant about four Foot from the former, as marked *N*, and pare away all the little Branches; at the End *L* tie on a ſmall Packthread half a Foot long, at which tie one of the running Bows of Horſe-hair finely twiſted, as the Letter *M*. You muſt alſo have a little Stick *P*, *O*, four Fingers long, with a little Nook at the End *O*, the other End round Pointed. Stoop down your Branch or Twig *N*, unto which your Horſe-Collar is faſtned, and paſs the Collar through the Hole *H*, and draw it until the Knot *M* be likewiſe drawn through; then faſten very gently the End of your ſmall Stick *P* in the Hole *H*, which muſt be ſo neatly done as only to ſtop and no more, the drawing back of the Branch *N*; Then ſpread abroad the Collar upon your little Stick *P*, *O*, and tie ſome Bait, either of green Pears, Cherries, Wheat, Worms, or the like, according to the Natures of the Birds for which you ſet at the Letter *Q*, ſo that no Bird can poſſibly come to touch them unleſs he ſet his Foot on the ſmall Stick, which will preſently fall, and ſo give way to the Knot *M*; then follows the Branch or Twig *N*, and the Bird remains ſnapt by the Legs. The Figures and Deſcription are ſo plain that you can't well miſtake; however I have preſented you with the Form of three of them, two ready bent, one before and the other behind; the third unbent, that you may obſerve all the ſeveral Pieces.

Another Way to take Fowl *and* Birds *by Springs.*

THis following Figure preſenteth to your View a Spring for the Taking Black-birds, Thruſhes, Partridges, Pheaſants, or the like, which you may place according to your Game you deſign to take, either on the Ground, or on a Tree, Hedge, Buſh, or the like.



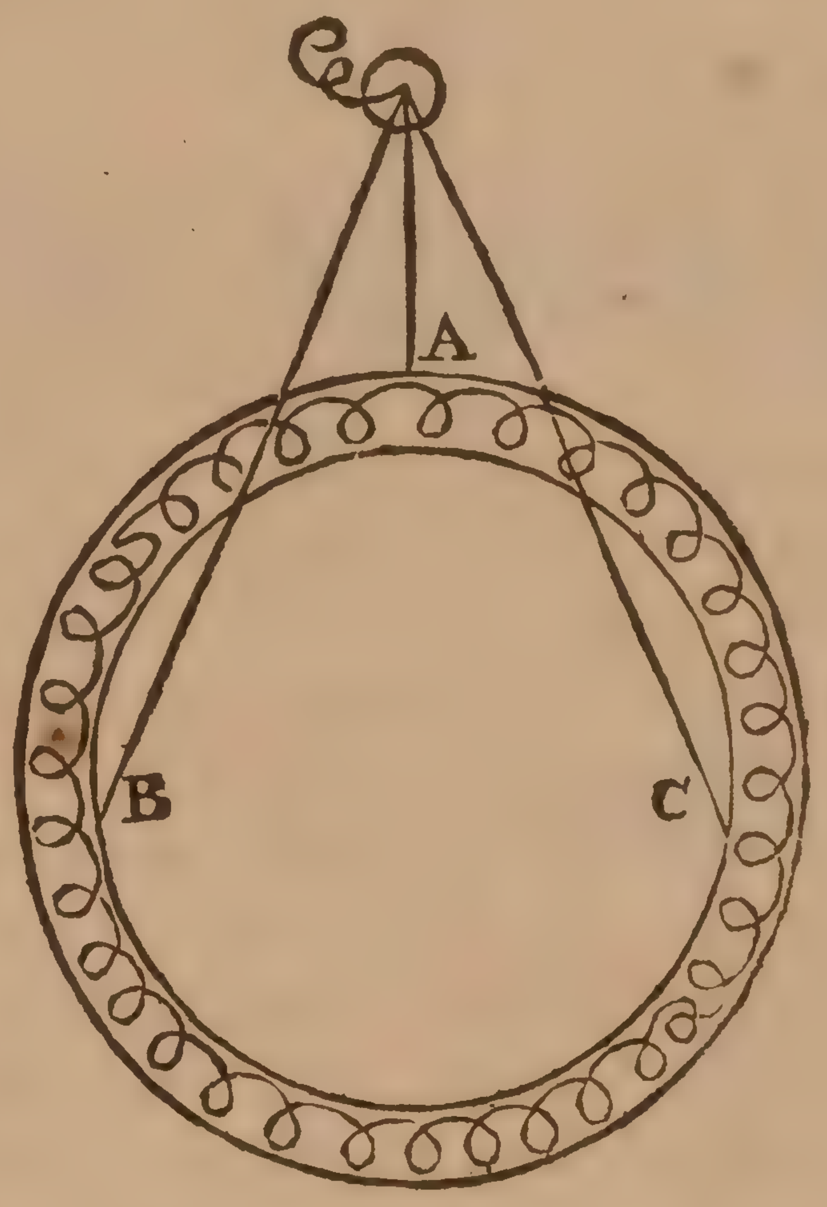
Take a Stick of Sallow or Willow, five or ſix Foot long, ſtreight and ſmooth, about the Bigneſs of an ordinary Walking-Cane, as *R*, *Z*, ſharpen'd at the End *Z*, and at the End *R* faſten or tie a ſmall Wooden-Crook, as the Letter *G*; then make a Hole at *Y*, about the Bigneſs of a Swan's Quill, and another Hole half as big at *V*; then take any Stick, which being bent, will ſpring back again, and become ſtreight, as Holly, or the like; and let it be about three Foot long, and thruſt the great End of it into the Hole *Y*; at the other End tie a ſmall Packthread with a Collar of Horſe-hair, which draw thro' the Hole *V*, and ſtop it there, by pegging it in very gently with a ſmall Stick *T*, ſo that it may only keep it from flying back, and no more; then open your running Collar of Horſe-hair, as *S*, and ſpread it over the little Stick *T*; then tie at the Letter *R* the Bait you intend to uſe, and let it hang down within three, four or five Inches of the ſmall Stick *T*, according to the Bigneſs of the Bird for which you ſet it.

CHAP. XXIII.

A Device to take Black-birds, Thruſhes, *and the like* Birds *that frequent Miſletoe-Buſhes.*

BLack-birds, *Thruſhes* and *Feldifares* are great Lovers of Miſletoe, which is a certain Excreſcence growing out of Apple-Trees, moſt commonly in a round Buſh compoſed of green Leaves, and bearing a kind of white Seed, or bulbous Fruit.

This following Figure ſheweth how to take ſuch Birds that come to eat thereof.



Bend your Stick into a Circle, and faſten the two Ends together at the Mark *A*; then hang your Circle or Hoop with three Cords or Packthreads, placed at equal Diſtances juſt over the Buſh of Miſletoe. The three Cords are decypher'd by *A*, *B*, *C*. Then tie quite round the Circle running Loops of Horſe-hair finely twiſted, ſome longer and ſome ſhorter, alſo ſome higher and ſome lower; ſo that a Bird can't come on the Hoop without being taken by the Leg or Neck.

CHAP. XXIV.

A Device to take ſmall Birds *in hard Weather at Barn-doors, or Houſe-ends, with an old Door and a Cord,* &c.

IN hard Weather, when the Ground is either covered with Snow, or hath been long froſty, ſo that ſmall Birds are put to Extremities, they will flock together at Barn-Doors, or indeed at any Place where you will lay them any Chaff, with a little Corn ſprinkled amongſt it.

I ſhall here give you Directions for the Taking them.

Chuſe out ſome Place in your Yard, about twenty or thirty Paces diſtant from ſome Door or Window, where ſtand to obſerve the Birds, but not to be ſeen. Cleanſe away all the Snow or Filth from the Place about eight Foot ſquare, then prepare in Readineſs ſome Boards nail'd together, or elſe an old Door or an Hurdle, which ſet up ſhelving towards you, being ſupported by a ſmall Stick, to which tie a ſmall Cord, which muſt be long enough to reach to you where you lie to watch their Coming; and when you ſee any Birds under it, give the Cord a ſmart Pull, and the Door or Hurdle will fall upon them.

If you find that they eſcape, it is in your ſlow pulling, or that the Door or Hurdle is too light, which may be mended by faſtening a good Stone on the Back of it.

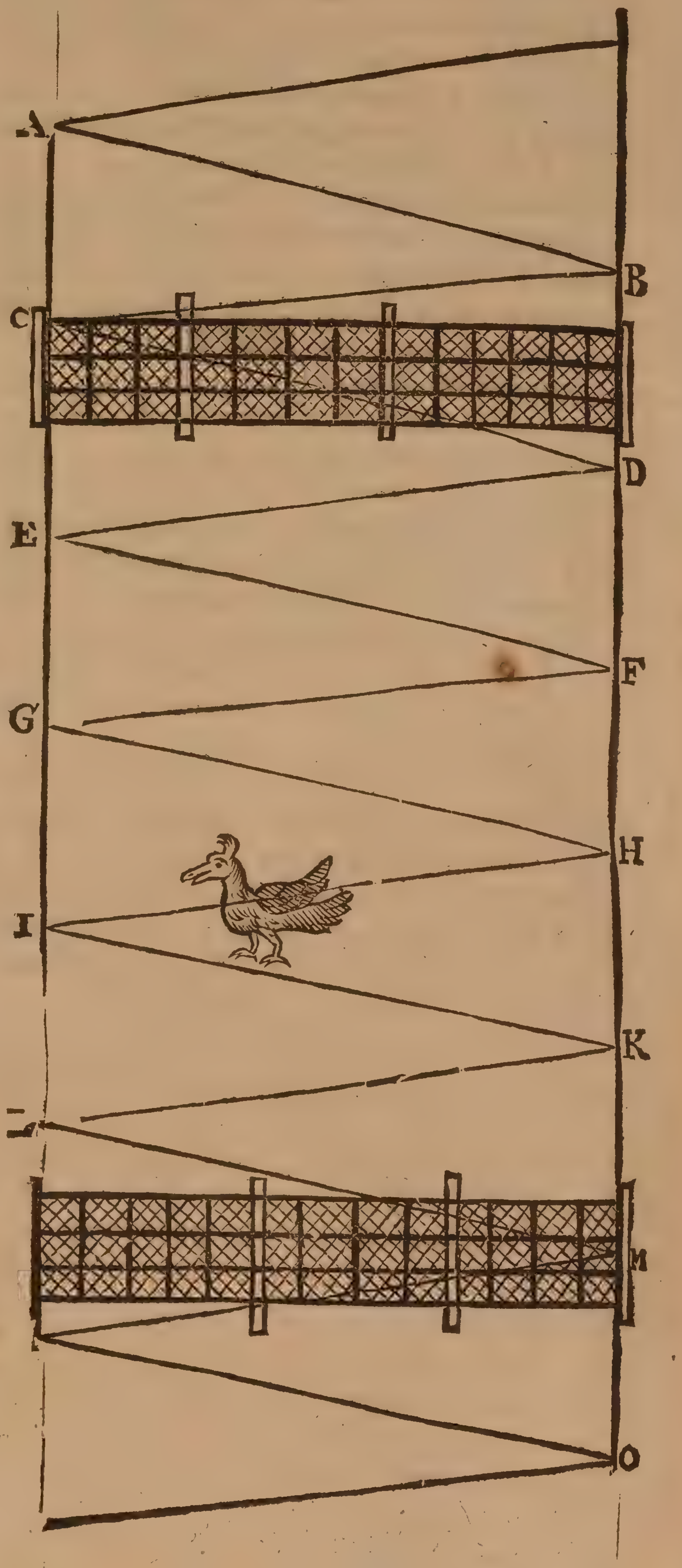
CHAP. XXV.

How to take Coots, Moor-hens, Dive-dappers, *&c. by Nets.*

SOme Places do much abound with *Coots, Moor-hens*, and ſuch like Water-Fowl; they are moſt cammonly in ſedgy and ruſhy Banks, as alſo in Ponds and ſmall Rivers, whoſe Banks are ſhadow'd over with Buſhes, Nut-Trees, or the like, whereby they may retire, and be in Obſcurity. This enſuing Figure ſheweth how to take them with Nets.

Suppoſe your Line mark'd *B, D, F, H, K, M, O*, be the Bank of the River or Pond, and that the ſame Space between the ſaid Line and the oppoſite one, mark'd *A, C, E, G, I, L, N*, be the Ruſhes, Sedge, Buſhes, or the like; then pitch your Net, called the *Bramble-Net*, and place one End of it at *K*, upon the Water-ſide, and the other End athwart the Graſs or Ruſhes at *I*; about forty Paces farther place another from *C* to *D*; then walk in and out, traverſing the Ground as you ſee the Lines drawn between the two Nets, as well between them as beyond them, and if there be any Birds betwixt you and your Net, they will certainly be taken.

It is an excellent Sport in the Months of *May, June* and *July*, at which time they bring forth their Young ones in ſuch like Places. *See the following Cut.*



Directions for making the Bramble-Net, *term'd by ſome the* Hallier.

THE Form of this Net is repreſented in one or more of the foregoing Prints. Thoſe that are for Pheaſants are larger than thoſe for Partridges; and thoſe for Partridges larger than thoſe for Quails, Coots, and the like. The Manner of making them is one and the ſame. Your great Meſhes muſt be Four-ſquare; thoſe of the leaſt Size are three or four Inches ſquare, and thoſe of the biggeſt are five: In Depth they ſhould not have above three or four Meſhes. As for the Length, you may enlarge them as you think fit, but the ſhorteſt are uſually eighteen Foot.

If you intend to have your Net of four Meſhes deep, make it of eight, foraſmuch as it is to be doubled over with another Net; likewiſe between the ſaid Doublings, the inward Net muſt be of five Threads, neatly twiſted, with the Meſhes two Inches ſquare made Lozenge-wiſe, with a neat Cord drawn thro' all the upper Meſhes, and another through the lower, by which you may faſten it to the double *Hallier*.

In the laſt place faſten your Net unto certain ſmall Sticks, about one Foot and a half, or two Foot long, and about the ſame Diſtance from each other. Your inward Net muſt be both longer and deeper than the outward, that it may hang looſe, the better to entangle the Game.

For *Pheaſants*, both the one and the other ſhould be made of ſtrong double twiſted Thread, and for *Partridges*, *Quails*, and the like, of Silk.

CHAP. XXVI.

How to take Black-birds ; Feldifares, *and the like* Birds *in Myſty Weather, in High-ways, and by the ſides of Hedges.*

IN Myſty Weather, *Black-birds*, *Thruſhes*, *Feldifares*, and ſuch like Birds do generally fly by the Sides of Hedges, making no long Flights. For the taking them in the midſt of their Flight do thus. Obſerve the Figure in Chapter XXV. and accordingly prepare your Net about ſix Foot deep, and twenty Foot long, it is called the *Cobweb-Net*. Then get a Staff about ſix or ſeven Foot long, which muſt be a little ſlit at the ſmall End *D*, and ſharpned at the other End *F*, with which go along by the Hedge-ſide, where you ſuppoſe there is Game ; and having found ſome, pitch your Net about twenty or thirty Paces from the Place where they went in according to this direction. If there be any Tree about twelve or fifteen Foot from the Hedge-ſide, or if it be in a Way where there are two Hedges not above fifteen or twenty Foot aſunder, then you need not make uſe of your Staff ; otherwiſe you muſt.

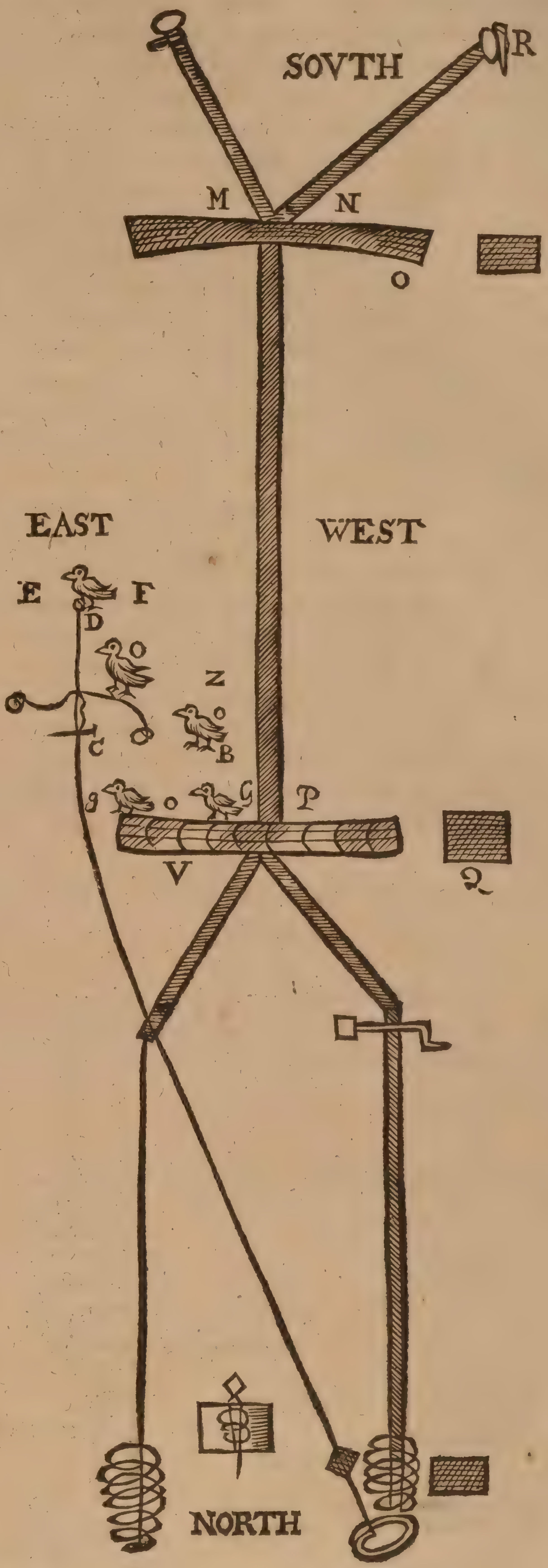
Suppoſe it were in a High-way with Hedges on each Side, as *E*, *I*, for Example, then chooſe out ſome Bough about ſix or ſeven Foot high, which hangeth in towards the Way as the Letter *B* ; make a ſmall Cleft in it at *A*, and gently thruſt thereinto the ſmall wooden Wedge, which is tied at the Pack-thread, running through the upper part of your Net ; and then do the very ſame on the other Side of the Way, as *F*, *I*, ſo that your Net may hang as it were bent. Then fetch a Compaſs about at leaſt thirty Paces beyond the Place where you ſaw the Birds fly in ; and when you come near, they will fly back by the Hedge-ſide, and ſo come againſt your Net, which being ſlightly hung, will fall upon them, and ſo they are taken.

In caſe there be but one Hedge, and no oppoſite Tree, then make uſe of your Stick.

CHAP. XXVII.

Divers neceſſary Obſervations touching the Natures and Diſpoſitions of Plovers, *and other* Wild Fowl, *with Directions to take them.*

I Shall begin with an Apology for the Length and Curioſity of this Chapter, to the end Induſtrious and Active Spirits may furniſh others with freſh and beneficial Advantages of the ſame kind.



Plovers uſe to fly in exceeding great Flocks together ; they generally come to us about *September*, and leave us in or about *March* ; In Froſt and Cold Weather they ſeek their Food on ſuch Lands as lie near and adjoyning to the Sea. In Thaws and open Seaſons they go higher into the Country, ſo that their whole Labour is to riſe and fall, as we ſay. They delight much to feed in plough'd Lands, eſpecially if ſow'd ; and having fed they preſently ſeek out for Water to waſh their Beaks and Feet. When they ſleep they do not pearch on any thing, but couch or ſit on the Ground as *Ducks* or *Geeſe* ; they only ſleep in Calm Weather, otherwiſe they paſs moſt part of the Night in running up and down to ſeek for Worms, as they come out of the Ground ; and then they always make a little Cry purpoſely to keep cloſe together, for at Day-break they all unite into one Body, and ſo depart; if in their Flight they chance to eſpy any others on the Ground, they uſually call them to them, and if they refuſe to go, they make a ſtay expecting ſome Booty. There are many other Fowl that accompany with them, as *Lapwings*, *Teal*, and the like.

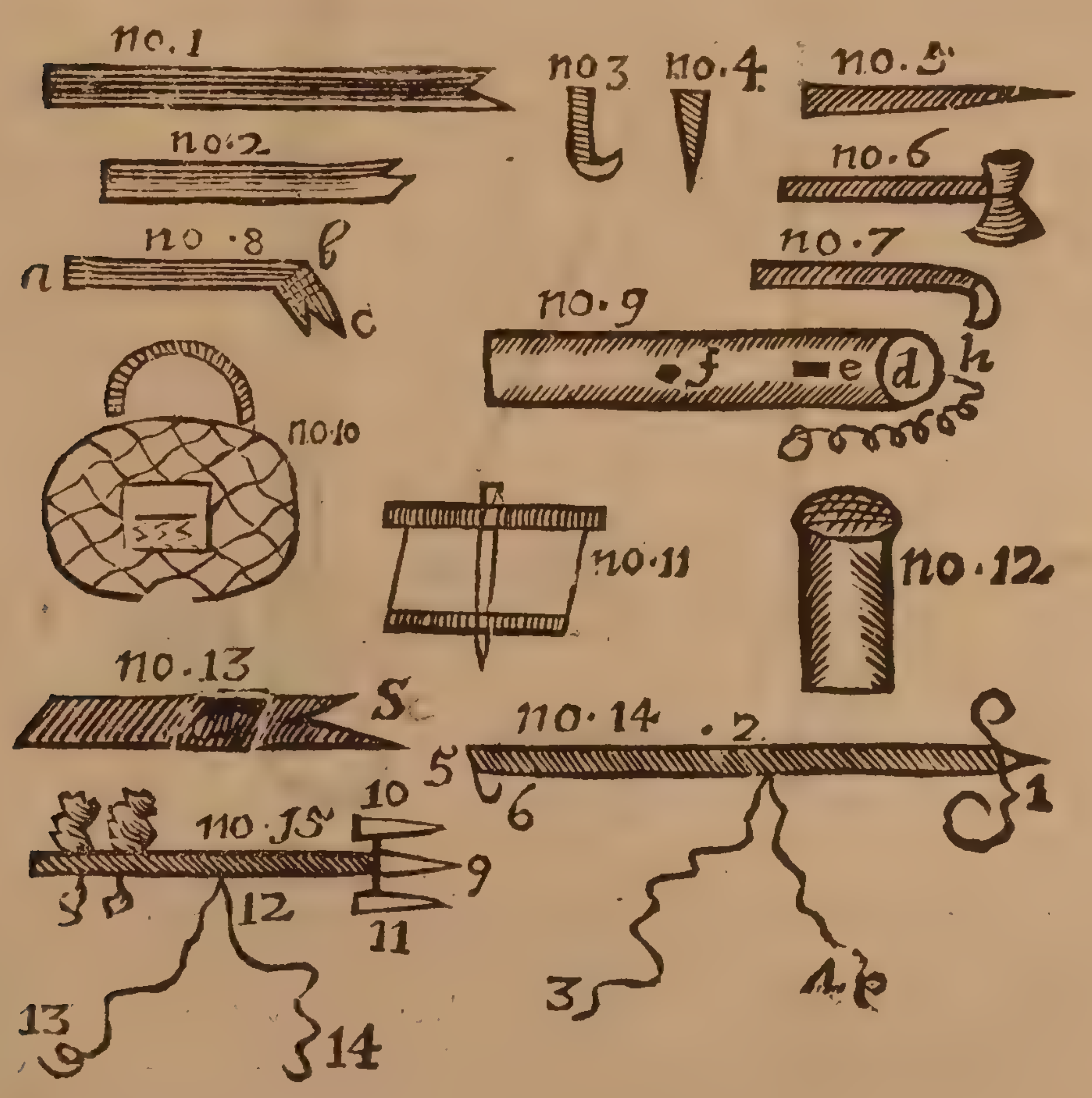
They are moſt eaſie to be taken when not intermixed with other Fowl. Eſpecially in *October*, ſoon after their firſt coming, as being unacquainted with the Inſtruments of their Ruin; alſo in *March* they are eaſily taken; for then they begin to Couple. It is not good to ſet your Nets for them in long Froſts, and continued Cold Seaſons, but intermixed with Weathers; of all Winds the Northweſt is the worſt to take them; and as you ought not to ſet your Nets in ſome Winds, ſo ought you exactly to place your Net according to the Wind, as hereafter ſhall be directed.

All *Sea Fowl* fly againſt the Wind, when ever they deſign to reſt on the Land, therefore obſerve to fix your Nets accordingly, to play with the Wind.

The Figure in *P.* 197, doth repreſent the manner how to ſet your Nets when the Wind is Eaſterly, that that they may play Weſterly, that ſo the Birds may be taken flying croſs the Net, not long-ways with it; nor are you tied exactly to obſerve the Situation of the Wind, in regard ſometimes the Place where you intend to pitch will not bear it, but the nearer you come to it, ſo much the better.

Several neceſſary Inſtruments to be uſed in taking Plovers.

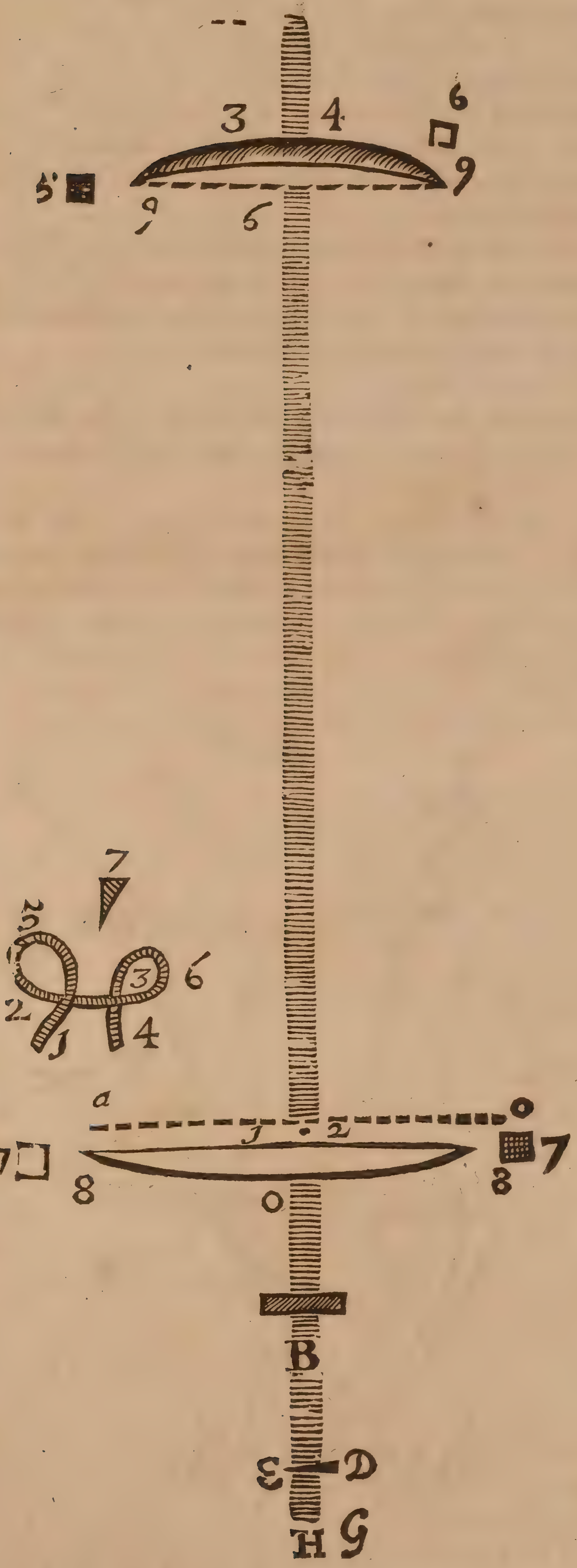
THere are many little neceſſary things to be uſed in taking *Plovers*; I have therefore repreſented the Forms of them in a Figure all together, as followeth.



In the firſt place you muſt be provided with a Net or two, which are called Leap-Nets; the Meſhes are Lozengewiſe and about two Inches Square. The Net ſhould be about two Fathom long, and eighteen Meſhes deep; I ſhall not trouble you with the Way of making it, although it be of great uſe in *Fowling*, it being an Art it ſelf, and to be bought at the Shops that ſell Nets. Secondly, you muſt have two Staves marked 1, 2, about the Bigneſs of a Man's Arm, the one about Nine Foot long, and the other about Ten, and they muſt be a little Notched in at the ſmaller Ends. Thirdly, you muſt have two Pieces of ſome Pipeſtave, as marked 3, a Foot long, and three Inches broad, pointed at one end. Fourthly, you muſt have a couple of Staves about the bigneſs of one's Thumb, ten or twelve Inches long, and pointed at one end, as that marked No. 4. Fifthly, get three other Pieces of Wood No. 5. each two Foot long, and about the bigneſs of a Pitchfork, ſharpen'd at one End. Sixthly, you muſt be provided with a ſmall Hatchet, mark'd No. 6. the ſharp ſide not above three Inches deep, with a ſtrong Head to beat in the Staves. Seventhly, you muſt have a good Knife, as marked No. 7. Eighthly a Stick in the faſhion of a *Billiard Stick*, as No. 8. repreſents, which muſt be two Foot long from *a* to *b*, ending in a point at *a*, the other end *b*, *c*, muſt be a Foot long bending; and it muſt be cut in three Angles at the Letter *c*. Ninthly, have a Pipe or Whittle to call the *Plovers*, as No. 9. repreſents; it may be made of the Thigh Bone of a *Goat*, or a large *Sheep*, and cut off at both Ends about three Inches long, at the End *b* fill it with Wax into the opening *e*, then make the Hole *d* plain under the Bone, that the Wind may come in; Then make a Hole at the middle *f*, juſt above, big enough to receive a ſmall *Gooſe-Quill*, and another a pretty deal bigger, to give it the clearer Sound; and likewiſe that you may thereby hang it about your Neck, pierce a ſmall Hole at *b*, to receive a Packthread. Tenthly, have a ſmall Pannier, or Basket as No. 10. big enough to hold three or four live *Lapwings*, with a Hole at the top to put them in. In the Eleventh place, have three or four Reels, ſuch as *Gardiners* uſe to Line out Borders and Walks, for the Winding up your Lines, as is repreſented in the eleventh Figure. Twelfthly, have a Commodious Sack or Wallet to carry your things according to No. 12. Thirteenthly, have another ſort of Pipe, repreſented by No. 13. being nothing but a Piece of Wood, leſſer than one's little Finger, and three Inches long, cleft at the End *s*, unto the middle *T*, wherein fix a *Bay-Leaf* to imitate the Cry of *Lapwings*. Fourteenthly, have two Rods according to No. 14, each two Foot and a half long, and ſtraight, light and ſlender; at the bigger End 5, you muſt faſten a Peg as marked 6, three or four Inches long, and pretty cloſe to the Rod; at the middle 2, that is nearer the great End, tie a couple of Packthreads each two Foot long, with a Peg at each End, as 3 and 4, of the ſame ſize with the former No. 6. At the ſmall End of the Rod *j*, faſten a ſlender Packthread, with a Double at the End to clap about the Body of a *Lapwing*; and the other End which is ſingle muſt be a good deal longer, to faſten the Tail of the Bird. And in the laſt Place, have a Holm Stick, according to No. 15. about four or five Foot long, indifferent ſtrong; at the great End faſten two Pegs at each Side, one as 10 and 11, about the bigneſs of one's little Finger, and ſix Inches long; about a Foot and a half from thence faſten two Packthreads, each two Foot and a half long, with a Peg at each End, about the ſame Size with the former, marked 13 and 14. Theſe are the main Implements to be uſed; now follows to apply them to Uſe.

Inſtructions how, when and where to pitch your Nets for the taking of Plovers, *and the like.*

THE beſt Place to pitch for *Plovers* and ſuch like Fowl, is in large common Fields of Green Corn, where there are neither Trees nor Hedges, at leaſt within three or four Hundred Paces of the Place where you deſign to work. If there be any Water in the Place, endeavour to pitch near it, for *Plovers* delight therein to cleanſe their Beaks and Feet after they have dirted them with turning the Earth up and down for Seed or Worms. You muſt be careful that the Plot where you pitch, be a little lower than your Hedge, or at moſt equal with it, for higher it muſt not be. This following Figure ſheweth the manner of contriving your Plot of Ground.



Suppoſe the Place where you Deſign to pitch, reach from *A* to *B*, and the diſtance between the Platform, and your Lodge from *B* to *E*; and that the Wind blow South, you muſt have a Packthread about fourteen or fifteen Foot long, and faſten it to a couple of Pegs *A*, *B*, which faſten in the Ground to line out the Place for your Nets. Then take the *Billiard Stick* No. 8. in the foregoing Figure, and beat the Earth with the Triangular End, as if you would cut, and ſo paſs along that whole Length of the Packthread, which is about twelve or fourteen Fathom, the exact Length of your Net: And when your Border is made, then take away the Packthread, and take the ſhorter of the two Sticks No. 1, and place it at the Bottom of the Border at No. 1, and the bigger End of the ſaid Stick muſt be at No. 8, not directly ſtraight, but bending at leaſt two Foot inwards, juſt as you ſee it drawn before you in the Figure. Then hold it faſt with one Hand, and with one Finger of the other, or with the handle of your Knife trace out the Form of its Poſition, that it may reſt imprinted in the Earth; then with your great Knife No. 7, cut along your Trace or Border of your ſaid Stick, and with your Hatchet No. 6, cut out the Earth between the two Traces or Lines *a*, 1, 8, o, beginning at the End *j*, and finiſhing at 8 in ſuch manner, that at the End *j* the Earth may be taken out but one Inch over, and at the End 8 four or five Inches large, that your Stick may be hid as it were in the ſaid Gutter.

This being finiſhed, carry the other Stick No. 1. (being the longer of the two) unto the other End of your long Border, and plant it in the ſelf ſame faſhion; then take your little Stick No. 3. which drive into the Ground at the End of your two Gutters, as 8 and 9, to hinder the two main Sticks from beating into the Ground with the force of the Net. Your two Sticks No. 4, alſo drive into the Ground about half a Foot from your Border at 1 and 3, a little inclining inwards; the Intent being to prevent your main Sticks from returning back when the Net is ſtrained until the Cord be pulled: Beſides, ſhould you place them Outwards upon the Lines 9, 6, and 8, o, it were impoſſible to make your Net play; for then the more you ſtrain'd the Cord, the cloſer would your main Sticks come under your Sticks No. 4. then remove all the looſe Earth, except an Handful or two, which lay on the two Ends 5 and 7, the better to raiſe up the other Ends of the main Sticks, and then your Platform is ready fixed.

Now in caſe you make two other Gutters, as 2,8, and 4, 9, on the other Side of the Border, oppoſite to your two firſt, then your Platform will ſerve for two contrary Winds, *viz.* North and South. I ſhall direct you how to diſpoſe of the Remainder of your Utenſils, in turning back to the firſt Figure in this Chapter.

If you intend to take any *Plovers*, be on the Place where your Platform is ready made with all your Implements early in the Morning; then place the main Sticks in the little Gutters, and take your Net on your left Shoulder, or Arm, and go towards the Lodge, which is about fifteen or ſixteen Fathom from your Platform, and there place the Buckle which is at the End of the Cord of your Net, and ſo go backwards towards your Platform, letting the Cord trayl all along, and being at the Stake or ſtrong Peg *S*, faſten thereto the Cord of the Pully *T*, ſo that the Pully be in a direct Line with the two Pieces of Wood *Q*, *o*; then when you come to the Form let your Net it ſelf fall by degrees, and ſtill retiring backwards. When you are at the Peg behind, which is *R*, ſtrain the Cord until it be right and ſtraight, and then fix it to the ſaid Peg that it may not ſlip back.

I have alſo for the conveniency repreſented to you, with what manner of Knot it is that you ſhould faſten your Cords on this occaſion. Suppoſing that the Peg 7, be the Piece whereunto you pretend to faſten your Cord 2, 4, take it in one of your Hands at 1, and being over the Thread 2, to form the Buckle or Knot 5, which paſs over the Peg 7; then make another Bow or Buckle, as 6, wherein the Thread 4 is paſſed under, and to clap this Bow over your Peg upon the Top of the other Bow; then ſtrain the two Ends 2 and 4, and your Knot will be compleat, and you muſt be very exact and ready at it.

When the End of the Cord of the Net is thus faſtned, lift up your main Stick *P*, *Q*, and place the great End in the Gutter *Q*, drawing the Cord of your Net towards your Border, and force it into the Notch in the ſmall End of your main Stick, and let ſome Body hold it there; But in caſe you have no help, lodge it in your Gutter under the Peg *P*, and drive the ſharp End of the *Billiard* into the Ground upon it, to ſtay there until you go to the other main Stick *N*, *o*, and there fix your Cord into the Notch at the End *M*. It muſt be ſo ſtraightned, that a great deal of Strength may be uſed to get it into the Notch; then place your main Stick in the Gutter under the Peg *N*. Remove your *Billiard* from your main Stick *V*, *Q*, and force your Net into the Platform, ſo that it be hid under the Cord.

The next thing to direct you in is the placing your *Call-Plovers* and *Artificial Lapwings*, which muſt be diſpoſed as you ſee the Cyphers o o o o o. In caſe the Wind be not directly Eaſt, but inclined a little towards the South; then your firſt Pelt, or counterfeit Bird (which is nothing but the Skin of a Bird ſtuft with Chaff, or the like) marked 3, ſhall be placed half a Foot from your Border, and about eight or nine Foot from the End *V*, the reſt you may range in ſuch Order as they are deſigned by the Figure, at about two Foot diſtant from each other; whereas in caſe the Wind be North-Eaſt, place your Birds a good deal farther from the End *V*, that is to ſay, about ſix Foot further; becauſe Wild-fowl always fly againſt the Wind, and then as they paſs over the Stales, or Artificial Birds, that is betwixt them and the hinder Stake *R*, it may ſo fall out that they may paſs under the Cord; for that will be ſhorter by a third part when it is let looſe, and by a Moity, if the Wind be ſtrong, which you muſt diligently obſerve; when there is but little Wind ſtirring, you may place two thirds of the Birds behind your Net, and if it be ſtrong, one third part is enough; the reſt ſhould be before, becauſe *Plovers* will come where your Birds are.

As for *Lapwings*, they muſt not be mixed with your *Plovers*, but placed juſt by your Gutters, as the Letters *g*, *g*, import.

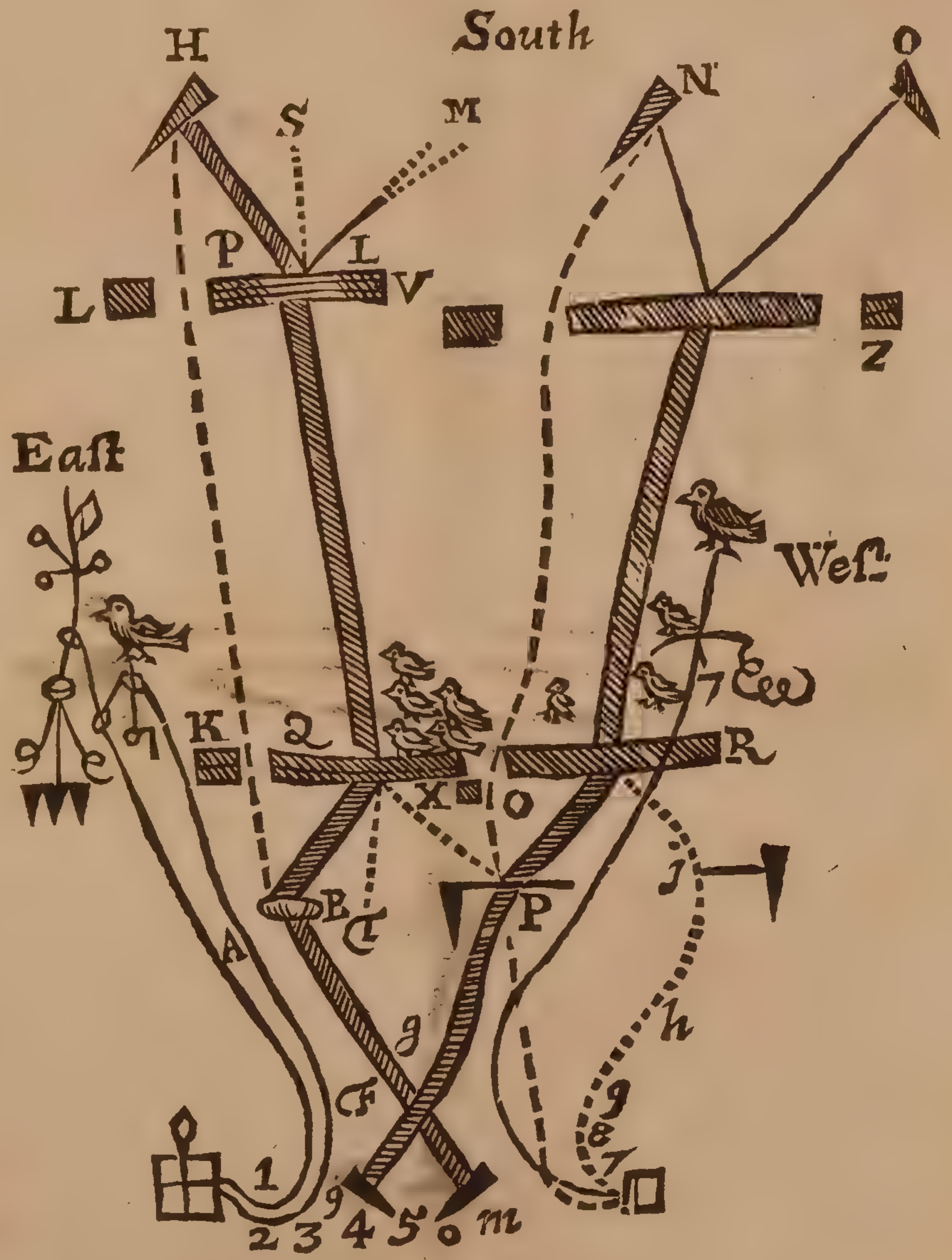
The next thing you are to diſpoſe is your live Birds; if you intend to uſe two, drive them one before, and the other behind; if you have only one, place it behind in this manner: Force your little piked Staff *C* into the Ground, which is tied to the bigger End of the Rod, and then hold up the little End *F*, to ſee if it ſtand right with the Lodge, and if ſo, hold it a Foot high whilſt you ſtick the two Pegs *A*, *B*, into the Earth; then tie a live *Lapwing* unto it with the Packthread about its Leg, which Packthread ſhould be indifferent long, to the end the *Lapwing* may not hurt it ſelf; then put the Tail about the End of the Rod, and faſten it with another Packthread, and ſo taking one of the Reels, faſten the End of the Thread which is above the quarter part of the length of your Rod, to the Place marked *E*, and the Reel to the Lodge. If you plant a couple of *Lapwings*, you muſt place the other in the ſame manner before your Platform.

Your Holm-ſtick muſt be placed about three or four Fathom from the Border, and about ſix Foot beneath the laſt Pelts or Artificial Birds. To ſet it right in order do thus: Drive into the Ground the two Pegs marked at the great End *M*, in ſuch manner as your Holm-ſtick may move like the Axeltree of a Cart between the two Wheels; take the little End *X*, and lift your Rod almoſt ſtraight up, that it may be right with the Lodge, and then faſten your two Pegs *H*, *j*, in the Ground: Then faſten the End of your Line to one of your Reels at the middle *L* of your Rod, and carry the other End to your Lodge. The Holm-ſtick muſt be tied at the End *X* of the Rod; your Holm-ſtick muſt be laid down cloſe, and covered with ſome Boughs, Straw, or the like, that the Birds may not be affrighted at the ſight thereof.

This Holm-ſtick is nothing but the two Wings of a *Kite* or *Buzzard*, which are tied with two or three *Hawks-bells* at the End of the Rod for the purpoſe that ſhall be anon declared.

Directions for preparing the Lodge, for thoſe that take Plovers, *and the like* Wild-fowl.

THE Lodge is to be thus made: Take five or ſix Boughs about three Foot high, and ſtick them in the Ground like an Hedge; it muſt be open at the Top, that you may hear and ſee the Birds that paſs near you.



The Figures 1, 2, 3, 4, 5, 6, 7, 8, 9, repreſent it unto you, as alſo how you may (being a ſingle Perſon) manage two Nets at the ſame time from one and the ſame Lodge. Your Seat muſt be of ſome Turf about a Foot ſquare, and three or four Inches thick, which put beneath the Cord at the Place marked *C*, where your Cords croſs each other, and where one may touch the Hold-faſts *f*, *g*, to ſtrain the Nets. You muſt lay a good Handful of Straw under the Cord upon the Turf, to prevent dirting the Cord, as well as ſpoiling the Turf; and you had need to have a good Armful in your Lodge, to keep you warm and dry as occaſion requires. You muſt likewiſe cut two little Holes in the Ground to reſt your Feet when you ſtrain your Cords, the Letters *D*, *E*, denote the Place where. The ſame things muſt be all obſerved, if you uſe but one Net. But he that will undertake to manage two Nets, had need to ſee firſt the manner of it, at leaſt to obſerve theſe following Directions.

You have been already fully inſtructed how to plant one ſingle Net, which being done, Take a long Cord, repreſented by the pricked Line *K*, *j*, which at one End faſten to the Peg *M*, about two or three Foot from the Side of the Peg *Y*. The other End faſten to the Peg *H*, ſo that the Part of the Packthread may be diſtant between five or ſix Fathom from the End of the Gutter *O*. When the ſhorter of your two main Sticks is fixed, one end at *K*, and the other at *Q*, carry the bigger of them ten or twelve Fathom diſtant; one End being ſet at *j* within half a Foot of the Packthread, and the other towards *L*. Let them be ſtooped down, and then fix another Packthread, repreſented by the pointed Line *S*, *T*, which muſt be ſtrained hard: Then with your *Billiard-ſtick* make your Border or Platform *Q*, *P*; then cut out your Gutters, and place your Pegs and Sticks as they are placed in the beginning of this Chapter, numbered 3 and 4, and placed in the former Net.

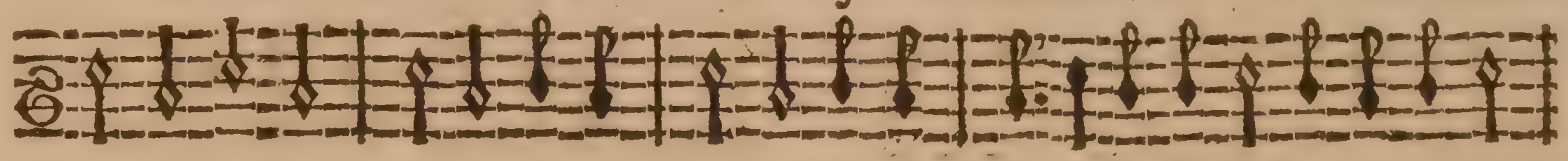
You may make this Form ſerve for two Winds, if you make the Gutters *V*, *X*, *Z*, *R*, juſt oppoſite to the others; and then place your main Sticks in them, turning about your Cords, and tranſplant your Lodge: As for Example, The foregoing Figure repreſents two Nets, which are ſet for a Weſterly-wind; Suppoſe the Wind ſhould chop about and turn Eaſternly, you muſt then firſt of all put the end of the Cord *M*, to the Letter B, the ſtrong Peg *A* to the little *p*, and the Stake behind *H* to the little *m*; the main Stick *K* to the Letter *X*, the other *j* to the Letter *V*, and your Net will be then ſet for the Eaſt-wind. You may likewiſe tranſpoſe the other Net by turning the Cord *Y* to the little *a*, and the ſtrong Peg to the little *o*, and that Stake behind to the Letter *N*.

You muſt alſo turn about your main Stakes, and make a low Seat at the Letter *b*, and dreſs up your Lodge there; the two pointed Lines *a*, *b*, *j*, *n*, and *b*, *h*, *p*, *m*, do fully demonſtrate how the Nets ſhould be plac'd when the Wind is turning about. Your Birds both dead and alive muſt be ſo altered as you there ſee; and you muſt ſet two or three counterfeit Birds before the firſt Border with a *Lapwing* or *Call-Bird*, and another behind the Platform, the reſt of the Artificial Birds may be ſet before the Border *P*, *Q*, and the Holm Rod behind the laſt Net.

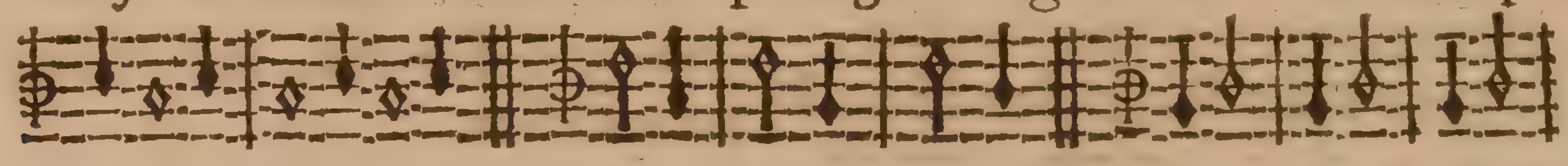
Inſtructions when and how to Call, alſo when and how to draw the Net for taking Plovers, *&c.*

YOur Implements being all diſpoſed as before directed, betake your ſelf to your Lodge, having your Pipe hanging at your Neck, and when you eſpy any Game on the Wing, give them a Call, and make your Call-Birds fly a turn or two ever and anon, as occaſion requires; for the Game perceiving the *Lapwings* to ſtir and fly from place to place, and your other Birds to ſtand feeding as it were, will be decoyed thither in expectation of ſome Food. When they come near, be ſure do not make your Birds to ſtir at all, for they would then ſoon perceive by the Forcedneſs of the Motion, that they were tied; and for fear of being ſurprized themſelves, they will fly away. Neither muſt you with your Pipe give them ſuch loud Calls, as if at a remote Diſtance; but leſſen your Notes by degrees. I have thought fit to ſet down the ſaid Notes.

The Natural Call for Plovers.



The Call for Curlues. *The* He-Lapwing *coming.* *The* Female-Lapwing.



It is very difficult to imitate exactly the Notes, without good Obſervation and Practice, but as near as you can Call in the ſame Notes as you hear them as they paſs by you; and be ſure not to let fly your Net, though there were never ſo many of them, and that they were juſt at the Net, unleſs they come flying againſt the Wind. When you perceive they begin to deſcend, and that they come within eighteen or twenty Foot of the Platform, let go your Pipe, and lay both Hands on your Cord, to let fly with all the force you can, by giving it a ſmart pull towards you, juſt as you perceive the firſt of the Flock between the two Stakes, *K*, *I*. If they are about eight Foot high from the Ground, let them paſs on, for they will wheel about and take another turn, nay ſometimes they will paſs by you eight or nine times before you will find them right for your purpoſe. You will find that moſt an end they will pitch a good way from your Net; if you perceive them ſo inclined, make ſome little Noiſe to prevent them, if however they take Ground, then get your Aſſiſtant to ſteal out at the back-ſide of your Lodge, and fetch a great compaſs behind the *Plovers*, and if you had for that purpoſe your Artificial *Stalking-Horſe*, or *Cow*, it would be of great uſe. But for want thereof, let him go on all Four, or at leaſt ſtooping with his Head down, by which means he may by degrees drive them from Side to Side, within ten or twelve Foot of the Border, at which time let him throw up his Hat, and give a great Shout; upon which they will take Wing to fly over your Nets, at which Inſtant of time draw in your Cords very briskly, and take up all thoſe that are under the Nets.

When all are gathered up, clear the Place of all the looſe Feathers that lie on the Ground, and then ſet your Net in its former State to take others.

When you have two Nets planted, and that a Flock come, do not preſently draw, but let your Aſſiſtant fetch a compaſs and raiſe them, by which means you may be aſſured of them.

When you ſee a great Flock coming, your Aſſiſtant muſt hold the Cord of your Holm-Rod, that is, the Kite's Wings; and draw it juſt when you direct him, that is to ſay, when the firſt Birds of the Flock fly low, and are within about ſix Foot of the Form; for as ſoon as ever they perceive the Holm-Rod aloft, the laſt of the Flock will firſt paſs on, and all of them come within a Foot of the Ground, ſo that you may take the greateſt part of them, were they ten or fifteen Dozen. You muſt be ſure not to ſtir the Holm-Rod, until the Birds be within ſeven or eight Foot of the Ground, leſt they paſs over the whole Form before they ſtoop to the Ground. And this is all I ſhall ſay as to this particular way of taking *Plovers*, which though difficult to obſerve, yet if expert in, is very profitable.

CHAP. XXVIII.

How to take Wild-Ducks, *with Nets, Hooks, Slipping-Knots and the like.*

They that would employ themſelves in taking *Ducks* and *Mallards* with Nets, *&c.* ſhould always have ſome wild one's reclaimed, and made tame for that purpoſe; for the wild will never accompany themſelves with thoſe of the real tame Breed. Therefore be provided with at leaſt a dozen of them, for fear of wanting any upon occaſion, for they are often loſt, and much ſubject to miſcarry.

Never place your Nets but where you have at leaſt a Foot of Water, nor much more, ſo that Marſhes, Sands, Flats, overflown Meadows and the like, are proper for this Sport.

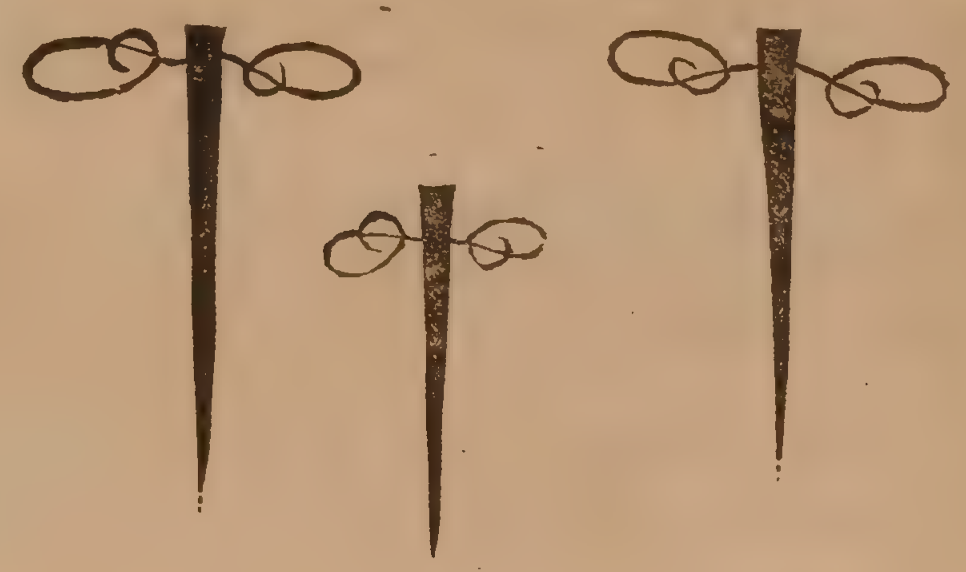
The Nets to uſe are the ſame with thoſe uſed for *Plovers*, and plant them after the ſame manner, only theſe are ſet under Water, and you need no Border to conceal your Net; your main Sticks ſhould be of Iron, ſtrong in proportion to their Length; but if of Wood, faſten good heavy Pieces of Lead all along your Net, at about a Foot diſtance on the Sides of it, to ſink it down into the Water, that the *Ducks* may not eſcape by Diving; and your Lodge ſhould be ſo contrived as before directed for the *Plovers*. When all is ready, place *Ducks* (that is, She-one's) in this manner; tie two or three of them before your Net, and as many behind by the Legs, but ſo as they may ſwim up and down, eating ſuch Grain, or Chippings as you ſhall throw to them for that purpoſe; The *Drakes* keep by you in your Lodge; When you perceive a Flock coming near you, let fly one of your *Decoy-Ducks*, which will preſently join with the Wild one's in expectation of his Mate, and not finding her there, he will begin to Call; and the Female that is tied by the Legs hearing her Mate to Call, will begin to cry out, and provoke the others to do the ſame, upon which the *Drake* comes to his Female, and generally draws with him the whole Flock, which greedily fall to eat the Bait laid for that purpoſe. The *Ducks* being once come within your Draught, pull your Cords with the quickeſt force you can; and having thus taken them, let go your *Decoy-Ducks*, and feed them well, and the Wild one's you may kill; and ſo ſet your Nets again as you ſee occaſion.

Sometimes the Wind is ſo contrary, that the Male *Duck* can't hear his Mate when ſhe cryeth; in that caſe let go a ſecond and a third to bring in the company you deſign to ſurprize. Your *Decoy Ducks* ſhould have ſome Mark of diſtinction for your more ready knowing them from the Wild one's, as ſomething ſowed about one of their Legs.

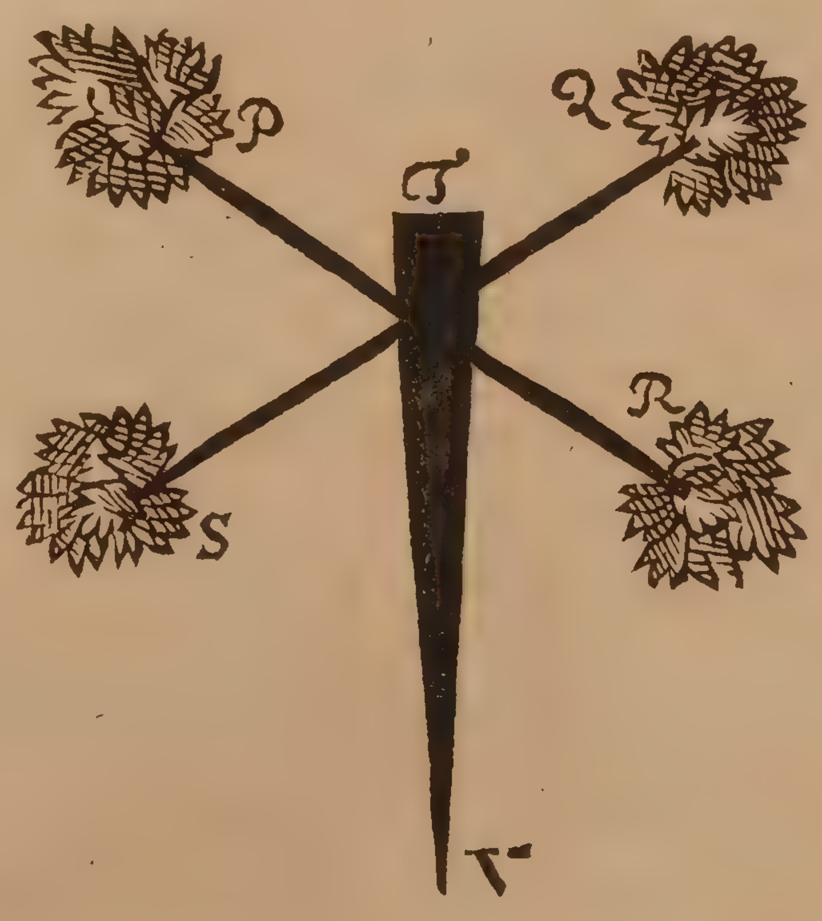
To take Ducks *with Running-ſlips, and Collers of* Horſe-hair.

I Shall now ſhew you a cheap and eaſie way to take *Ducks* with Running-ſlips, *&c.* eſpecially in ſuch low Marſhes, as are overflown not above a Foot and a half deep.

Obſerve the Haunts moſt frequented by them, and there caſt a little Grain for two or three Days to embolden and draw them on, for having once fed there, they will not fail to return thither every Day. You muſt then plant ſeven or eight dozen of your running Bows of *Horſe-hair* tied by two or three together unto little ſharp Stakes, which muſt be fixed into the Ground according to this enſuing Figure; and they muſt be ſo placed, that the upper End of the Sticks and the Collers may be juſt hid a little under Water, and then throw ſome Barley or the like Grain amongſt your Traps, that ſo you may take them either by their Heads, or ſwimming by their Legs.



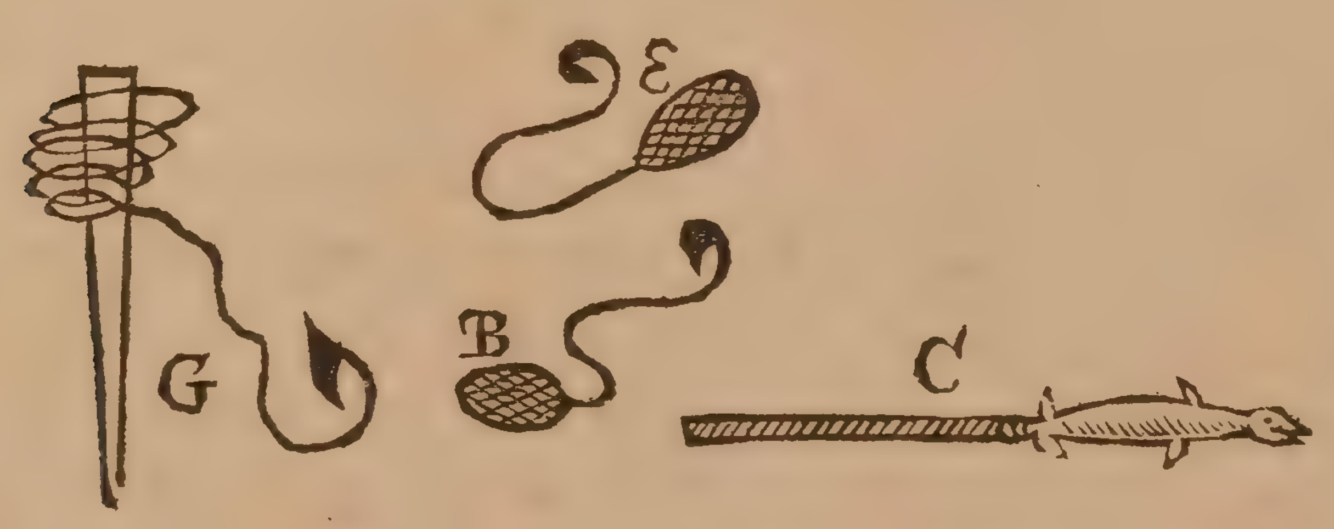
You muſt reſort thither thrice every Day, to ſee how you ſucceed, and to order your Buſineſs as you ſee occaſion.



This Figure offereth you a Device much of the ſame Nature with the former: It is a Stake which for Length is according to the Depth of the Water, as *T*, *V*; at the great End *T*, bore it with two croſs Holes, and put into the ſaid Holes two Sticks, one *P R*, the other *Q S*, each about the Bigneſs of one's little Finger, and about two Foot long. They muſt be ſtrong ſet in, and well pegg'd; at each End of the Sticks faſten your Collars, or Slipping-Bows of Horſe-hair well twiſted, as the Letters *P*, *Q*, *R*, *S*; then place your Stick *T V*, that it may be all under Water; and ſo as your Knots may juſt ſwim open on the Top of the Water; and then caſt your Grain or Chippings of Bread in and out amongſt the ſaid Stakes, the better to entice the Ducks to come.

To take Ducks *with Hooks and Lines.*

THoſe that uſe the Water much, and obſerve where Ducks reſort, do frequently uſe to take Store of them by Hooks and Lines; the Manner is as here deſcrib'd by theſe Figures.

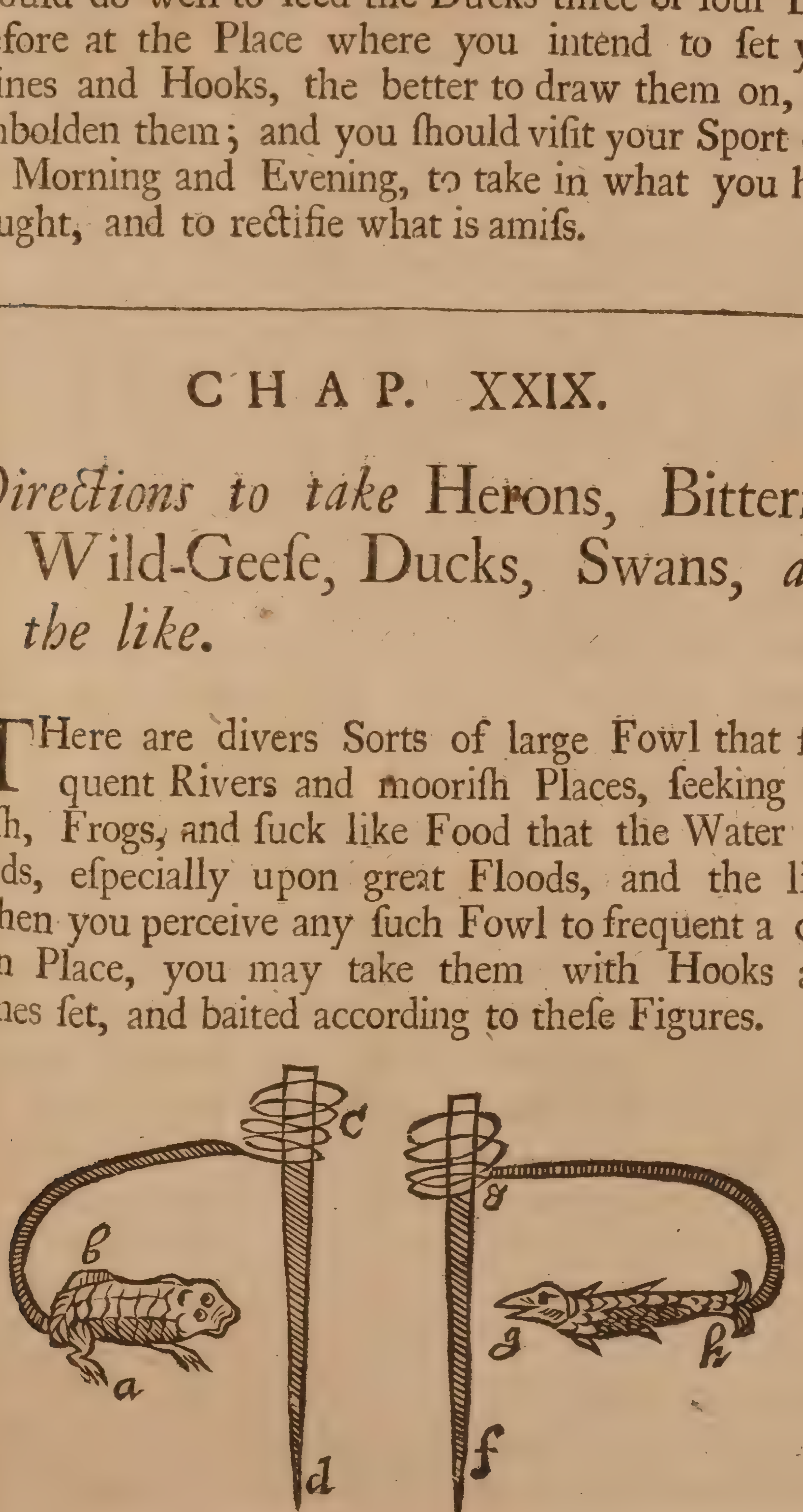


Faſten your Lines well and ſtrong unto piked Sticks, as the Figure mark'd *G* repreſents, and ſtake down your Sticks into the Ground; then bait your Hook with an Acorn, Bean, or the like, as the Figures *B*, *E* repreſents; or with a Fiſh, as the Figure *C*. You may alſo bait with a Worm. By theſe you may learn to bait with Paſtes, or the like; and you ſhould do well to feed the Ducks three or four Days before at the Place where you intend to ſet your Lines and Hooks, the better to draw them on, and embolden them; and you ſhould viſit your Sport every Morning and Evening, to take in what you have caught, and to rectifie what is amiſs.

CHAP. XXIX.

Directions to take Herons, Bitterns, Wild-Geeſe, Ducks, Swans, *and the like.*

THere are divers Sorts of large Fowl that frequent Rivers and mooriſh Places, ſeeking for Fiſh, Frogs, and ſuck like Food that the Water affords, eſpecially upon great Floods, and the like. When you perceive any ſuch Fowl to frequent a certain Place, you may take them with Hooks and Lines ſet, and baited according to theſe Figures.



Your Hooks muſt be ſtrong, and well tied to your Lines, then bait them in this manner, thruſt the long ſtreight Part of your Hook into the Mouth or Throat of the Frog, and let the End come out at the Tail, and then faſten it to the Line, which muſt be tied to ſome Bough, Root of a Tree, or Stump, and for want of ſuch Conveniency, drive in ſome Stake to faſten it unto.

If you can get a ſmall Fiſh about the Bigneſs of a Gudgeon it will do as well, and for ſome Sort of Fowl better; and therewith bait your Hook, thruſting the long End in at the Throat *g*, and out at the Fundament *h*; and there faſten your Hook to the Line, and your Line to ſome Stake, or the like, as mark'd *e*, the End *f* being fix'd into the Ground, and the great End *e* being juſt cover'd over with the Water; and the firſt Hern or Bittern that ſhall perceive it, will make at it, and devour it, and ſo taken.

You muſt attend Morning and Evening to look after your Baits, and to do well you ſhould place good ſtore of Hooks in ſeveral Places.

If your Baits do miſs, and that you find the Fowl do reſort thither; then fetch a great Compaſs about them, and as it were drive 'em to thoſe Places where your Baits are ſet; and if they paſs within Sight thereof, they will come to them, and be taken.

For this Sport the *Stalking-Horſe*, either natural or artificial, may be of great Uſe.

CHAP. XXX.

Several Directions for taking Hawks, *as alſo other* Birds, *with an* Owl, *or* Horn-Coot.

YOU muſt know, that all Birds that ſleep in the Night are Enemies to thoſe that take their Reſt in the Day. Such that ſleep by Day are the ſeveral Sorts of Owls, the Oſprey, *&c.* and when any of the Day-Birds eſpy them, they gather about them, both great and ſmall, endeavouring to kill them. You may with the ſmaller Sort of Owls catch good ſtore of ordinary Birds, as Sparrow-hawks, Mag-pies, Jayes, Daws, Black-birds, Thruſhes, Sparrows, Lennets, and the like: And with your great Horn-Coot, the Goſs-hawk, Falcon, Lenner, *&c.* beſides the aforeſaid Birds.

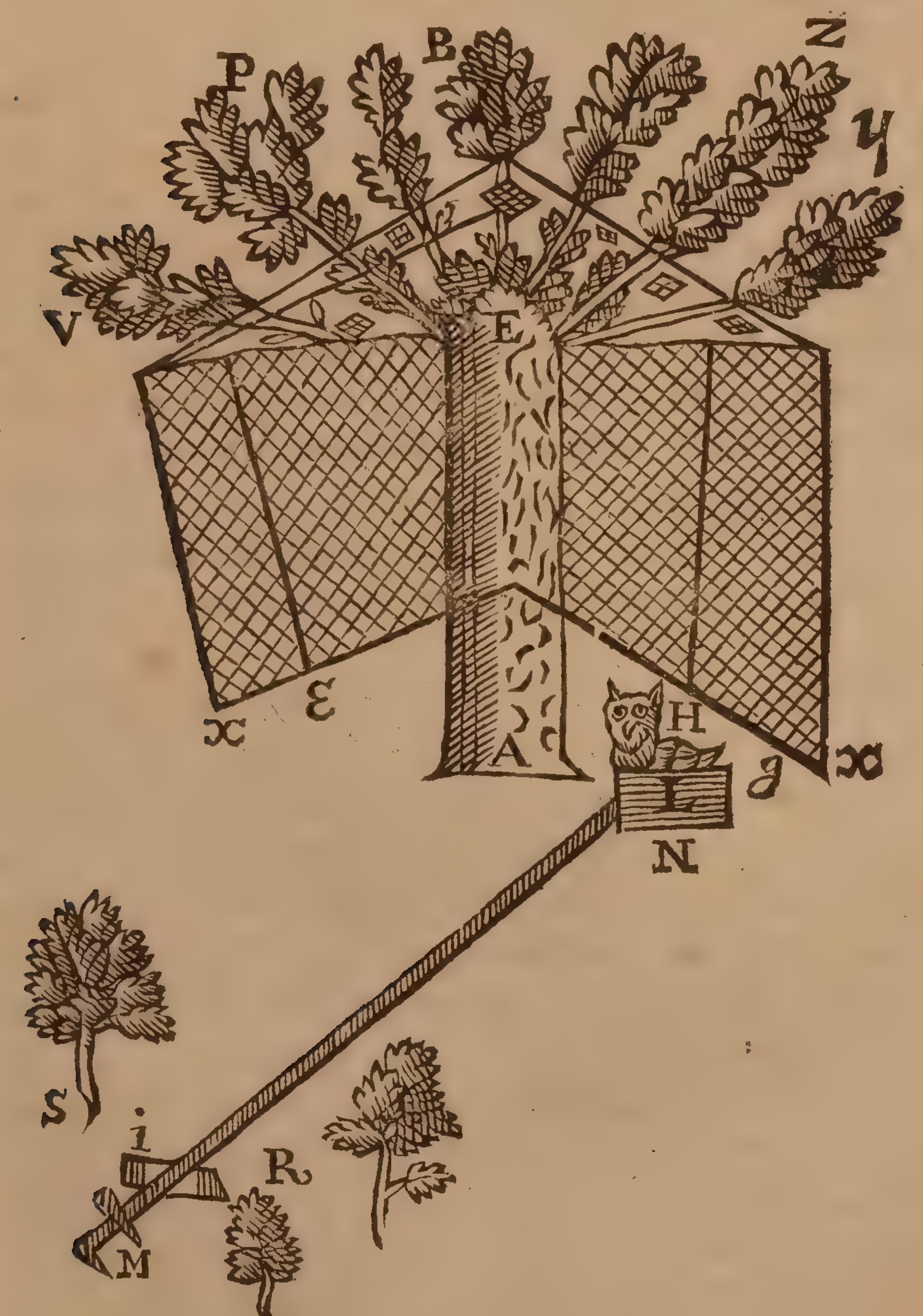
The *Horn-Coot* is a large Sort of Owl, and keeps altogether in Woods and great Foreſts. He is ofttimes bigger than a middle-ſized Gooſe, with hairy Legs and rough footed. He hath great Tufts of Feathers on either Side of his Head, bearing out like Horns. His Face is broad and large, his Eyes great and ſparkling, and his Voice terrible and frighting. Having got ſuch an Owl, you need want no Recreation, having firſt made him fit for your Purpoſe, and to that End follow theſe Directions.

The firſt Thing to be taught him is to come and feed on your Fiſt, being ready and perfect at that, put him into ſome Room or Cock-loft, where you muſt place two Pieces of Timber, at each End of the Room one, which muſt be about two Foot high, and cut on the upper Side like the Ridge of a Houſe, declining on both Sides, that your *Horn-Coot* may pearch on them: Then tie a Cord from one of the ſaid Pearches to the other, having firſt drawn it thro' an Iron Ring, or ſome ſtrong Leather-Strap, whereunto tie a Strap about three Foot long, and at the other End your *Horn-Coot* muſt be faſten'd by the Legs, juſt like unto Hawks. Your Ring, or Leather Strap muſt be looſe, ſo as to play forwards and backwards from one Billet to the other, that your *Horn-Coot* may divert himſelf when he is minded to change Places. At firſt place not your two Pearches or Billets, above ſix or ſeven Foot aſunder; but afterwards you may lengthen them by little and little, as you perceive he comes on. Let him not reſt at any time on the Ground, and let the Strap by which he is tied be proportion'd to the Height of the Pearches.

You muſt teach him to fly from one Stand to the other, by never feeding him on that Pearch where you find him, but only ſhew him his Food, and ſo draw or entice him to the other. When he hath had a Reward of two or three Bits, remove your ſelf to the other End, calling him; and, unleſs he come to the other Pearch, give him no more; and by this means in a little time you will find he will be too quick for you; for as ſoon as he perceives you to move, he will fly along, and get thither before you. He is then well made, and will be brought to that Paſs in about two Months.

My next Buſineſs ſhall be to ſhew you how to prepare the Place and Inſtruments you are to uſe in taking Hawks and other Birds, by the Help of your *Horn-Coot*.

Chuſe out ſome Quarter that lieth high and open, free from Hedges, Trees, or Buſhes, only with a ſingle Tree, diſtant at leaſt 400 Paces from any other with a large round ſpreading Top, and pare away all the Under-Boughs. This Figure ſhews the whole, with the Explanation.



From *A* to *E* is the Stem of the Tree, cleanſed from all Boughs about twelve Foot round from the Ground, the Top-Branches being all pared away, to bring the whole into an uniform Cut, no Place ſticking out more than another, that your Nets may the more freely play. If there be any void Place in the Tree, by which a Bird may ſtoop through, and ſtick at your *Horn-Coot* which is under it, you muſt there ſtick in ſome Boughs to fill it up; and it were not amiſs if you let three or four Boughs below ſtand out ſomewhat more than the reſt, upon which a Bird may take Stand, to view your Owl or *Horn-Coot* at the Bottom of the Tree.

You muſt carefully gather up all the Leaves, Choppings, and broken Sticks, and put them out of Sight, for the avoiding Suſpicion; for Hawks eſpecially are very jealous and obſervant. Then chuſe out three Boughs from under the Tree, that ſtand in a Triangle at an equal Diſtance, as thoſe mark'd *T*, *V*, the third being juſt behind the Tree; then make a little Inciſion or Cleft with your Knife in the End of each of the ſaid Branches. The Clefts ſhould be diſtant about nine or ten Foot each from the Body of the Tree. The Intent of theſe Clefts are to receive as many little Pegs, which are faſten'd to the Cords of your Net, as hereafter in the next Figure ſhall be declared.

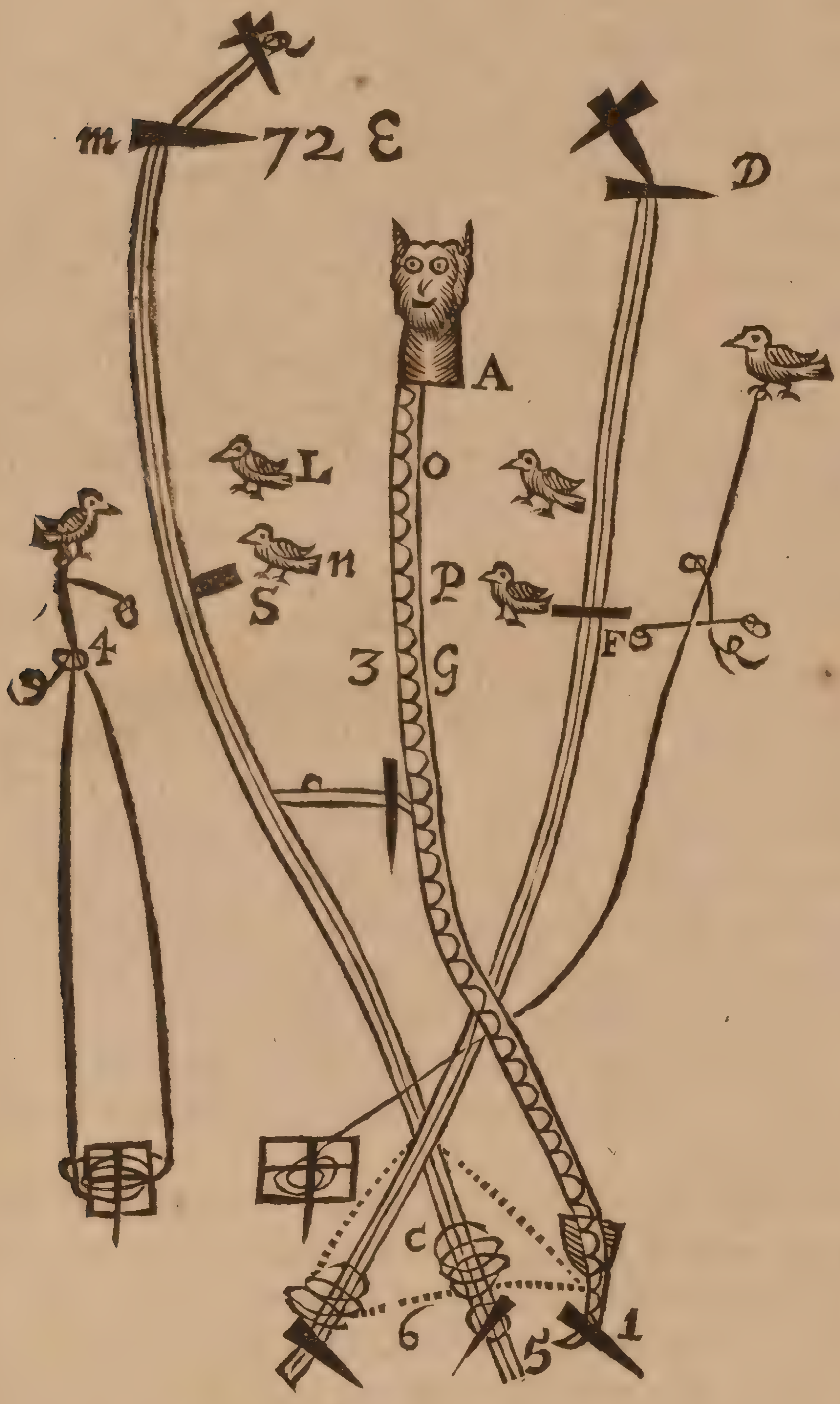
Then prepare two Billets, one of which place at *H L*, about four or five Foot from the Body of the Tree, which muſt be ſtrong ſet into the Ground; the other at *I* muſt be placed about a hundred Paces diſtant, and forced alſo into the Ground; then ſtick up four or five Branches, as *R*, *S*, about three Foot from it, for a Lodge, where you may withdraw with your Companions. Behind each of the Billets drive a ſtrong Peg of Wood, as *M*, and your Place is fitted.

Your Place being thus prepared, take your *Horn-Coot*, your Cord, and a Folding-Ladder, and get early in the Morning to the Place. Plant the Ladder againſt the hindermoſt of your Triangle Clefts, and fix the Peg, which is faſten'd to one of the Cords of your Net into the Cleft, and it muſt be very gently thruſt in; then remove your Ladder to the Branch *V P*, and gently thruſt into the Cleft the Peg that is at the other End of your Net. Then carry your Ladder to the Branch *T Z*, and put into the Cleft *T*, one of the Pegs of the other Net. The other Peg of your ſecond Net muſt be faſten'd into the Cleft of the Branch which is behind the Tree; then your two Nets are ſet in Triangle above, as appears by the Letters below *X*, *E*, *A*, *g*, *X*. Then remove your Ladder into ſome private Place, or faſten it on the Backſide of your Tree to lie cloſe.

The next Thing to be done is, to draw your Line between the two Pearches, *viz.* from *H* to *I*, with your Iron-Ring, or Leather-buckle clapp'd on it, for your *Horn-Coot* to move in and out as you ſee Occaſion: Fix the End of the Line over the Billet *I*, at the Stake in the Lodge *M*. Every thing being thus diſpoſed, withdraw your ſelf, and watch your *Horn-Coot*, to obſerve if he diſcovers any thing; for you ſhall ſooner diſcern by his Eye than your own, whether any Bird be ſtirring or not. When you find him turning his Head a little on one Side, with his Eyes aloft, give him a little Twitch, and make him forſake the Pearch or Billet *I*, for on that he muſt be firſt placed, and he will fly along after a heavy manner, to reſt himſelf on the other Billet or Pearch under the Tree. The Bird that was paſſing by, having once diſcover'd him, will preſently ſtoop at him, and perceiving the Tree, will take a Stand to conſider his ſtrange Countenance, and reſolving to ſet on him, caſts himſelf into one of the Nets, which ſoon falleth down upon him; and you muſt be nimble to take him out, that he bruiſe not his Feathers, nor over-heat himſelf by Bating, and ſend him away. Then ſet your Net as before, and withdraw your *Horn-Coot* to your Lodge again on the Pearch *I*.

The Nets to be uſed are the ſame with that mention'd in the 25th Chapter, where it is at large deſcribed.

The preceding Device is very good, but that which is deſign'd by this following Figure is much better, in regard there is no need of any Tree, and alſo becauſe you may by this take two or three, nay twenty at one time; and likewiſe in regard the Birds, which now come to your *Horn-Coot*, have no Pearch to ſtand and gaze, whereby they may hazard the diſcovering of your Intent. Furthermore, if five or ſix Hawks, or other Birds, ſhould be at once in your Tree, you may expect to take but one, and probably the worſt of them all.



This Figure is much the ſame with that for taking Plovers, already at large diſcourſed of.

For taking of Hawks, uſe a double Platform, of which I have alſo treated; only in the placing of theſe, your Nets muſt play the one on this Side, and the other on that Side, whereas for Plovers they both play one Way. For Example; When you draw your Cord of the Net, the Side *M* falls on the Point 2, and other 4 upon 3, to the End that the Bird that ſtrikes at the Owl or Horn-Coot may be ſure to be taken, on what Side ſoever it come.

You ſee where to place the two Pearches, *viz.* one at *A*, and the other at *D*. You muſt at firſt place your Horn-Coot on that by your Lodge, and when you find by him that he diſcovereth any Bird, force him from you, that he may fly to the other Pearch *A*, to give a full Opportunity of diſcovering himſelf.

In caſe you have any Stale Pies or Jays, they will be alſo great Helps to call in other Birds; and remember this Thing, that in caſe you ſee any Bird which you deſire to take, if he come on the Right Hand, you muſt take him with that Net which is on your Left Hand, and ſo on the contrary.

Having hitherto treated of the taking of Hawks, as alſo other Birds with an Horn-Coot, I ſhall next proceed to treat of the taking Hawks ſeveral other Ways, and of all Ages, eſpecially of ſuch as are moſt frequent in our Kingdom, as the Goſs-hawk, Sparrow-hawk, Merlin, Hobby, Caſtrel, and the like; all which have their *Ayeries*, and breed here, though not eſteem'd ſo good as the Beyond-Sea ones, eſpecially the Goſs-hawk.

There are likewiſe ſome Hawks, that by ſome Accident or other come into this Kingdom wild, and others break out of the Mew, or by Misfortune are loſt, and breed here.

Hawks are taken three ſeveral Ways, and at as many ſeveral Seaſons; to wit, from the *Ayery*, after they be diſcloſed, at which time they are called *Eyeſſes*; or after they be full ſumm'd, and begin to leave their Neſt, at which time they are called *Branchers*; or after they have prey'd for themſelves, and then they are called *Soar-Hawks*, or *Hawks in their Soarage*.

The Taking Eyeſs-Hawks.

FOR the taking theſe Hawks (which is as ſoon as they be diſcloſed, and have caſt off the firſt Down, which covereth their Feathers) there is no Difficulty to be uſed, more than finding out the *Ayery*, or Neſt, which is amongſt the talleſt Trees that grow in the thickeſt Coverts, and are moſt remote from Paths, or frequented Places; and when you come where the *Ayery* is, you may know it by the Mutings and Slicings of the old ones about the ſaid *Ayery*, and at the Foot of the Tree you will find much Plumage, Feathers, and Bones of Birds; ſo that if you watch near the ſaid Place early in the Morning, or at the Cloſe of the Evening, you may ſee the Male bring in Prey for the Female that ſitteth on the Neſt.

Having thus found the Neſt, about Mid-day, (being the Time that ſhe riſeth to bathe and ſolace herſelf) you may climb up the Tree, and look into the Neſt, to ſee how many Eggs ſhe hath, or whether young ones; but be ſure do not touch either, for that will make her forſake the *Ayery*. And when the young ones are about ten Days old, you may take them away, and bring them up with warm Meat and live Birds, till they be ſumm'd and hard feather'd; and after that you may reclaim and man them as you find Occaſion, according to the Directions given, in the Treatiſe of *Hawking*.

Theſe *Hawks* are called *Eyeſſes*, as taken out of the Neſt; but this is not the beſt Seaſon for taking Hawks, for they cannot be ſo naturally fed as by their Dam, nor ſo well kept and order'd.

The next Seaſon for the Taking young Hawks is when they are *Branchers*; that is, when they are hard ſumm'd, and begin to forſake their Neſts.

To take Branchers.

FOR the taking of *Branchers* with Nets, obſerve this Method: Having found out an *Ayery*, or Neſt, be there very early in the Morning, to watch the Riſing of the old Hawks to fetch Prey for their young ones; and ſoon after their Departure you ſhall ſee the young ones fly forth upon the Boughs and Branches of the Trees, ſkipping up and down to exerciſe their Wings. Now the Thing to be obſerv'd is their Neſts, which is ever one and the ſame; then climb up the Tree, and being provided with ſeveral little Nets, about two Foot, or two Foot and an half ſquare, which muſt be made of ſtrong twiſted Thread, and died of the Colour of the Leaves, for fear of frighting them, place one of thoſe Nets about the Neſt half circular, leaving one Paſſage for their going in and out; and let it be placed about a Foot and an half above the Neſt Penthouſe-wiſe, and in ſuch ſecret manner at a Diſtance from the Net, that it may not be perceived by the old ones. Let your Net be a Running-Net, ſo drawn upon a ſtrong Line, that when any thing ſhall ſtrike againſt it, it may run together like a Purſe, and encloſe and keep faſt the Thing taken; and to that end make faſt the ſtrong Lines to ſome Branch of the Tree, that when they are taken, they may not fall to the Ground, but hang fetter'd in the Net, without bruiſing themſelves, or breaking their Feathers, which is much to be regarded.

Having thus placed your Net about the Neſt, then place ſome others of the ſame Size and Faſhion between the thickeſt and uſual Branches, through which they paſs in and out to their Neſts, eſpecially at that Place where you ſaw the old ones make their Paſſage out; and let them be placed more uprightly, and faſten the ſtrong Lines to ſome Branches, as aforeſaid.

Your Nets being thus placed, which are to be done with all Haſte imaginable, for fear of the old ones coming, you muſt deſcend the Tree, and place your ſelf in ſome ſecret Place, that you may not be eſpied by either the old or young Hawks, yet ſo as you may have Sight of them; and when the old ones bring them Prey, they flock about her to the Neſt for it, ſo that as many as touch the Nets become entangled; and thoſe that eſcape are taken oft-times at their coming out. Thoſe that are ſo taken fetch not down until the old one is departed, and the other young ones are come out, for fear of frighting them from their Neſt, and ſo loſe the Taking them; and be ſure not to break or bruiſe any of their Feathers in the taking them out of the Nets; and you ſhould be provided with ſome Ruſter-Hoods to put on their Heads, which will make them quieter from ſtruggling.

To take Hawks *in their Soarage.*

THis Seaſon is from the Time they have prey'd for themſelves, until the firſt Year be expired, and that they have mewed. For the Taking them you muſt well know their *Ayery*, and diligently obſerve their Mornings and Evenings going forth for Prey, as alſo their returning Home, and where they take their Stands; for Hawks, of all Birds, are the moſt conſtant to their wonted Places. Therefore, being thus acquainted with their Times of going out, and the Places where they ſit at their Return, take the Advantage of their going out for Prey, and climb up the Tree where their Stands are, and in the ſtrait Places where they muſt paſs; take a Pair of thoſe Nets, called by Falconers *Urines*, or *Urnes*, which for Shape are not ſo much different from thoſe you are to uſe for the Taking of *Branchers*; but they are much larger, and more hollow in Compaſs, with a large Meſh. They are made of ſtrong twiſted brown Thread, and dyed Green, as aforeſaid, but being common to be bought at Net-makers Shops, I ſhall ſay no more of them.

Theſe *Urines*, or Nets, place in the ſeveral Paſſages, and in divers Trees round their Stand; ſo that, let them come which way they will, you may meet with ſome of them, and place your ſelf in ſome ſecret Place, as before directed, to watch their Taking, for fear of hurting themſelves; and when you have taken them down, hood them, as aforeſaid.

But if it happen that this taketh no Effect, then fix Stales under your Nets of ſuch Birds, either great or ſmall, as you ſee they prey upon; and theſe Stales tye at ſuch a convenient Liberty, that they may flutter up and down within the Compaſs of the Net. Then about Day-break, when the Hawk begins to rouze herſelf upon her Stand, and to gaze about, according to their Nature, and hath caſt up her Caſting of Plumage or Feathers, ſhe being ſharp and hungry, will ſoon eſpy your Stales, and with all Eagerneſs make them her Prey, by which means ſhe will become entangled in the Nets; and by this Device you may take all the *Ayery*, provided you be not too raſh, by getting up the Tree to take that down, and ſo fright the reſt away.

To take Hawks *with Lime-Rods, or a Lime-Buſh.*

THere are ſome, that for taking of *Soar-Hawks* do uſe Lime-Rods, or a ſmall Lime-Buſh, artificially made of five Twigs, gently fix'd into a little Socket of Wood, made like a Handle, that ſo ſoon as any thing toucheth or ſtriketh them, they may preſently depart from the Socket, and clap cloſe to the Thing that it toucheth, that ſo becomes entangled. Thoſe little Buſhes are artificially placed about the Stand where the Hawk uſeth to ſit, compaſſing it ſo about, that ſhe cannot come to the Stand without entangling.

As for the ſingle Lime-Rods, they muſt be fix'd to the neareſt Branches to the Stand, coming ſlopewiſe ſo near the Stand, that ſhe cannot come in without touching them, and ſo become entangled. Theſe Lime-Rods are to be placed not only about the Stand, but alſo in and about all Paſſages, through which ſhe cometh to her Stand; and they muſt be artificially placed, that ſhe may not diſtinguiſh them from the natural Twigs of the Tree.

Theſe ſingle Lime-Twigs, or Rods, muſt be about a Foot and an half long, and about half-ways limed; but thoſe uſed for the Buſh, muſt be about twelve or fifteen ſmall Rods in a Cluſter, and ſo placed, that one may not touch another; which Twigs muſt be about ſix Inches long, of which lime four Inches towards the Top.

But although this Manner of taking Hawks is very certain, and not much troubleſome, yet it is not ſo good and neat, by reaſon of beſmearing their Feathers with the Lime; therefore for the cleanſing their Feathers from the Lime, have very fine clarified Capons Greaſe, or Gooſe-Greaſe, anointing therewith the limed Feathers very well, then take of the fineſt Hour-glaſs Sand, and ſcatter it thick upon the Ointment, and having warm Water, either bathe the ſaid Places, or with a ſoft Spunge dipp'd into the ſaid Water bathe the Feathers therewith, working them betwixt your Fingers; by which means you will get off all the dawb'd Lime, and perfectly cleanſe the Feathers from the ſame.

Taking Hawks *with a Dark-Lanthorn.*

THis Way is very good and ſure for ſingle Hawks, as well Young as Old. Obſerve this Method: Having found the Stand of a *Hawk* in the Dead of the Night, when it is very dark, get a Dark-Lanthorn, and turn the Light juſt before your Face, and againſt the *Hawk*, by which means your Face will not be ſeen by the *Hawk*, and make as little Noiſe as poſſible; and by this Device you may come unto her, and take her from the Stand with your Hand; for the Light doth caſt an Amazement unto her, and it were not amiſs if you covered your Face with a Piece of thin green Silk; for nothing is more frightful to them than the Face of a Man.

This Way is good to take all *Hawks*, that through ill Reclaiming, or otherwiſe, do eſcape and break away, and ſo become wild.

Concerning the Stands of Hawks.

IF it be a Day-Stand, you ſhall find about it nothing but Mutings and Slicings, without any Mixture of Matter. And if it be a Night-Stand, you ſhall find lying amongſt the Mutings many and divers Caſtings of Feathers, Plumage, and the like, which you may know to be a *Hawk*'s from other Fowl by the Bigneſs, Proportion and Subſtance. Alſo by the Difference of the Caſtings you may know if it be her preſent or former Stand; if her preſent, then you ſhall find Caſtings of all Natures, as, ſome altogether dry, ſome about three parts dry, others half dry, ſome leſs, and probably her Caſtings that Morning. But if it be her forſaken Stand, then all the Caſtings will be dry, old and wither'd. And thus much concerning the Taking of *Hawks*.

CHAP. XXXI.

Of Singing-Birds, *and how to preſerve and keep them.*

HAving thus largely treated of the Taking both Land and Water-Fowl, it will not be unneceſſary to treat of ſuch *Singing-Birds* as are of moſt Eſteem amongſt us, with ſome ſhort Directions how to keep them: And firſt of the *Nightingale*.

The Nightingale.

THis Bird by moſt is eſteem'd the Queen of all Singing-Birds, as well for her ſweet, as various charming Notes, which ſhe (though but ſmall) loudly warbles forth, and generally in ſuch Places as are near unto Houſes and frequented Places. They begin to appear about the Beginning of *April*, and where their Winter-Habitation is, none knoweth, but 'tis ſuppoſed by ſome that they ſleep all that Seaſon.

She makes her Neſt in Quickſet-Hedges, or in Beds of Nettles where old Quickſets have been thrown together, and Nettles grown through, and of ſuch Materials as the Place will afford: But others affirm, they have found their Neſts upon the Ground, at the Bottom of Hedges, and among waſte Grounds, and ſome upon Banks that have been raiſed, and then over-grown with thick Graſs. As for the Number of their Eggs it's uncertain, ſome having three or four, and ſome five, according to the Strength of their Bodies, and they hatch their Young commonly in the Beginning of *May*; and the earlier the young ones are hatch'd, they are eſteem'd the better. They ſhould be taken out of their Neſts when indifferently fledg'd; for if well feather'd, they (as all other Birds) will become ſullen and die, and if too little or callow, they are tender, and alſo in danger of dying.

For their Meat give them Sheeps-Hearts, or Bullocks-Hearts, but take off the fat Skin that covereth it, as alſo the Sinews; then ſoak the like Quantity of White-Bread in fair Water, ſqueezing out ſome of the Water, and mince them ſmall together, and give it them on the Point of a Stick, as much at a time as is ſufficient. When they are old enough to fly out of the Neſt, put them into a Cage, with ſeveral Pearches to ſit upon, and let them be lined with green Bays; for at the firſt they are very ſubject to the Cramp, and at the Bottom of the Cage put in ſome Moſs, or fine Straw; and it were not amiſs if their Cages were lined in the Winter, otherwiſe they muſt be kept in a warm Place. At their firſt Caging put amongſt their Meat a few Ants, to teach them to feed themſelves, and let them be kept a little hungrier than ordinary when you cage them, that they may the ſooner take to their Meat; but they will not feed enough at firſt to ſatisfie themſelves, and therefore ſupply them.

In Summer, every Day feed them with freſh Meat. When they begin to moult, let their Meat be hard Eggs and Sheeps-Hearts, of equal Quantities mix'd together with Saffron and Water; but by the way take notice, that Duck-Eggs will kill them. Sometimes you may give them Caterpillers, red Worms, Hogs Lice, or Meal-Worms.

As to their Diſeaſes and Cures obſerve, that at the latter End of *Auguſt* they grow very fat, as well thoſe abroad, as thoſe in Cages. When their Fat abates, and they ceaſe Singing, 'tis an ill Sign; therefore keep them very warm, and give them Saffron in their Meat and Water. When you perceive the Growth of their Fat, purge them thrice a Week for a Month, either with a Worm, uſually found in Dove-houſes, or with a ſpeckled Spider, which you may find about Vines, or Gooſberry-Trees, about *Auguſt*, and at no other Time.

If they are melancholy, put into their Drinking-Pot ſome Liquorice, with a litle White Sugar-candy, and let their Meat be Sheeps-Hearts ſhred, ſome Meal-Worms and hard Eggs, mingled with Piſmirs: And if they ſtill complain, put into the Pot ſix or eight Chives of Saffron, continuing withal to give them Sheeps-Heart and Paſte; alſo three or four Meal-Worms a Day, and a few Ants and their Eggs: Farther, boil a new-laid Egg very hard, chop it ſmall, and ſtrew it among the Ants and their Eggs.

If you keep them not clean, ſo that their Feet are clogg'd, their Claws will rot off, and they will be ſubject to the Gout and Cramp, and take no Delight in themſelves; therefore keep the Cage clean and handſome, with good dry Sand in the Bottom.

For the Cure of the Gout, take freſh Butter, and anoint their Feet four or five Days, and it will cure them.

They are alſo troubled with Apoſtumes, and breaking out about their Eyes and Nib, for which uſe Capons Greaſe.

But to raiſe *Nightingales* when they are very bare, ſo as that there is an abſolute Neceſſity for it, give them new Figs chopt very ſmall amongſt their Sheeps-Hearts and Paſte, or hard Eggs, and when they are recovered, bring them again to their ordinary Diet, that they may continue to be maintain'd in their ordinary Plight: But as ſoon as ever you perceive them growing fat, give them no more Figs.

In like manner, theſe Birds are ſubject to another Diſeaſe, called the *Straitneſs*, or *Strangling in the Breaſt*, coming very often from want of Care in making their Food, by mixing fat Meat therewith; and it may be perceived by the beating unuſual Pain, which abides in this Place, and by the Bird's often gaping, and opening his Bill. It alſo happens, by reaſon of ſome Sinew or Thread of the Sheep's Heart, for want of ſhreading with a ſharp Knife, to hang in his Throat, or many times it will claſp about his Tongue, ſo as to make him forſake his Meat, and grow poor in a very ſhort time, eſpecially in the Spring, or when he is in the Song. Now as ſoon as you perceive the Symptoms, take him gently out of his Cage, open his Bill with a Quill or Pin, and unlooſen any String, or looſe Piece of Fleſh, that may hang about his Tongue or Throat; and when you have taken it away, give him ſome white Sugar-candy in his Water, or elſe diſſolve it, and moiſten his Meat, which will prove a preſent Remedy.

The Way to take Nightingales.

FOR Young ones, obſerve where the Cock ſings, and if he ſings long, the Hen is not far off; and when you come near the Neſt ſhe will *ſweet* and *cur*. If notwithſtanding you cannot find the Neſt, ſtick a Meal-Worm or two upon a Thorn, and retiring into ſome Place out of Sight, obſerve which way it is carried by the Old one, and approaching, you will hear the Young ones when ſhe feeds them. Having found the Neſt, do not touch them, for then they will not tarry in the Neſt.

The Way to take *Branchers* is thus: Scrape, in the Ditch or Bank-ſide the Earth, about three Quarters of a Yard ſquare, that it may look freſh; then take a Bird-Trap, or Net-Trap, which make after this Faſhion.

Take a Net, made of green Thread, or rather Silk, which ſhould be about a Yard in Compaſs, and made in the Faſhion of a Shove-Net for Fiſh; then get ſome large Wire, which bend round, joining both Ends together, which put into a ſhort Stick about one Inch and an half long; then take a Piece of Iron with two Cheeks, and a Hole on each Side, thro' which put ſome fine Whip-Cord three or four times double, the better to hold the Piece of Wood unto which the Ends of the Wire are put, and with a Button on each Side the Iron, twiſt the Whip-Cord, to the end the Net may play the quicker. You muſt faſten the Net to the Wire as you do a Shove-Net to the Hoop; then get a Board the Compaſs of the Wire, and join the two Cheeks of Iron at the Handle of your Board, and make a Hole in the Middle thereof, and put a Piece of Stick, about two Inches long, and a Hole at the Top of your Stick, where you muſt have a Peg to put in, with two Wires an Inch and a half long, to ſtick your Meal-Worm upon; then in the Middle of the Top of the Net tie a String, drawing the Net up, having an Eye at the End of the Handle to put your Thread through, and pull it till it ſtands upright; then pull it through the Hole of the Stick that ſtands in the Middle of your Board, and put your Peg into the Hole, to hold the String of the Net, that it cannot fall down. Upon the Wires put two Worms before you put it into the Hole, and ſet it as gently as you can, that it may fall down upon the firſt Touch of the *Nightingale*'s Approach: Then having ſcraped the Place, your Net and Worm being in a Readineſs, put ſome Ants in your Trap-Cage, and upon the Board put ſome Worms upon Thorns, and ſet them at the Bottom of the Trap-Cage, to which end little Holes ſhould be made to ſtick in the Ends of the Thorns. Then plant your Trap near the Place where you heard them call, be it in the Ditch, by the Bank-ſide, or Corner of a Hedge, and you need not fear of catching ſome. You may ſet what Number of Cages you think convenient, the more the better.

Having taken any, tie the Ends of their Wings with ſtrong Thread, to diſable them from bruiſing and hurting themſelves againſt the Top and Sides of the Cage; and to that end it were convenient to let the Cage be lined with green Bays.

For four or five Days, until they are reclaim'd, let them not be diſturb'd with Company, but as little as may be: Let their Food be Sheeps-Hearts and hard Eggs, finely ſhred and mix'd together, with red Ants, and a few red Earth-Worms will not do amiſs. At the firſt taking them they will eat nothing but living Things, as Worms, Ants, Flies, Caterpillers, and the like: But if thro' Sullenneſs they will not eat, then open their Bills and force them, ſtrewing ſome of the ſaid Meat at the Bottom of the Cage.

When you find your *Nightingale* eat well by himſelf, and ſing often, without ſeeming to be diſturb'd at every little Noiſe, put back by Degrees the green Bays wherewith the Fore-ſide of the Cage is cover'd, and that in ſuch a Way as the Bird may not perceive it; and as you uncover him, ſet him by little and little in the Sight of the People, that ſo he may grow bolder, and not be frightned with their Sight, their Motions, or any ſudden Noiſe; and the beſt Way is to hang him towards the Top of the Cieling upon a Nail, they not delighting to hang low: For if he be full of Song, and you hang him upon a ſudden among much Company, and open, or put back the green Bays, and give him too much Light at once, he will immediately break off Singing, and Ten to One if he ſings till the *October* following.

Thoſe *Nightingales* that are taken in *July*, or *Auguſt*, will not ſing till the middle of *October*, and then they will hold in Song till *June* following; but thoſe taken in the Beginning of *April*, are eſteemed the beſt for Song. Thoſe Birds that ſing before they feed, are generally excellent; but thoſe that are long a feeding, and do not begin to Sing, are not worth the keeping.

Cocks are thus known from Hens; the Cock is ſaid to be longer and bigger than the Hen; to have a greater Eye, a larger Bill, and a Tail more reddiſh: But take this for a certain Rule, that if any of your Neſtlings, before they can feed themſelves, do Record a little to themſelves, and in that Recording you perceive their Throats to wag, it is a ſure Sign they are Cocks.

Branchers, when they are taken and do feed, whether Cocks or Hens, will record; but the Cocks do it much longer, louder, and oftner. You ſhall alſo perceive him to Sweet and Cur more often, with more Spirit, much louder, and you will find him uſually ſtanding upon one Leg, and holding on his warbling Notes, which may be diſcerned by the Motion of his Breaſt, with a long Continuance, which is not to be found in the Hen, who goes hopping and whiſtling up and down the Cage, making a Noiſe more like than a Song, which is very much interrupted and ſhort.

We will conclude this Subject with a few Obſervations concerning the Length of this Bird's Life. Some *Nightingales* live but One, ſome Three, ſome Five, others Eight, and until Twelve Years, and ſing rather better and better for the firſt 8 Years, but then decline by Degrees; but they muſt have good Keepers, that do prolong their Lives Three or Four Years, and where there is one kept in a Cage till that Age, a hundred Dies; yet the Care of ſome hath been ſuch, that it hath been known that *Nightingales* have liv'd to Fifteen Years Old, and continu'd Singing, more or leſs, for the moſt part of that time.

Canary Birds.

THeſe Birds take their Name from the Place from whence they firſt came, *viz.* from the *Canary Iſles*; but of late Years there is a ſort, that are brought from *Germany*, and are therefore called *German* Birds, by the Name of the Country, being a much better Bird than the other, tho' their firſt Original is thought to be brought from the *Canaries*: They are Birds, I mean the Cocks, that never grow Fat, and they cannot be diſtinguiſhed by ſome Country People, from common *Green Birds*; tho' they are much Luſtier, have a longer Tail, and differ much in the Heaving of the Paſſages of the Throat, when they Sing: But to make a right choiſe of this Bird, and to know when he has a good Song; in the firſt Place, let him be a long Bird, ſtanding ſtraight and not crouching, but ſprightly like a *Sparrow-Hawk*, ſtanding with Life and Boldneſs, and not ſubject to be fearful.

Theſe Birds being of ſuch Eſteem for their pleaſing Notes are much prized, ſo that as a Merchandize they are brought over and ſold by certain Shop-keepers about *Billingſgate*, and elſewhere, for Ten, Twelve, or Fifteen Shillings a piece, more or leſs, according to the Goodneſs and Excellency of their Notes, there being a great difference in them. Now 'tis very adviſable before you buy, firſt to hear them ſing; for the Buyer ſhall then pleaſe his Ears; for one fancies a Song Bird, another a very harſh Bird, if he be not ſweet: Tho' undoubtedly the beſt *Canary Bird* in general, is that which has moſt Variety of Notes, and is the longeſt Song Bird.

If you would know whether they are in Health before you buy them, take them out of the Store-Cage, and put them into a clean Cage alone; and if they ſtand up boldly without crouching or ſhrinking their Feathers, and look with a briſk Eye, 'tis a Sign they are in Health; yet the Bird may be unhealthy ſtill: But the greateſt Matter is to obſerve his Dunging; if he bolts his Tail like a *Nightingale* after he has Dunged, it's a great Indication he is not in perfect Health, tho' he may ſing at preſent and look very briſk, you may aſſure your ſelf it will not be long before he is Sick; but if they Dung very thin and watery, or of a ſlimy White, without any Blackneſs in it, 'tis a ſign of Death. When the *Canary Bird* is in perfect Health, his Dung lies round and hard, with a fine White on the out-ſide, and dark within, will quickly dry, and the larger the Bird's Dung is, the better 'tis with him, ſo it is long, round and hard; but for a Seed-Bird he very ſeldom dungs ſo hard, unleſs he be very Young.

They are ſubject to many Diſeaſes, as *Impoſtumes*, which afflict the Head, and will cauſe them to fall ſuddenly from the Pearch, if not ſpeedily Cured.

The moſt approved Medicine is to make an Ointment of Freſh Butter, and Capon's Greaſe melted together, and anoint the infected Place therewith three or four Days together, and when it is ſoft, open it gently and let out the Corruption, then anoint the Place with ſome more of the ſaid Ointment, and it will perfect the Cure in a ſhort time; and during the time of the Cure give them Figs and Liquorice, with White Sugar-Candy in their Water.

Some are ſo curious as to breed theſe Birds in *England*, and they have excell'd all others; now for ordering of theſe, you muſt when they begin to build, or are intended for Breeding, make a convenient Cage, or prepare a Room that may be fit for that Buſineſs, taking Care to let it have an Out-let towards the Riſing of the Sun, where you muſt have a Piece of Wire; that they may have Egreſs and Regreſs at their Pleaſure: This done, ſet up ſome Brooms, being either *Heath* or *Frail*, in the Corners of it; opening them in the middle, and if the Room be pretty high, two or three Brooms may be ſet under one another: But then you muſt make Partitions with Boards over the Top of every Broom, otherwiſe they will dung on one another's Heads; neither will they endure to ſee themſelves ſo near each others Neſts; for the Cock or Hen will be apt to fly upon a Hen that is not match'd to them, when they ſee them juſt under their Neſt; which many times cauſes the ſpoiling of their Eggs and Young One's.

In the next place, you muſt cauſe ſomething to be made ſo convenient, and of ſuch Bigneſs that may hold Meat a conſiderable time, that you may not be diſturbing them continually, and a convenient Veſſel for Water alſo; and the Place where the Seed is intended to be put, muſt be ſo ordered, that it may hang out of the Reach of *Mice*, for they are deſtroyers of them: You muſt likewiſe prepare ſome Stuff of ſeveral ſorts of things, ſuch as Cotton-Wool, ſmall dead Graſs, Elks-Hair, and a long ſort of Moſs that grows alone by Ditch-ſides, or in the Woods for them to Build withal. Dry it before you put them together, then mingle all well, and put them up into a Net like a Cabbage-Net, hanging it ſo that they may pull it out with conveniency. Pearches muſt alſo be ſet all about the Room, and if big enough, ſet a Tree in the middle of it, that ſo they may take the more Pleaſure, and always remember to proportion your Birds according to the Bigneſs of your Room, or rather, let it be under than over-ſtock'd; for they are Birds that love their Liberty.

Now when you perceive them begin to build and carry Stuff, give them once a Day, or in two Days at leaſt, a little Greens and ſome courſe Sugar; for that will cauſe a Slipperineſs in the Body, that ſo the Eggs may come forth without injuring the Birds; for they Die many times in Laying the firſt Egg, which is a Loſs to the Breeder; firſt in reſpect to his firſt Breed, then to the unpairing of the Cock, to which you ſhould put another Hen, whether he will Pair or no: But that Cock would be much better taken out, than ſuffered to be in your Breeding-place, eſpecially if it be ſmall, but with Pairs in a large Place, he cannot do that Injury, and it will be very hard to diſtinguiſh which is the Cock of that Hen that Died, and as hard to take him in a large Place, without doing more Injury than the Bird comes to; ſo that 'tis beſt to let him reſt to the End of the Year, when you drive them out to part them; but if you have but two or three Pair together, it will be the beſt way to take him out, and match him with another Hen, and then put him in again: Farther, when you find that they have built their Neſts, the Nets that have their Breeding ſtuff in them, may be taken away, for they will be ſubject to build upon their Eggs with new Stuff, if they do not Lay preſently.

As to the time of their Breeding, 'tis uſually thrice a Year, *viz.* in *April*, *May*, and *June*, and ſometimes in *Auguſt*; and for Ordering the young One's, they muſt not be left too long in the Neſts; for if ſo they are very apt to grow Sullen, and will not feed kindly; therefore they are to be taken out at about Nine or Ten Days Old, and put into a little Basket, and covered over with a Net, elſe they will be ſubject to jump out upon the firſt opening of the Basket, and be injur'd if they fall down: They muſt alſo be kept very warm for the firſt Week; for they will be very Tender, ſubject to the Cramp, and not digeſt their Meat, if they take Cold; and when they are taken from the Old *Canaries*, let it be in the Evening, and if poſſible, when the Old One's are out of ſight; otherwiſe they will be very apt to take Diſtaſte, when they Sit again, and have Young One's, and ready at every Fright to forſake both their Young and their Eggs.

Then for the Preparation of their Meat; take ſome of the largeſt *Rape-ſeed* and ſoak it in Water Twenty Four Hours or leſs; if the Water be a little warm, Twelve Hours may ſerve; then drain the Water from the Seed, and put a third part of White Bread to it, and a little *Canary-ſeed* in Flower, and ſo mix them all together: Then having a ſmall Stick, take up a little at the End of it, and give every Bird ſome, two or three times over: For if you over-charge their Stomachs at firſt, they ſeldom thrive after it: For you muſt underſtand the Old One's give them but little at a time; and the Meat they receive from them is warmed in the Stomach before they give it them, and then all *Rape* is Hull'd, which lies not ſo hard at the Stomach, as thoſe Seeds which have the Skin on: Neither muſt you make the Meat too dry; for then they will be apt to be Vent-burnt, becauſe all Seeds are hot: For 'tis obſervable, the Old One's conſtantly drink after they have eaten Seeds, and a little before they feed their Young One's; and they commonly ſit a quarter of an Hour or more after Feeding them, to keep them warm, that the Meat may the better nouriſh them: Wherefore when you have fed them, let them be covered up very warm, that their Meat may the better Digeſt with them.

Finally, not to paſs over the different Names of theſe Birds at different Times and Ages, ſuch as are above Three Years Old are called *Runts*: Thoſe above Two are nam'd *Eriſſes*, and thoſe of the Firſt Year, that the Old One's bring up, are termed *Branchers*: Thoſe that are new Flown, and cannot Feed themſelves, they call *Puſhars*, and thoſe that are bred up by Hand, *Neſtlings*.

The Linnet.

THis is a pretty Bird, and for a ſweet and pleaſing Note, takes place next to the *Canary Bird*, and were it not ſo common would be of great Eſteem. This Bird makes her Neſt in *Black-thorn*, *White-thorn* and *Furz-Buſhes*, upon *Heaths* more than any where elſe, and they build them with very ſmall Roots, and other ſort of ſtuff like Feathers; I mean thoſe that build in the *Heath*: But ſuch as do it in Hedges, build the Out-ſide of their Neſts with *Moſs*, and line it within according as the Place will afford: Some of theſe Birds will have Young One's four times a Year; eſpecially if they be taken from them before they fly out of their Neſts, and the better the Bird is in Mettle, the ſooner he Breeds in the Spring: The Young may be taken out at four Days Old, if you intend they ſhall learn to Whiſtle, or hear any other Bird Sing; for they being then ſo Young, have not the Old Bird's Song, and ſo are more apt to take any thing, than if you ſuffer them to be in the Neſt, till they are almoſt qiute fledg'd: But when they are taken out ſo Young, Care muſt be had to keep them warm, and feed them with White Bread ſoaked in Milk or Water, with bruiſed *Rape-Seed* mixt of the like quantity, and let it be freſh made every Day, for that which is ſour will breed Diſeaſes; this Meat give them on the Top of a Stick as often as occaſion ſerves to feed them; but a little at a time.

If you would have them to Whiſtle, you ſhould Whiſtle to them in the time of feeding them, and the beſt is with a *Flagelet*, obſerving conſtant Tunes, and of what Bird ſoever you would have him to learn his Note, under that Bird let him hang, and he will perfectly imitate him, eſpecially the *Canary Bird's* Notes exactly. Nay they may be taught to ſpeak.

The Cock's may be known from the Hens; firſt by the Colour of the Backs of the Birds; for if it be of the dark-colour'd *Linnet*, the Cocks are much browner than the Hens on the Back and Pinion of the Wing; and ſo of the *White-Thorn Linnet*; the Hens are much lighter colour'd than the Cocks: But this muſt be noted, that a Hen *Linnet* of the dark colour'd, is darker than the Cocks of the light colour'd *Linnet*; but the ſecond and ſureſt way of all is to know him by the White of his Wing.

His uſual Food is *Rape* and *Canary Seed* mixt together, with a little Hemp-Seed. And blow off the Husks every Day from the Seeds in the Drawer of his Cage, and betwixt the Wire put ſome Chalk to rub his Bill, alſo a Lump of Sugar is very good ſometimes to pick upon; the *Dutch Seeds* are eſteem'd better than the *Engliſh*, as being thiner ſkin'd.

This Bird is ſubject to many Diſeaſes, and when it is troubled with that called *Melancholy*, you will find the End of his Rump is ſwell'd; in which Caſe you muſt prick it with a Needle to let out the Corruption, and ſqueeze the ſame very well with the Point of the Needle; then anoint him with Ointment, made of freſh Butter and Capon's Greaſe; and for two or three Days feed him with Lettice, Beet-ſeeds and Leaves: You may alſo give him the Seeds of Melons, chopt in Pieces, which he will eat very greedily; but when you find him mend, take the Melon-ſeeds away, and give him his old Diet again. Put into his Water two or three Blades of Saffron and white Sugar-candy for a Week or more, till you perceive him well.

Scouring is another Diſtemper incident to the *Linnet*; the firſt Sort whereof, which is very thin, and with a black or white Subſtance in the Middle, is not very injurious nor dangerous; but the other between black and white, not ſo thick as the former, but very clammy and ſticking, is never good in a Bird; and the Way to recover him is, to give him at firſt Melon-ſeeds ſhred, and Lettice and Beet-ſeeds bruiſed, and in his Water ſome Liquorice and white Sugar-candy, with a little Flour of Oat-meal therein. And here Diligence muſt be uſed to obſerve him at firſt when he is ſick, that ſo he may have a Stomach to eat; for in two or three Days it will be quite gone, and then hard to be recover'd. The worſt of all the Three is the white clammy Scouring, which is very bad and mortal, if not timely look'd after; and this proceeds from bad Seeds, and many times want of Water. The Badneſs of the Seed may ariſe from Damage at Sea, Over-heating, or lying in the Wet too long before they have been houſed. If the *Bird* be not taken at the firſt Appearance, it takes away his Stomach forthwith, makes him droop, and fall from his Meat; wherefore to cure him, in the firſt place give him Flax-ſeed, taking away all other Seeds; then ſome Plantane-ſeed, if green, elſe it will do him no Good; and if ſuch can't be got, give him ſome of the Leaves ſhred very ſmall, and ſome Oat-meal bruiſed, with a few Crumbs of Bread; and in his Water give him ſome white Sugar-candy and Liquorice, with a Blade or two of Saffron.

Another Diſtemper is the *Phthiſick*, which may be eaſily perceived by the *Bird*'s Panting, and heaving his Belly faſt, and ſitting melancholy, with his Feathers ſtanding big and ſtaring; and by his Belly, when it ſhews it ſelf more puff'd than ordinary, full of reddiſh Veins, and his Breaſt very lean and ſharp. He will now alſo ſpill and caſt his Seed about the Cage, not caring to eat at all. It's a Diſeaſe that befalls them many times for want of Water, and having the Charlack-ſeeds mingled among the Rape-ſeeds, and for want of giving him a little green Meat in the Spring of the Year. Now, when you perceive him begin to be troubled with this Evil, firſt cut the End of his Rump, and give him ſome white Sugar-candy in his Water, with two or three Slices of Liquorice, and for want of ſuch Sugar put in fine Sugar. Then for his Meat you ſhall give him Beets and Lettice to feed on, or ſome of the Herb called *Mercury*, which is very good for this Diſtemper in any Seed-Bird. You may likewiſe give him Melon-ſeed chopp'd ſmall, and put ſome Gravel at the Bottom of the Cage, with a little Powder-Sugar, and a little ground Oat-meal: You may alſo put in ſome Loam, wherewith the Country People dawb their Walls, inſtead of Morter and Sand, bruiſed ſmall, and it will bring the *Bird* to his Stomach, if he be not too far gone, and paſt Cure.

A fourth Diſtemper this *Bird* is ſubject to, is the *Strains* or *Convulſions of the Breaſt*, for which you ſhall feed him with Lettice, Beet and Melon-ſeed bruiſed. Diſſolve ſome Sugar-candy in his Water, and ſome of the *Nightingale*'s Paſte, with a little Liquorice, ſo much as that the Water may taſte thereof, and ſo continue it for the Space of four or five Days, now and then taking it away, and giving him Plantane-Water, and the ſame Day be ſure to give him Beet or Lettice-Leaf.

A *Linnet* ſometimes is troubled with a *Hoarſeneſs* in the Voice, which many times comes through his Straining in Singing, and often he gets a Huſk in his Throat, which is ſeldom help'd to come ſo clear off at firſt. It frequently alſo happens, if he be a ſtrong mettled *Bird*, that he will break ſomething within him, ſo as never to come to ſing again. The ſaid Hoarſeneſs proceeds alſo from his being kept up very hot, and his Cage on a ſudden open'd to the Air, which immediately ſtrikes a Cold to his Breaſt and Throat, and often kills him: For if you have a *Bird* in the Moult, you muſt not carry him to the Air, but keep him at a Stay till he is moulted off, and then open him by Degrees, that he may not take Cold, and after his Moult, give him Beet-Leaves, or ſome Liquor in his Water to cleanſe him. Now to cure this Hoarſeneſs, the beſt Remedy is to put ſome Liquorice and a few Anni-ſeeds into his Water, and then to ſet him in a warm Place.

The Robin Red-Breaſt.

THis Bird being ſo innocent and harmleſs is moſt beloved, and of all others is the moſt familiar, coming into the Houſes to eat Crumbs of Bread; and for a ſweet and changeable Note is little inferiour to the *Nightingale*, or *Canary-Bird*; beſides it is very tractable to whiſtle. They breed generally thrice a Year, *viz.* in *April*, *May* and *June*. They make their Neſts with dry greeniſh Moſs, and quilt 'em within with a little Wool and Hair. They have ſeldom above five Young ones, and not under four, and build in ſome old Hay-houſe or Barn, or Reek of Hay or Corn. Thoſe that you intend to keep ſhould be taken from the Old ones before they are much fledg'd, otherwiſe they will be ſullen and die; and being a tender Bird, are to be kept in Cages lined with Bays. They are to be fed in all Reſpects as the *Nightingale*, but a little at once, yet pretty often, by reaſon of this Bird's bad Digeſtion; for he is apt to throw it up again. Be ſure he lie warm, eſpecially in the Night.

In the Bottom of the Cage put Moſs for Warmneſs. If you would have them learn to whiſtle, uſe the Flagelet, that hath a ſmall fine Note.

The Way to take the old ones is both eaſie and common, which you may do either with a Pit-fall, or with a Trap-Cage, bought at any Shop that ſells Cages, and in the ſaid Cage you may put for a Bait ſome little Worms, Crumbs of Bread, or the like.

The Cock hath his Breaſt of a darker Red than the Hen, and it goeth further up upon his Head.

This poor Bird is not exempt from Diſeaſes neither, he being very ſubject to the Cramp, and Giddineſs in the Head, which makes him many times fall off the Pearch upon his Back, and 'tis preſent Death, without ſome Help be ſpeedily uſed for him: But firſt for the Cramp; the beſt Remedy to prevent his having it, is to keep him warm and clean in his Cage, that his Feet be not clogg'd, whereby many times the Joints are eaten off, and the Dung is ſo faſt bound on, that it makes his very Feet and Nails to rot off; ſo that the Life and Spirit of the Bird is taken away; and if you find him droop and is ſickiſh, give him three or four Meal-Worms and Spiders, and it will mightily refreſh him: But for the Giddineſs in the Head, give him ſix or ſeven Ear-wigs in a Week, and he ſhall never be troubled with it.

If you find he hath little Appetite to eat, give him now and then ſix or ſeven Hog-lice, which may be found in any Piece of old rotten Wood, and let him never want Water that is freſh 2 or 3 times a Week.

Then to make him chearful and long-winded, give him once a Week in his Water a Blade or two of Saffron and a Slice of Liquorice, which will advantage his Song or Whiſtling very much.

As for the Extent of this Bird's Life, he ſeldom lives above ſeven Years, by reaſon he is ſo ſubject to the Falling-Sickneſs, Cramp, and Oppreſſion of the Stomach.

The Wood-Lark.

THis Bird for its excellent, pleaſant and various Notes is held in great Eſteem, and not much inferior to the *Nightingale*. They breed very early in the Year, and make their Neſt in Lair-Ground, where the Graſs is rank and ruſſet, under ſome large Tufts to ſhelter them from the Cold; and for their Young, they feed them with a ſmall kind of Worm, but they can never be brought up to any Perfection from the Neſt, as ever could be found, they generally dying of the Scouring or Cramp in a ſhort time after they are taken out of the Neſt; ſo that the beſt Way were to take the Old ones, or *Branchers*, before Moulting-time; and the chief Seaſon for the laſt being in *June*, *July* and *Auguſt*, the next Seaſon for Taking is their general Flight-time, which is the latter End of *September*; for then they rove from one Country to another; and laſtly from the Beginning of *January* to the latter End of *February*, at which time they are all coupled, and go to their Layers, or Breeding-places.

Thoſe that are taken in *June*, *July*, and the Beginning of *Auguſt*, are commonly taken with a Hobby after this manner: Go out in a dewy Morning to the Sides of ſome Hills that lie towards the Riſing of the Sun, where they moſt uſually frequent; and having ſprung them, obſerve where they fall; then ſurround them twice or thrice, carrying your Hobby on your Fiſt, cauſing him to hover as you draw near, by which means they will lie ſtill until you clap a Net over them, which carry on the Point of a Stick. If you would take three or four together, have a Net, made like that for Partridge, only with a ſmaller Meſh, and carrying your Hobby as aforeſaid, which will ſerve you as the Setting-Dog for the Partridge, and with your Net at one Draught you may take them all.

Now thoſe *Wood-Larks* that are taken in *June*, *July*, or *Auguſt*, ſing preſently, but laſt but a little time in Song; for they immediately fall to Moulting, which if they withſtand, they commonly prove very ſweet Birds, but not ſo laviſh as thoſe taken in the Spring: They are alſo commonly very familiar. Such as are taken at Flight, are brave, ſtrong, ſprightly, ſtreight Birds; but do not uſually ſing till after *Chriſtmas*: But for thoſe taken in *January* or *February*, they ſing within two or three Days, or a Week at fartheſt, if good-condition'd; and theſe laſt commonly prove beſt, as being taken in full Stomach.

Upon your firſt taking them, put into the Cage two Pans, one for minced Meat, and the other for Oat-meal and whole Hemp-ſeed; then having boiled an Egg hard, take the Crumbs of White-Bread, with the like Quantity of beaten Hemp-ſeed, and mix them altogether, mincing the Egg very ſmall, and give it them to eat. At the Bottom of the Cage ſhould be fine red Gravel, and be ſure to keep the Cage clean, and ſhifted every three or four Days at leaſt with freſh Gravel, which they much delight in, otherwiſe he will be ſubject to clog his Feet with his Dung, and will not take half that Delight in himſelf; for he takes Pleaſure to baſk himſelf in the Sand, which if he has not pretty often, he grows lowſie, and then ſeldom or never comes to Good. The Pearch alſo in the Cage muſt be lined with ſome green Bays; or elſe make a Pearch of Mat, which they delight much in: But if you find him very wild when he is taken, keep him three or four Days without Company, till he begins to eat his Meat, and becauſe they cannot ſometimes find the Pan till they are near famiſh'd, ſtrew Hemp-ſeed and Oat-meal upon the Sand. If you would have them ſing loud and much, feed them with Sheeps-Hearts, hard Eggs and Hemp-ſeed, bruiſed and mix'd together, and put into the Water a little Liquorice, white Sugar-candy and Saffron, once a Week.

If in the Beginning of the Spring you find them grow poor, give them for two or three Days a Turf of Three-leaved Graſs, as is uſed to the *Sky-Larks*; alſo ſome Sheeps-Heart boil'd, and mix'd with Bread, and hard Egg and bruiſed Hemp-ſeed, as before directed.

If thoſe Birds taken in *January* or *February* ſing not within a Month, 'tis a Sign they are either Hens, or will not be worth keeping. Now for the knowing a Cock obſerve theſe Rules: His tall Walking, the Largeneſs and Length of his Call, and the doubling of his Note, called *Cudling*, in the Evenings.

Wood-Larks are very tender Birds, if not rightly order'd, but if rightly order'd, they have been kept ſix or ſeven Years with much Pleaſure, having been better and better every Year that they have been kept, and at laſt have ſung ſuch Variety of Notes, even to the Admiration of all Hearers; but the particular Diſtempers theſe Birds are very ſubject to, are Lice, the Cramp, and Giddineſs in the Head. The beſt Cure for Lice is to take them out of the Cage, and ſmoke them with Tobacco; then put freſh Gravel into the Cage, and ſet them in an hot Place where the Sun ſhines, that they may baſk themſelves in the Sand. As for the Cramp, though many People admire how they can be cold in a Houſe, when others that go abroad ſuffer much more, and are never ſubject to the Cramp, the Reaſon is, that abroad they have Variety of Motion, as Flying or Running, which in a Cage they have not; but being confined to a narrow Compaſs, have very little or no Motion at all; and the Cage's being not often ſhifted with Gravel, clogs their Feet, numbs them, and brings the Cramp, as does alſo the hanging them abroad when it rains, whereby the Sand clogs and wets them, they ſitting all Night thereon: And if you hang them out, and the Sun ſhine not to dry it, they ought to have freſh Sand, and the Pearch ſhould be lined, that they may delight to ſit on it, whereby they will be every way better. And for the Giddineſs in the Head, it proceeds from giving them too much Hemp-ſeed. For Cure, give them ſome Gentles, Hog-lice and Emmets, with the Eggs, and put into their Water three or four Slices of Liquorice.

The Sky-Lark.

THE *Sky-Lark* is more hardy than the *Wood-Lark*, and leſs troubleſome to keep; but the Food given them when young is hard Eggs, Hemp-ſeed bruiſed, Bread and Oat-meal.

They breed in Corn-fields, or in high Tufts of Graſs in Meadows, and ſeldom have Young ones till *Mid-May*. They have uſually three or four in a Neſt, rarely if ever exceeding that Number; which Young may be taken out at a Fortnight old, and will be brought up almoſt with any Meat. Indeed in Winter we ſee great Flocks of this Bird almoſt in every County throughout the Kingdom, yet we find the feweſt of their Neſts of any Birds that are known to be plentiful.

They are taken ſeveral Ways, as already is treated of in a Chapter relating to the Taking them, to which I refer you. Only we may add one here, *viz.* That when a great Snow falls, it's common to take a hundred or two hundred Yards of Packthread, and at every ſix Inches to faſten a Nooſe, made with Horſe-hair, (two Hairs twiſted together is enough) the more Line the better; for it will reach the greater Length, and conſequently have the more Sport. Then at every twenty Yards you muſt have a little Stick to thruſt into the Ground, and ſo go on till it be all ſet. Then ſcatter ſome white Oats amongſt the Nooſes from one End to the other, and you will find the Larks flock extraordinarily thither, and when three or four are taken, ſee and take them out, for elſe they may make the others fly; and when you are at one End, they will be feeding at the other End; ſo that you need not fear ſcaring them away, for it makes them more eager at their Food.

If it be after *Chriſtmas*, before the Snow falls, theſe Birds ſeldom or never prove good for Singing; wherefore take them that you intend to keep for Singing in *October*, and then they will ſing a little after *Chriſtmas*: And of them chuſe out the ſtraighteſt, loftieſt and largeſt Bird, and he that hath moſt White in his Tail, theſe being the moſt uſual Marks for a Cock.

As for a Cage, you muſt provide him a good large one, with a Diſh in the Middle of it, or at one End, and always put ſome Water in when you place a green Turf there, ſince the Water will make it grow in the Cage. If you find the Bird wild and buckiſh, tie his Wings for two or three Weeks, till he become both acquainted and tame: Then when you perceive him pretty orderly, untie his Wings, ſtill letting him hang in the ſame Place he did.

Now this old Bird's Food muſt be Hemp-ſeed, Bread, and a few white Oats; for he takes great Delight to huſk the Oats; and when he begins to ſing, once in a Week you may give him an hard Egg, or ſhred him a little boil'd Mutton, or Veal, or Sheeps-Heart; but you muſt obſerve in this Bird, as in all others, that you give him no ſalt Meat, nor no Bread that is any thing ſalt.

The Tit-Lark.

THis is a Bird much fancy'd by many Men for his Whiſking, Turring and Chewing, ſinging moſt like the Canary-Bird of any *Bird* whatſoever; but he is very ſhort in Song, and has no Variety. It's a Companion of the *Nightingale*, for he appears at that Time of the Year the *Nightingale* comes, which is the Beginning of *April*, and leaves theſe Parts on the 3d or 4th of *September*. They are fed after the ſame manner as the *Nightingale*, when firſt taken.

There is no taking of the old ones but by a Net, ſuch as you take all other ſmall Birds with. He muſt be cramm'd, for he will not feed himſelf, becauſe he always feeds upon live Meat in the Field, ſeeing he is not acquainted with the Meat you offer him; but when he will feed of himſelf, he will eat *Wood-Lark*'s Meat, or almoſt any other. He is much of the Nature of the *Nightingale*, for he grows exceeding fat; but will not faſt as the *Nightingale* does, but eats his Meat, tho' he be never ſo fat.

She makes her Neſt about the latter End of *April*, and hath Young by the Middle of *May*. She always breeds in the Ground by a Pond or Ditch-Side, or in a Garden in high Graſs. Her Neſt ſhe builds of dead Graſs and a few ſmall Roots, and commonly lays ſix Eggs, or five at the leaſt; and ſhe feeds her Young with Caterpillars and Flies. They are Birds very eaſily brought up, as being hardy, and not ſubject to Colds and Cramps, as other *Birds* are, but live long, if preſerv'd with Care.

The Throſh, *or* Throſtle.

THere are ſeveral Sorts of this Bird; the firſt is the *Miſletoe-Throſtle*, which is much bigger and larger than any of the reſt, and his Food far different, and very few to be ſeen: But though he be exceeding beautiful, yet he ſings but little. He always breeds near ſome Place where ſtore of Miſletoe grows, and, if he can poſſibly, in a very thick Place, or in ſome Pit; for he is a very melancholy ſort of Bird. He makes as large a Neſt as a *Jay*, and lays as big an Egg, building the Outſide commonly with rotten *Heips*, and the Inſide with dead Graſs, Hay, or Moſs that he peels from Trees. She ſeldom lays above five Eggs, but four moſt commonly, breeds but twice a Year, hath three Young ones, and never above four, feeds all her Young with the Berries of Miſletoe, and nothing elſe as can be perceived; for which Reaſon of their Food, ſome eſteem this Bird to be an excellent Remedy againſt Convulſions and Falling-Sickneſs; and the Way of uſing is to kill and dry him to Powder, and to take the Quantity of a Penny-weight every Morning, in ſix Spoonfuls of the diſtill'd Water of Miſletoe-Berries, or Black-Cherry-water, faſting about an Hour after. The young Birds of this Kind, taken out about fourteen Days old, are very eaſie to be brought up, being a very hardy *Bird*; and they are fed with Bread and Hemp-ſeed, and a little Sheeps-Heart between whiles: But their Song is confuſed, rambling, not laviſh, and upon that account they are ſcarce worth Rearing: But they will breed like Pigeons, if rightly order'd.

The Northern *Throſtle*, or *Felfare*, is another Sort, which comes to us after *Michaelmas*, tarries all Winter, and departs the 1ſt of *March*. This *Bird's* Food is Hips and Haws in hard Weather, and in open Weather Worms and young Graſs, lying all together upon Meadow or Paſture-grounds. They come in very great Numbers, and alſo go away in Flocks. Their Breeding-place is aſſign'd to be near the Sea-ſide in *North-Britain*, where they are in abundance, and have Young three or four times every Year. They may be taken by Bird-lime, and are better for the Spit than the Cage, being excellent Meat when they are very fat, which is commonly in hard Weather; but in open Weather their Fleſh is very bitter, and not worth eating.

The third Sort is the *Wind-Throſtle*, which comes along with the laſt mention'd *Bird*, but is much ſmaller, with a dark Red under his Wing. It breeds in Woods and Shaws, as your *Song-Throſtle* in *Scotland*, and hath an indifferent Song, far exceeding the former. In *February*, in fine Weather, if the Sun ſhines, a great many of them will get together upon a Tree, and ſing two or three Hours, though they are not melodious, and ſo not worth one's Pains to keep them, eſpecially ſince they will not ſing above three Months.

The *Wood-Song-Throſtle* is a very rare Song-Bird, for the great Variety of his Notes, for the Laviſhneſs in his Song, and for his continuing longer than any *Bird* in Song, it being at leaſt for nine Months in a Year. The Hen makes her Neſt in the Beginning of *March*, upon the Stump of an old Tree, or Side of a Coppice by a Ditch, according as ſhe finds Stuff moſt convenient for her Building, and Food for her Young. She faſhions her Neſt round and deep with Moſs, or dry Graſs, and when ſhe has compleated the firſt part, ſhe wonderfully, and after a moſt exact and cunning Way, dawbs the Inſide with a Sort of Earth, called *Loom*, and does it ſo ſmooth and even, and all with her Bill, that it goes beyond the Art of Man to perform with any Tool: And whereas this *Bird* leaves a Hole moſt commonly in the Middle of the Bottom of her Neſt, it's ſuppoſed to be to this End, that it may not be drown'd upon any ſudden violent Showers, or long Continuance of Rain. They breed commonly three times a Year, if they meet with no Diſturbance or Caſualties by the Way: And if the Weather be fine and warm, they go very ſoon to Neſt. The firſt Brood is commonly hatch'd in *April*, and now and then at the latter End of *March*; the Second in *May*, and the Third in *June*; but the firſt *Birds* uſually prove the beſt and ſtouteſt. They may be taken in the Neſt at fourteen Days old; but they muſt be kept warm and neat, not ſuffering them to ſit upon their Dung, if it fall into the Neſt; but contrive it ſo, that they may dung over the Neſts, while they are young and ſmall. They muſt be fed with ſome raw Meat and ſome Bread, mix'd and chopp'd together, with ſome Hemp-ſeed bruiſed; which Bread muſt be wet, and mix'd with the Meat. When they begin to be well feather'd, put them into a large Cage, with ſome dry Moſs in the Bottom, and let them have two or three Pearches, that ſo they may ſit or lie at Pleaſure; for if not kept clean, they are ſubject to the Cramp, and will neither ſing, nor delight in themſelves. You may by degrees give him no Sheeps-Heart at all; for Bread and Hemp-ſeed will do; but be ſure to let him have freſh Water twice a Week, that he may bathe and prune himſelf.

Laſtly, The *Heath-Throſtle*, which is the ſmalleſt of the Three we have in *England*, may be known by his dark Breaſt; they are called *Meviſſes* in ſome Countries; for they differ in their Colour, Song, and Way of Breeding. It has far ſweeter Notes than the *Wood Song-Throſtle*, and is nearer to its Plume, and ſo to be preferr'd before him. The Hen builds by the Heath-ſide, either in a Furz-buſh, or by a Ditch-ſide, in the Stump of an old Hawthorn, and ſeldom haunts the Woods and Shaws, as the other doth; and her Neſt is more difficult to be found, which ſhe builds with long green Ground-Moſs, and makes it much deeper than the former, and leſs, and begins not to breed till the Beginning of *April*, breeds twice a Year, and is a fine, tame, neat Bird, if well fed, and kept clean, both from Dung and Vermine; and her Young you muſt breed up in the ſame manner as the other was order'd in all Things.

There are indeed various Ways preſcrib'd to diſtinguiſh the Cock from the Hen; but, in ſhort, take notice of her Gullet, and ſee if it be very white, with black Streaks on each Side; then if he have large and black Spots upon his Breaſt, and the Colour of his Head of a light ſhining Brown, with black Streaks under each Eye, and upon the Pinion of the Wing: If you find theſe Marks, I ſay, you are right in your Choice; but if you would not fail, bring up the whole, and, as you will find in a ſhort time after they feed themſelves, they will all record to themſelves; yet note, that the Hen does it with ſhort Catches and Jerks, and continues it not long, whereas the Cock is full, and you may perceive his Gullet to extend much more than the other's, and to ſing much oftner than the Hen. Having made this Obſervation twice or thrice, take him out of the Cage, mark him, and then put him in again.

The Black-Bird.

THis *Bird* is known by every body, and better to be eaten than kept. She makes her Neſt many times when the Woods are full of Snows, which happens very often in the Beginning of *March*, and builds it upon Stumps of Trees by Ditch-ſides, or in a thick Hedge, being at no Certainty like other *Birds*; and the Outſides of her Neſt are made with dry Graſs and Moſs, and little dry Sticks, and Roots of Trees; and ſhe dawbs all the Inſide with a kind of Clay-Earth, faſhioning it ſo round, and forming it ſo handſome and ſmooth, that a Man cannot mend it. They breed three or four times a Year, according as they loſe their Neſts; for if their Neſts be taken away, they breed the ſooner. The Young ones are brought up almoſt with any Meat whatever. This *Bird* ſings about three Months in the Year, or four at moſt, though his Song is worth nothing; but if he be taught to whiſtle, he is of ſome Value, it being very loud, tho' very coarſe; ſo that he is fit for a large Place, not a Chamber. And this *Bird* is one of the ſofteſt beak'd *Singing-Birds* we have in *England*.

The Starling.

THis is a very docile *Bird*, and if taken out of the Neſt young, is apt to learn both to talk and whiſtle. 'Tis a hardy *Bird*. Their Food is Sheeps-Hearts, or other raw Fleſh, hard Eggs minced, Hemp-ſeed, wet Bread, and the like.

'Tis is a *Bird* moſt generally kept of all Sorts of People, and above any other *Bird* for Whiſtling, and indeed the great Fault almoſt in every body is, that they have them too much fledg'd out of the Neſt, which makes them retain uſually ſo much of their own harſh Notes: Wherefore ſuch as would have them rare, and to avoid their own ſqueaking Notes, take them from the Old ones at two or three Days old: And this ſhould be done generally in all *Birds* that you intend ſhall learn to Whiſtle or Speak, and to learn another *Bird*'s Song, by hanging under him.

The Chaf-Finch.

THis is a very common Bird and by ſome admir'd for his Song; tho' there is no great Pleaſantneſs nor Sweetneſs therein: They are plentifully caught in Flight-time, but their Neſts are very ſcarcely found; tho' they breed in Hedges and Trees of all ſorts, and make them of *Moſs* and *Wooll*, or any thing they can almoſt gather up when they breed: They have Young One's two or three times a Year, but they are ſeldom bred from the Neſt, as being a Bird not apt to take another Bird's Song, nor to Whiſtle, ſo that they leave the Old One's to breed them up, that they may have the true Song: But the beſt ſort of theſe Birds are generally allow'd to be the *Eſſex Finches*, both for Variety and Length of Song, they ending with ſeveral Notes that are very pretty: It's an hardy Bird, and will live almoſt upon any Seeds, none coming amiſs to him: And he is ſeldom ſubject to any Diſeaſe, as the *Canary Bird* and *Linnet* are; but he will be very Louſy, if not ſprinkled with a little Wine, two or three times a Month.

The Bul-Finch.

ALL that is to be ſaid of this Bird is, that he hath neither Song nor Whiſtle of his own, but yet is very apt to learn, if taught by the Mouth.

The Gold-Finch.

THis is a Seed-Bird of a very rare and curious Colour, and were they not ſo plentiful, would be highly eſteem'd among us, they are uſually taken about *Michaelmaſs*, and will very ſoon become tame; they differ very much in their Tunes, for ſome of them Sing after one faſhion and ſome another: They breed commonly in the upper End of Plumb Trees, making their Neſts of the Moſs, which grows upon Apple-Trees, and of Wooll, and quilt the In-ſide with all ſorts of Hairs they find upon the Ground: They breed three times a Year; you muſt take the Young with the Neſt about ten Days old, and they muſt be fed in this manner.

Take ſome of the beſt *Hemp-ſeed*, and beat it very fine in a Mortar; then ſift it thro' a Sieve, and put as much White Bread as *Hemp-ſeed*, as alſo a little Flower of *Canary-ſeeds* thereto, ſo with a ſmall Stick or Quill, take up as much as the Bigneſs of a White Pea, and give them three or four Bits at a time: It muſt be made freſh every Day, and it is ſoon done, when the *Hemp-ſeeds* are bruiſed and ſoft; for if it be ſour it will immediately ſpoil their Stomachs, cauſing them to caſt up their Meat, and then 'tis ten to one if they live: They muſt be carefully kept warm till they feed themſelves, for they are very tender: They may alſo be brought up to any thing: In Feeding, be ſure to make him clean his Bill and Mouth; if any of the Meat falls upon his Feathers, take it off; otherwiſe they will not thrive; ſuch as eat *Hemp-ſeed*; to Purge them, let them have the Seed of Melons, Succory and Mercury, or elſe let them have Lettice and Plantane for this purpoſe; And when there is no need of Purging, give them two or three times a Week a little Sugar or Loam in their Meat, or at the bottom of the Cage; for all Seeds have a great Oilineſs in them, for which, if they have not ſomething to dry it up, in length of Time it fouls their Stomachs, and puts them into a Flux, which is very dangerous to them.

The Jenny-Wren.

THis is a curious fine Song Bird, being of a chearful Nature, and none exceeds him in his way of Song: It's of a pretty ſpeckled Colour, very pleaſant to the Eye, and when he ſings, he cocks up his Tail and throws out his Note with much Pleaſure and Chearfulneſs: It breeds twice a Year, firſt about the latter End of *April*, and makes her Neſt with dry Moſs and Leaves, and that ſo artificially, that it is a very hard matter to diſcover it, being it is amongſt Shrubs and Hedges, where *Ivy* grows very thick. Some will build in old Hovels and Barns; but then they are thoſe that are not uſed to Hedges: They cloſe their Neſts round, leaving but one little Hole to go in and out at, and will Lay Abundance of Eggs, ſometimes to the number of Eighteen: Nay, Sixteen Young One's have been taken out of one Neſt, all which, conſidering how ſmall the Bird is, ſeems unaccountable.

Their ſecond time of Breeding is in the Middle of *June*, for by that time the other Neſtlings will be brought up, ſo as to be able to ſhift for themſelves; but if you intend to keep any of them, take them out of the Neſt at twelve or fourteen Days old, and give them Sheeps-heart and Eggs minced very ſmall, taking away the Fat and the Sinews; or elſe of Calf or Heifers-heart: Theſe young Birds muſt be fed in their Neſts very often in a Day, giving them one or two Morſels at one time and no more, leaſt they ſhould caſt it up again, by receiving more than they can bear or digeſt, and ſo Die. They muſt be fed with a little Stick, at the End whereof take up the Meat, about the Bigneſs of a White Pea, and when you perceive them to pick it from the Stick themſelves, put them into a Cage, and having a Pan or two, put ſome of the ſame Meat therein, and about the Sides of the Cage alſo, to entice him to eat: Notwithſtanding you muſt ſtill feed them five or ſix times a Day for better ſecurity, leſt they ſhould neglect themſelves and die, when all your Trouble is almoſt paſt.

When they have found the Way to feed alone, give them now and then ſome Paſte, and if you perceive them to eat heartily, and like it very well, you may forbear giving them any more Heart: Farther, you muſt once in two or three Days, give them a Spider or two, and if you have a mind your Bird ſhould learn to whiſtle Tunes, take the Pains to teach him, and he will anſwer your Expectation: Now for the diſtinguiſhing of Cocks from Hens, when you have got a whole Neſt, obſerve which are the browneſt and the largeſt Birds, and mark them; obſerve alſo their Recording: For ſuch of them as ſhall record to themſelves in the Neſt, before they can feed themſelves, and thoſe whoſe Throats grow big as they record, they are certainly Cocks.

The Solitary-Sparrow.

THis Bird is naturally given to Melancholy, loving Solitary and By-places, and from thence at firſt came his Name; their Place of Delight is by old, decay'd and uninhabited Places, as being far removed from the Company of all ſorts of Birds: She is very jealous both of her Eggs and her Young, makes her Neſt in Holes, and chiefly in old Banks, or in the Holes of old hollow Trees, building the ſame with any Materials that lie next to her Habitation, and moſt nigh and convenient to her Neſt: For ſhe is a very idle Bird, and now and then doth not lay together ſtuff enough to keep her Young warm. She breeds thrice a Year, *viz.* in *April*, *May* and *June*, and hath her Young at no certainty, of which, if you would bring up any, chooſe the faireſt of the Neſt, as alſo the biggeſt, and let them be pretty well covered with Feathers, before they are taken out: For they are not given to be ſullen, without you let them alone ſo long till they are juſt ready to fly. And if they will not open their Bills, do you open them, and give them the quantity of two grey Peaſe, for three or four times, and you will quickly perceive them to eat of themſelves: You may put into their Pan or Trough ſome Sheeps-heart and Egg, as you feed your Young Birds withal: But tho' they feed themſelves, put two or three Pieces into their Mouths, until ſuch time as you perceive them to eat enough to ſatisfie themſelves: Cage them as ſoon as ever they are forward to eat off the Stick, and put ſome fine dry Moſs in the Bottom thereof, keeping them as clean and neat as poſſibly you can; otherwiſe they will grow Lame and Die: So that you muſt keep Sand in the Bottom of the Cage in Summer, as you muſt Moſs and Hay in Winter; and feed them with Sheeps-heart and Egg minced ſmall, and now and then ſome Paſte, and if you pleaſe, a little *Wood-Lark's* Meat alſo.

The Hedge-Sparrow.

THis is a very pretty Song Bird, ſinging early in the Spring, tho' little taken Notice of: He has great and pleaſing Varieties; Old or Young become Tame preſently, if they are taken the latter End of *January*, or Beginning of *February*, and they will feed upon *Wood-Lark's* Meat, or any thing elſe you will give them. They build their Neſts in a *White-Thorn*, or private Hedge, and make it of dead Graſs, fine Moſs and Leaves, with a little Wood.

She lays an Egg much different from other Birds being of a very fine blew Colour, and ſhe has commonly five Eggs, and brings up her Young, with all ſorts of Food ſhe can get. This is a very remarkable Bird, and will take almoſt any Bird's Song, if taken Young out of the Neſt; and perhaps might be taught to whiſtle and ſpeak.

Paſte for Birds.

HAving ſaid as much as was thought proper concerning ſinging Birds, with the Manner of preparing and keeping them; it will ſtill be neceſſary to add one thing, and that is to give an account of the manner of making a certain *Paſte*, (ſeveral times mentioned before) that is rightly eſteem'd a pretty general Food for them: In order hereunto, take half a Peck of the fineſt *Horſe* Beans, very dry, which grind very fine, and diligently Bolt thro' a very fine Bolter, as is uſed for Wheat-meal, or taking ſo much in quantity as is convenient for the Turn, according to the ſtock of Birds that are kept.

For Example; let the Meal be two Pounds, with one of the beſt ſweet Almonds blanched, which afterwards muſt be very diligently beat in a Mortar, rather finer than thoſe Almonds that are beat for March-pans: Then take four Ounces of freſh Butter, I mean, without Salt, which muſt be put in a Copper-pan, well Tinn'd, mix them all well together; then ſet the Pan on a Charcoal-Fire, that it may not ſmell of Smoak, continually ſtirring it whilſt it ſtands on the Fire, with a Wooden-Spoon, that ſo it may boil by degrees, and not burn to; then take four Yolks of Eggs, and a little Saffron, and when the Butter is all melted, having ſome Virgin-Honey ready, drop in ſo much by degrees, continually ſtirring it, that it may incorporate all the things in one: That done, take a Cullender made with ſuch Holes as will let all paſs that's ſmall and lies not in a Knob, and the Remainder of the Paſte beat in a Mortar again: And if you find it will not paſs through the Holes, ſet it upon the Fire to boil gently again: Then try to force it through the Cullender, till it come in ſuch Quantity and Quality as is requiſite for the Store of Birds you keep: But if ſome of the Paſte ſtill remains without paſſing thro' the Cullender, ſet it upon the Fire to boil very well, and make a farther Eſſay to force it all thro' ſo far forth as that it may all be brought to a juſt Conſiſtency.

To keep this Paſte, you muſt pour Honey above, which muſt be firſt melted and a little clarified: This Paſte may be mixed with any Birds Meat whatever; for it is a brave ſtrengthning, cleanſing Diet, and when once made is ready at all times, and will continue good for ſeven or eight Months.

CHAP. XXXII.

Of the Water-Spaniel, *how to Train and Order him for the Game, uſeful in* Fowling.

THE *Water-Dog* is of ſuch general uſe, and ſo common amongſt us, that there needs no great Deſcription of him; but there are great Differences amongſt them, as well in Proportion as otherwiſe. As to Colour, the Curious will make a difference, as the Black to be the beſt and hardieſt, the Spotted or Pyed quickeſt of Scent, and the Liver-hew'd ſwifteſt in Swiming; but in truth Colour is nothing material, for without doubt there are good and bad of all Colours, and that by Experience is found: But his Breeding, Training-up, and the coming of a good Kind, are the chief things; yet it muſt be confeſſed, that as to Handſomneſs the Colour is to be regarded, ſo is the Proportion as to his Shape; and then his Head ſhould be round, with curled Hair, his Ears broad and hanging, his Eyes full and lively, his Noſe ſhort, his Lips like unto an Hounds, his Neck thick and ſhort, his Shoulders broad, his Legs ſtraight, his

Chine ſquare, his Ribs with a compaſs, his Buttocks round, his Thighs brawny, his Belly gaunt, his Paſterns ſtrong, and Dew-claw'd, and his Fore-feet long and round, with his Hair in general long and curled, not looſe and ſhagged; for the firſt ſheweth Hardineſs and Strength to endure the Water, and the other much Tenderneſs and Weakneſs.

Now for the Training and Bringing him up, you can't begin too Early, I mean, to teach him Obedience when he can but Lap, for that is the principal thing to be learnt; for being made to Obey, he is then ready to do your Commands: Therefore ſo ſoon as he can Lap, teach him to *Couch* and *Lie cloſe*, not daring to ſtir from that Poſture without your Command; and the better to effect this, always cheriſh him when he does your Will, and correct him when he diſobeys; and be ſure to obſerve, that in the firſt Teaching him you never let him eat any thing, but when he does ſomething to deſerve it, that he may thereby know that Food is a thing that cometh not by chance, or by a liberal Hand, but only for a Reward for well doing; and this will make him not only willing to Learn, but apt to remember what he is taught without Blows; and to that end, have no more Teachers or Feeders than one, for Variety breeds confuſion, as teaching divers ways, ſo that he can learn no way well.

Another thing is, you muſt be very conſtant to the Words of Direction by which you teach him, chuſing ſuch as are moſt pertinent to the purpoſe, and thoſe Words that you firſt uſe do not alter, for *Dogs* take notice of the Sound, not of the Engliſh, ſo that the leaſt Alteration puts him to a ſtand: For Example, if you teach him to *Couch* at the Word *Down*, this will be an unknown Command unto him; and I am of Opinion, that to uſe more Words than what is neceſſary, for one and the ſame thing, is to over-load his Memory, and cauſe Forgetfulneſs in him. (And this Method ſhould be obſerved as to the *Setting-Dog*). You muſt teach him alſo to know the Word of *Correction*, or *Reprehenſion*, for no Leſſon can be taught without a Fault, and no Fault ſhould eſcape without Reprehenſion at the leaſt of Chiding, and in this be as conſtant to a Word, as *Go too Sirrah*, *Ha Raſcal*, or the like, which at firſt ſhould be uſed with a *Laſh*, or *Jerk*, to make him know that it is a Word of Wrath or Anger; neither muſt ſuch Words proceed from you lovingly or gently, but with Paſſion, and Roughneſs of Voice, together with Fierceneſs of Looks, that the *Whelp* may Tremble when he hears you thus ſpeak to him.

You muſt have certain Words of *Cheriſhing* when he doth well, that he may be thereby encouraged; as *That's a good Boy*, *Well done*, or the like, uſing therewith Chearfulneſs of Speech, with Actions of Favour, as *Spitting in his Mouth*, *Clapping him on the Back*, and the like. You muſt alſo uſe ſome Words of Advice, that when he is at his Sport he may the better perform the ſame, and they may ſerve as a Spur to put him forward with more Chearfulneſs of Spirit, as *Take heed*, *Hem*, or the like.

When your *Whelp* is brought to underſtand theſe ſeveral Words, *viz.* of *Inſtruction*, *Correction*, *Cheriſhing*, and *Advice*, and that he will *Couch* and *Lie down* at your Feet, how, when, and as long as you pleaſe, and that with a Word or Look only, then teach him to lead in a *Line* and *Collar*, and to follow at your Heels, without coming too cloſe, or hanging back; and the Meaning of this is, to teach him to be the more Familiar and Obedient unto you.

Having brought him to perfect Obedience, to follow you in a *Line*, the next thing muſt be to make him follow you in the like Nature looſe, without a Line, and always to be at your Heels, and to lie down by you without your leave to the contrary; and this is as neceſſary a Leſſon as can be taught him, for he muſt be ſo but upon eſpecial occaſion, as to raiſe up *Fowl* from their Haunts, and to find out and bring ſuch as you have Shot, or Kill'd, unto you.

The next Leſſon to learn him is to *Fetch* and *Carry* any thing that you ſhall command him, and this you may begin to teach him by the way of Sport, as by taking your Glove, and ſhaking it about his Head, making him to catch at it, and to play with it; and ſometimes let him hold it in his Mouth, and ſtrive to pull it from you; then caſt it a little way from you, and let him Muſle it on the Ground; then take it from him gently, giving him Cheriſhing words, as *That's a good Boy*, *Well done*, or the like. After you have ſpent ſome time in this, and that you find him to take it from the Ground, and to hold it in his Mouth as it were for you, then begin to caſt it further and further, giving him your Command, ſaying *Fetch*, or *Bring it Sirrah*; and if he brings it, then Cheriſh and Reward him with Meat, or a Cruſt of Bread, and let him have no Food, but what he deſerves by doing this Leſſon, and by your continual Practice he will fetch your Glove, or any thing elſe you ſhall throw out for him.

If at any time he offers to run away with your Glove, or to toſs it up and down wantonly, not bringing it to you orderly; then firſt give him your Word of *Inſtruction*. and if that will not do, your Word of *Correction*, and if neither avail, then proceed to Blows, and give him nothing to eat as a Reward until he doth as you command. When by this means you have made him perfect, and that he will fetch your Glove readily where e're you throw it, bringing it to you although in Company, and all call him to come to them, you muſt then make much of him, and reward him very well: And having Trained him up to fetch your Glove, then proceed to teach him to fetch whatſoever you throw from you, as Staves, Nets, Stones, Money, or any thing that is portable.

Alſo teach him to carry live or dead Fowl, and with a tender Mouth, that when you have occaſion to uſe him for the Sport, he may bring them to you without tearing, or ſo much as bruiſing a Feather.

And as you walk with him in the Fields, drop ſomething behind you unknown to him; and being gone a little way ſend him back to ſeek it, by ſaying, *Back Sirrah, I have loſt*; and if at firſt he ſtand amazed urge him ſtill, and ceaſe not by pointing to him the Way you would have him go, until by ſeeking out he finds that which you ſo dropt, which make him take up by ſaying *That's it*, and to bring it after you; then drop it again, going twice as far as formerly, cauſing him to go back to ſeek it, not leaving him till you have made him find it, and bring it to you; for which Cheriſh and Reward him, and where he fails there Chaſtiſe or Chide him, ſometimes with angry Words, other times with Blows, and ſometimes keep him Faſting, according to his Offence; and thus do until he will hunt the way back which you went, were it above a Mile.

But if your *Dog* happen to bring to you a wrong thing, you muſt receive it from him, and Cheriſh him; but ſend him back preſently again, ſaying, *Away again*, or *I have loſt more*, and be not ſatisfied until he bring you the right thing; and if he return without any thing, then be ſure both to Chide and Beat him for his Sloth and Negligence.

When he will thus Fetch, Carry, and Find out things thus loſt, then Train him to Hunting, beginning firſt with Tame-fowl, which by your help, (when they Dive, or otherwiſe) you may with little Labour make him take, which will much hearten and encourage him to the Sport. After this make him uſe all his Cunning without your Aſſiſtance, whether he gets or loſeth the Game, and according to his Deſert, Reward or Correct him; and by this Practice he will become Maſter of his Game; and be ſure always that he brings his Game (when taken) to the Shoar unto you, without hurting it.

Your next Buſineſs ſhall be to train him unto your Fowling-Piece, cauſing him to follow as it were ſtep by ſtep behind you, and under the Covert of your Shadow until you have Shot, or elſe to *Couch down*, or *Lie cloſe*, where you appoint him, by ſaying *Lie cloſe*, until you have Shot; and then upon the leaſt Notice or Beckoning ſpeedily to come and do what you Command.

Some *Dogs* are ſo expert as to have their Eye on the Game, and upon a Guns going off immediately run to fetch it; but 'tis not adjudged ſo good, for the Piece ſhould not be the Warning to him, but your Command; and if you give him this Liberty at your Shooting, when you come amongſt your Nets, or Lime-Rods, as ſoon as he ſeeth the Fowl entangled, and to flutter their Wings, he will preſently ruſh in amongſt them, which will occaſion the ſpoiling your Lime-Rods, and the tearing or entangling your Nets.

The *Spaniel* is of great uſe in Moulting-time, that is, when the Wild-fowl caſt their Feathers, and can't fly, but lie lurking about in ſecret Places; which Seaſon is between *Summer* and *Autumn*, at which Time take your Dog into ſuch Places where they reſort, cauſing him to hunt about, and when he finds them they are eaſily taken, by reaſon they can't fly. In *Fenny Countries* (where Fowl do much reſort) great quantities may be ſo taken, driving them into Places where you muſt have Nets ready fixed, as in narrow Creeks, or the like. Theſe Fowl, if taken and kept tame, and fed with Beaſt-Livers, Whey, Curds, Barley, Paſt, Scal'd-Bran, and the like, are excellent Food, far ſurpaſſing thoſe abſolutely Wild, both for Plumpneſs and Fatneſs of Body, as alſo for Sweetneſs of Taſt.

There are divers other things that your *Water-Spaniels* are, and may be taught; as taking off one's Hat, ſhutting of a Door, and the like, all which I forbear as things not abſolutely neceſſary for our purpoſe, and chiefly to pleaſe the Fancy.

CHAP. XXXIII.

Of the Setting-Dog, *with Rules to chooſe one, and to Train him up from a* Whelp, *to come to Perfection.*

OF all ſorts of *Dogs* there is none ſo fit and proper to be made a *Setting-Dog*, as a *Land-Spaniel*, by reaſon of their Natural Inclination to Ranging and Beating about a Field; But any *Dog* whether a *Water-Spaniel*, or a *Mungril* betwixt both, or indeed a *Lircher* or *Tumbler*, or any *Dog* that hath a perfect good Scent, and is naturally addicted to the Hunting of Fowl, may be brought to be a *Setter*.

You ſhould chuſe one of a good and nimble Size, rather ſmall than large and corpulent, of a high Mettle, and free for the Sport, being a nimble Ranger, of active Feet, wanton Stern, buſie Noſtrils, and quick Scent; that his Toil be without Wearineſs, his Search without Changeableneſs, and yet that no Delight or Deſire of the Game tranſport him beyond Fear or Obedience; for it is the beſt Sign of a good *Spaniel* never to be fearful, but always loving to his Maſter, yet of bold Courage.

Some are curious in obſerving the Colours, but that I judge a vain thing; for all Colours are alike, if the natural Qualities be perfect, and anſwerable to your Deſign. But thoſe aforeſaid Properties cannot be known whilſt they are young, therefore your great Care is to make Choice from a good and right Breed; and having ſo done, you may begin to teach him at five or ſix Months old, as being then very tractable; for the older they are the more ſtubborn to learn, nor will they retain their Learning ſo well.

The firſt Thing is to teach him to be loving and familiar to you above all others, taking his only Delight in your Company: And the better to effect it, let none feed him but your ſelf, for by this means he will not only be loving and fond, but obedient and careful of your Diſpleaſure, a Frown or a ſharp Word making the ſame Effect as Blows; for Beating takes off their Courage, and makes them dull and dead-ſpirited.

Your Whelp being thus brought to the Knowledge of you, and to follow you in a Line without any Reluctancy; your next Buſineſs is to teach him to couch, and lie cloſe to the Ground, firſt by laying him down, ſaying, *Lie cloſe*, *Lie cloſe*, or the like Words of Command, and terrifying him with rough Words when he doth any thing contrary to your Deſire, giving him not only good Words and Cheriſhing, but Food, when he obeys your Commands; and by this means you will bring him to ſuch Obedience, and perfect Underſtanding, that when at any time you ſhall ſay, *Lie cloſe*, *down*, or the like, he will do it at a Word, without any Awkwardneſs.

Then about a Yard Diſtance lay down a Piece of Bread or Meat, crying, *Go near*, making him creep to it; but before he comes to it, ſpeak ſmartly to him, bidding him *Lie down*, *take heed*, or the like; which obeying, give him your Commands, by crying *Hey*, or the like Words, to ſignifie him to creep forwards to it, and let him eat it, making much of him; and be careful not to be too ſevere in your ſharp Words or Corrections, (eſpecially at firſt) for that may ſpoil him; and being thus at Command to couch down at your Word, and always with his Head from you, make him creep forward, by ſaying, *Go near*, *Go near*, or the like; and if he offers to raiſe up his Head, or any Part of his Body, forthwith thruſt it down to the Ground, ſaying, *Down*, *Down*, or the like; and if that will not do, correct him gently with a Whip, or by biting his Ear; for by no means beat him about his Head, for that makes him dull, and will ſpoil him; and be ſure when you thus chaſtiſe him, have him always in a String, (as indeed at all times during his Making) that he may not run from you: And this Method obſerve until he is very expert, couching at your Command, creeping on his Belly as far as you pleaſe, and lying ſtill until you give him your Command to riſe; ſo that at any time when you walk abroad with him in the Fields, and he wantonly rangeth about, upon his firſt hearing your Commmands to *lie down*, he *coucheth down*, and ſo lieth till your further Commands.

Having brought him to this Obedience and Knowledge, then take him into the Field to range about, ſuffering him to ſpring any Bird or Game, not correcting him at the firſt, which will encourage him the better; and thus do for about a Week, exerciſing him daily and when he hath been uſed three or four times to ſpring Partridges, he will not follow any other ſmall Bird, ſticking only to them.

Take notice that you give not a Bitch that Correction as a Dog, for ſhe will not endure ſo much; and what a Dog learneth one Day, he will retain it, but a Bitch is apt to forget; ſo that ſhe muſt have the oftner Teaching.

If you can get a Spaniel that hath been accuſtom'd to the Hawk, (altho' a Year and a half old) he will be ſooner made; for then there will be no need to give him the Liberty of Springing without Checking; for they will mind no other Game but the Partridge.

Having brought him to know his Game, and that he is ſo ſtaunch as to hunt cloſe and warily, without Queſting or Opening, provide a Bullock's Liver boil'd (which hath the ſame Scent as the Partridge;) then take your Dog in a Line, which muſt be about 15 Yards long, to lengthen out on Occaſion, and take in your Hawking-bag a good Piece of the Liver, about the Bigneſs of a Penny-loaf, cut into ſmall Pieces, and lead him into the Field, and as you are going (your Dog being by your Side, or following you, for he muſt not go before you) give him your Commands to fall down, as aforeſaid; and if he doth it not, correct him, rewarding him with ſome of the Liver if he obſerves your Commands: Then go a little further, commanding him down again, ſaying *Down*; and thus do until he will couch at the firſt Word: And being brought to this Command, turn your Face to him, and take the Line by which he is led, gently pulling him by it, crying *Down*, *Down*; ſo that he will not riſe without pulling almoſt by Force: Then go to him, take him up in your Arms, and carry him two or three Yards; then ſet him down, making much of him, but not letting him go out of the Line from you. When he is at this Command, by often uſing this Way, teach him to hunt by Hand, which is thus done: Take a Piece of the Liver about the Bigneſs of a Walnut, which ſhewing him in your Hand, and letting him ſmell to it, caſt it down which way you pleaſe, but at a ſmall Diſtance at firſt, ſaying *Hey*, *Hey*, ſhewing it him ſeveral times before you caſt it forth; then let him go to it, and eat it, ſtill having him in the Line. Then take another Piece of the Liver, ſhewing it him, as aforeſaid, and caſt it from you a little further than at the firſt time, and permit him to go to it, and eat it for his Reward. Thus do ſeveral times, ſtill caſting it further and further; and as he is going you may give him your Commands, crying haſtily, *Down*, *Down*; ſo that he immediately falls down, with his Face towards the Liver, and lie cloſe till you give him your Commands to riſe, by crying *Hey*, and pointing with your Hand for him to go forward to the Liver, and ſo ſuffer him to eat it; then call him to you, and make much of him.

The Reaſon of teaching him thus to hunt with the Liver, is to bring him not only to the Scent of the Partridge, and to be at Command to lie down, and the like, but alſo to obſerve your Motion which way you caſt it, that thereby when he is beating about the Field, upon your crying *Hey* to him, and moving your Hand, he may know by the Motion thereof which way to hunt, either to the Right or Left. And he muſt be very expert in this before you ſuffer him to hunt looſe, for he cannot be at too much Command.

Being thus expert at this, and alſo at great Command, when he is hunting at about fifteen Yards Diſtance, which is the Length of the Line, on a ſudden cry, *Down*; then go round him at a ſmall Diſtance at firſt, taking the Circuit larger and larger, crying *Down*, that he ſtir not, (which he may be apt to do, being at ſome Diſtance from you, as thinking that he ſhould follow you) and then give him a Jerk with the Line, crying, *Down*, by which he will know that he muſt not ſtir.

Being thus uſed, and that he is expert therein, and at Command, let him hunt at Liberty, but with the Line hanging at length dragging after him; and as he is thus hunting looſe, on a ſudden give him your Commands to lie down, and peg the End of the Line to the Ground to hinder his running away; then pitch down your Staff or Pole, to which faſten your Line of the Net at ſome Diſtance from him, and having the other End of the Net in your Hand, gently draw the Net over him as he lieth, and if he offers to ſtir at your doing it, rebuke him, making him lie cloſe, ſaying *Down*, *Down*, and ſo draw it over him backwards and forwards, that when you ſhall come to draw the Net over him when he ſetteth Partridges, he will not be afraid, knowing what he is to do. And the Reaſon of the faſtening the Line to the Ground that he is led in, is to keep him from running away at the firſt, in caſe the drawing over the Net ſhould frighten him, as at firſt is uſual.

When he is thus made perfect, and that he endures to have the Net drawn over him without ſtirring, and that he is come to a good Scent to know the Partridge from the Lark, or any other Game, be provided with a Brace or Leeſh of live Partridges, which carry into the Field; and having Strings to their Legs, peg them down to the Ground, which ſhould be done over Night, to the end he may not know they were there placed by you; and for your Mark of Direction to know where they are when you come to hunt with him, place up a Bough near them, to the end that when, by beating about the

Field, he comes near them, that is, at about ten or twelve Yards Diſtance, having his Line dragging after him, and gaining the Point to be under the Wind of them, give him your Command to lie down; then round your Dog five, ſix, or ſeven times, to find where they are, as alſo that he may know his Duty; then come up to him, and peg the End of the Line down to the Ground, that when you have drawn the Net over the Partridges, he may not riſe at their Fluttering, as they will do. Then ſet a Pole or Staff on the Side of the Partridges at a reaſonable Diſtance, to which fix the Line, and gently draw it over your Dog, and let it lie ſpread all over. And fearing that your firſt Net will not be ſufficient to ſpread over the Partridges, be provided with another, the End of which tie to your Staff, and draw down the Wind towards the Game, ſo that both Nets may meet, which will ſpread over a good Quantity of Ground. Then make unto your Nets, take the Partridges, and make up your Nets; all which time cauſe him to lie cloſe, without ſtirring, and having ſo done, go to him, and reward him with one of the Necks of the Partridges, permitting him to take their Blood: And if you chance to miſs, however reward him with ſome of the Liver, as aforeſaid.

After this Method do ſeveral times, by which means, when he comes to know the Scent of the Partridge, he will know how to ſet a Covey, and you will alſo know at what Diſtance he ſets, for the laying over the Nets.

Note, That when you correct your Dog, always have him in a Line, that he may not run away, and alſo lead him ſome Diſtance after his Correction. Alſo always when you go into the Field, and when you come out, lead him in a Line until he is perfectly made. And note, That the beſt time to enter your Dog (provided he knows his Game) is in Paring-time, for then you will find more Game, (that is, more Pairs) than before you can Coveys; and alſo at that time the Partridges will lie more cloſe, and not be ſo apt to ſpring, which is a great Encouragement to your Dog. Alſo note, that you never let your Dog hunt too long in hot Weather without Water, Water; for that brings them to the Falling-Sickneſs, which *French* Dogs are more ſubject unto than *Engliſh*.

When you have brought your *Dog* to this ſtaunch and obedient Hunting, and that you find him come upon the Haunt of any *Partridge*, which you ſhall know by his great Eagerneſs in Hunting, as alſo by wagging his Stern; then ſpeak to him, ſaying *Take heed*, *Ware*, *Down*, or the like, to keep him from ſpringing them, but if either he ruſheth in, or *Queſt* ſo that he ſprings them, take him up and correct him well, keeping him ſome time after in his Line that you may not diſcourage him, then caſt him off again to Hunt in ſome other Haunt where you think to find a Covey, and as before give him warning, and if you ſee that he makes a Point, give him your Commands to fall, and taking Range about him, look if you can find them, and if he hath ſet them at too great a diſtance, give him your Commands to creep nearer, ſaying, *go nearer*, *go nearer*, making him creep upon his Belly towards them, until you think he is near enough; then make him lie cloſe without ſtirring, and draw over the Net or Nets as before directed, and be ſure to cheriſh and reward him well as aforeſaid.

But if it ſo happen that he ſpring them through his Rudeneſs, or want of Care, then correct him ſeverely, and take him up in your Line, lead him Home, tying him up for that Night, without giving him one bit of Food, and the next Day take him to the Field in your ſtring, and caſt him off to Hunt about, as before directed, giving him harſh Words, to the end he may call to mind his former Fault, and be ſenſible of your Diſpleaſure, which will make him the more careful to obey your Commands; and if he doth well, cheriſh and reward him, which will much encourage him.

Some *Dogs* will ſtand up in their *Setting*, which is a great Fault, ſo that they muſt be brought from it. Alſo 'tis a groſs Fault for them to ruſh in after them, when you go to ſpring them into your Nets; therefore be ſure he is in ſuch Command as not to ſtir until you have taken them up, as aforeſaid.

There is one material Thing to be obſerved, and that is to know the Nature of your *Dog*, how he ſets the *Partridges*, whether at Hand, or at a Diſtance; for thereby you muſt be guided to draw over the Nets, otherwiſe you may ſpring them and no Fault of the *Dogs*.

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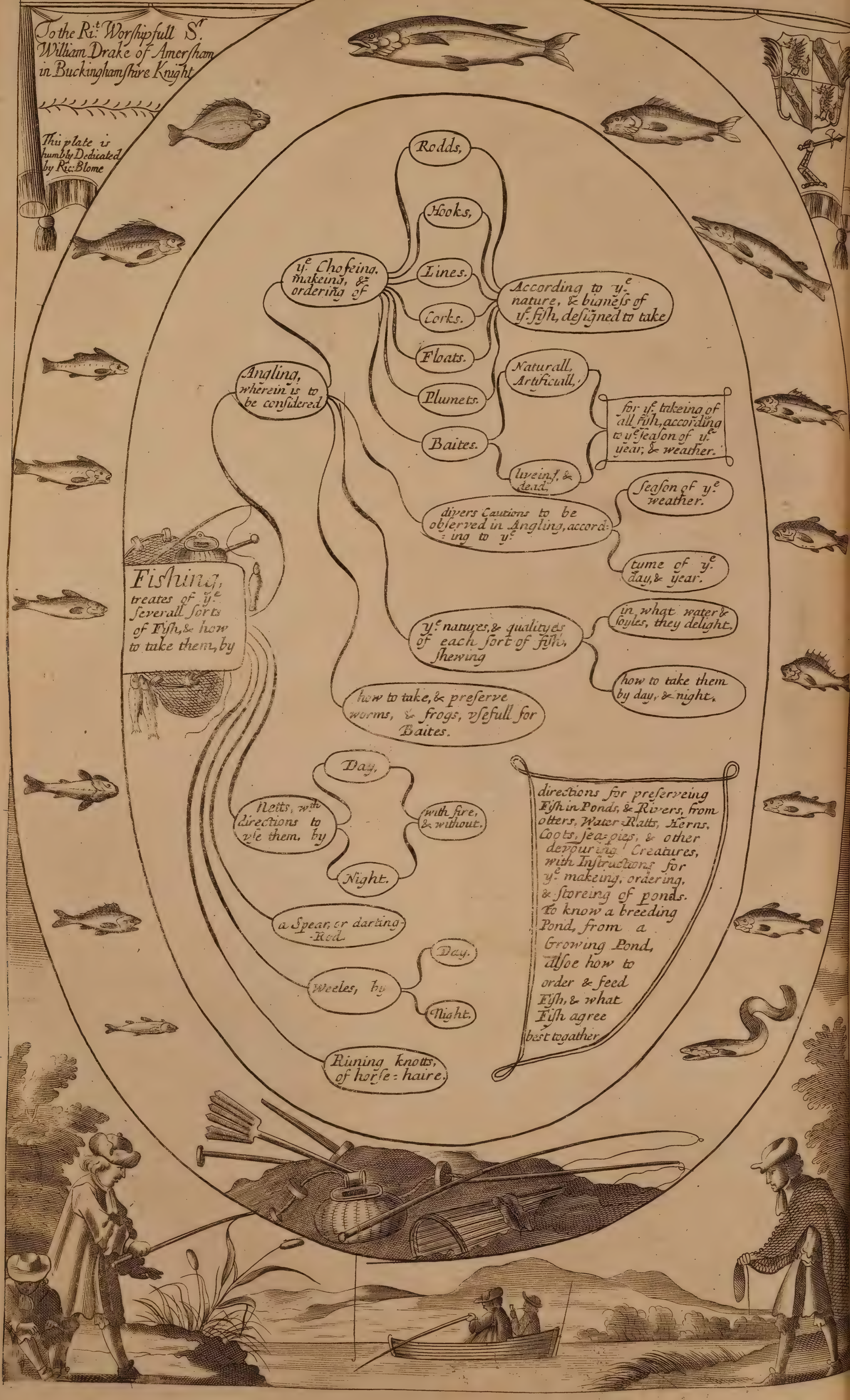
FISHING, & ANGLING.

To the Rᵗ. Worſhipfull Sʳ.
William Drake of Amerſham
in Buckinghamſhire Knight

This plate is
humbly Dedicated
by Ric: Blome


Fiſhing, treates of yᵉ ſeverall ſorts of Fiſh, & how to take them, by
Angling, wherein is to be conſidered
yᵉ Choſeing, makeing, & ordering of
Rodds,
Hooks,
Lines.
Corks.
Floats.
Plumets.
Baites.
According to yᵉ nature, & bigneſs of yᵉ fiſh, deſigned to take
Naturall, Artificiall,
liveing, & dead.
for yᵉ takeing of all fiſh, according to yᵉ ſeaſon of yᵉ year, & weather.
divers Cautions to be obſerved in Angling, according to yᵉ
Seaſon of yᵉ weather.
time of yᵉ day, & year.
yᵉ natures, & qualityes of each ſort of fiſh, ſhewing
in what water & ſoyles, they delight.
how to take them by day, & night.
how to take, & preſerve worms, & frogs, vſefull for Baites.
Netts, wᵗʰ directions to vſe them, by
Day,
Night.
with fire, & without.
a Spear, or darting-Rod.
Weeles, by
Day.
Night.
Runing knotts, of horſe-haire.
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FISHING.

PART V.

The *Rules* for *Angling*, as the chooſing of *Rods*, *Hooks*, *Lines*, *Corks*, *Floats*, *&c.* with Directions for the taking all ſorts of *Fiſh*, and the making of *Baits* proper for them, according to the Seaſon of the *Year* and *Weather*. Alſo *Inſtructions* for the taking *Fiſh*, with ſeveral ſorts of *Nets*, &c. Directions for preſerving *Fiſh* in *Rivers* and *Ponds*, together with many Secrets and Curioſities relating to the ſaid *ART*.

CHAP. I.

The INTRODUCTION;

IT will not be neceſſary to trouble the *Reader* with long Encomium's on this Delightful *Art* of *Fiſhing*, but only repeat the words of a Worthy and Ingenious Gentleman that was a great Proficient herein, who often uſed to ſay, That after his Study, it was a Reſt to his Mind, a Chearer of his Spirits, a Calmer of unquiet Thoughts, a Diverter of Melancholy, a Procurer of Contentedneſs and Patience, and a Moderator of Paſſions.

He that will be his Art's Maſter, in this Innocent Recreation, muſt not only be experienced in the ſeveral *Tackling*, as the *Rod*, *Line*, *Hooks*, &c. But alſo muſt underſtand the Nature and Properties of each *Fiſh*, the proper *Baits* to take them according to the Seaſon of the Year and Weather. And the better to embolden him to a Progreſs herein, he muſt be endowed with Hope and Patience. The firſt thing that I ſhall Treat of ſhall be the *Rod*.

CHAP. II.

Directions touching the Choice of a Rod.

YOur *Rod* ought to be either of one entire Piece, of two Pieces, or of ſeveral Joints; the former without doubt is the beſt, *Art* being but a Mimick of Nature; for in the Compoſing and Framing *Artificial Rods*, we do but imitate the Natural Ones, and think we have come neareſt the Mark, when we have well Counterfeited them: But it is the Opinion of an expert *Angler*, that *Rods* of two Joints are the beſt, for that no Shoot of any ſort of Wood grows ſo exquiſitely taper, as to make a *Rod* of fourteen Foot long, (which is the uſual Length): And if by great chance you ſhould get one, the Pith of ſuch a quick growing Wood, would cauſe the Top to be Brittle, and if of hard VVood, it would then be too heavy; for the true Art of making a *Rod* is of a Ruſh-taper, which muſt Spring equally in all Parts, for being ſtiff in the one and weak in the other, doth often occaſion the loſing the *Fiſh*.

The *Red Sallow*, or *Withe*, and the *Ground Hazel*, ſtreight and well grown taper-like from the Bottom to the Top, are of all others the moſt eſteemed as being the tougheſt and lighteſt, and yet ſtrong enough to hold the biggeſt *Fiſh*. They ſhould be gathered in the Fall of the Leaf, when the Sap is in the Roots, for after *January* it aſcends into the Trunk and Branches, and then they are not good. Let them be the beſt Ruſh-ground Shoots you can get, not knotty, but proportionable, ſtreight and ſlender; the Boughs and excreſcent Twigs ſhould be preſently cut off, but not cloſe, for fear of cutting any of the Bark, which is not only an Eyeſore, but a weakning to it.

Having thus prepared your *Rods*, lay them on a flat Floor with a good weight on them, to keep them from warping; but contrariwiſe ſome hang them againſt the Wall of a Room on ſmall Tacks, with the great Ends downwards, which is held the beſt way, and about *February* you may pare off the knots cloſe; and when they are well ſeaſoned and fitted to your liking, fix on the Loops of Silk or Hair at the ſmall Ends; but by the way note, that they are not fully ſeaſoned till about a Year and an half; and if they were kept two Years, they would be the better.

For preſerving of theſe *Rods* or Tops from Rotting, or Worm eating, 'tis good to rub them over twice or thrice a Year with Sallet or Linſeed Oil, or with Sweet Butter that hath no Salt in it, chafing it well in; and if the Stocks or Tops of your *Rods* caſt with lying, bathe them, and ſet them in a gentle Straw Fire, which will bring them right again.

Rods may be diſtinguiſh'd into four ſorts, *viz.* the *Trowling-Rod*, the *Snapping Pole*, the *Angling Rod*, and the *Fly Rod.*

The *Trowling Rod* is the largeſt, at the Top of which is put a ſhort Piece of Wood, about ſix Inches long, with a ſtrong Wire Ring to guide your *Trowling-Line.*

The *Snapping Pole* ought to be ſo ſtrong and large, as the *Angler* can well manage, and to be of a Tough, and well grown Taper Pole of one Piece, and ſuch that will bear a *Fiſh* of about ten or twelve Pound Weight, to throw out of the Water.

The *Angle Rod* ought to be of two, or more Joints of Cane, or Wood as aforeſaid.

The *Fly Rod* muſt be ſmall, curiouſly Taper, and light to be manag'd with one Hand.

In a word, the great Art of making *Rods* is, that they be curiouſly Taper, and in all Parts of a quick Spring proportionable; for if it is not in all Parts of an equal Spring, you will ſeldom ſtrike ſure, and by conſequence endanger the loſing the *Fiſh.*

The Top *Rods* being ſhort, are to be joined to Stocks, Art having ſupplied the Defect of Nature. Your Stocks may be either of a good *Ground-Aſh*, or *Witch-hazel*, about nine or ten Foot long, gathered as aforeſaid; and be ſure it come not to the Fire until the Spring, then if you find it well Seaſoned, ſet it exactly, otherwiſe allow longer time. Take not off the outward Rind, and either by its own Nature, or your Art get it to be of a good brown Colour, ſo that it make no Reflection in the Water; if you mix a little Capon's Greaſe with Spaniſh Brown, and rub the *Rod* over therewith before a gentle Fire, you will quickly bring it to its right Hue. In the ſmall End of the Stock, bore a Hole with a Taper Bit, about four Inches deep, and of a convenient ſize to receive the biggeſt End of the Top *Rod*, and have it Ferretted; and the Reaſon of doing it ſo, is to preſerve the Stock from ſplitting where the Hole is made. Your *Top Rod* ſhould be about a Yard and a half long, with the upper Rind preſerved intirely about it, and the Top, though pliant, yet muſt be ſo ſtrong as to endure the jerk of a *Trout* or *Carp.*

At the ſmall End faſten the Loop either of Silk or Hair, wherein to place the Line, but of all Tops queſtionleſs the *Whalebone* is the beſt, being plyant and ſtrong.

The largeſt Joint which is the outward Joint, and carrieth all the reſt as in a caſe, ought to be either a Female *Bambu Cane*, or elſe a red *Sallow*, theſe being the freeſt from warping, and a Piece ſeven or eight Foot long will carry longer and better Taper Joints, than a Piece of the ſame ſort ten Foot long; and for the inward Joints *Hazel* is the beſt, which Joint or Joints muſt be in length proportionable to the Size of the outward Joint, both as to Length, and to make it exactly a Ruſh-taper.

If your *Rod* be of many Pieces, they are then of *Canes* or *Hazel*, exactly bored through to receive each other, the Ends being neatly hooped about with Sockets of Braſs or Silver, as before taken notice of. And thus may you carry a *Rod* of fifteen or ſixteen Foot long, like a walking Staff; but theſe being bought at the Shops of thoſe that ſell *Fiſhing Tackle*, and at ſuch eaſie Rates, I ſhall ſay no more, adviſing you rather to buy them, than to be at the trouble to make them.

CHAP. III.

Of Lines, *for the making, colouring, and preparing them.*

FOR your *Lines* they are either all *Hair*, all *Silk*, or mixt with both; but *Lines* of all *Silk* (though handſome) are very inconvenient, becauſe of their Twiſting; ſo are *Lines* of *Hair* and *Silk.* Therefore make uſe of *Lines* of all *Hair*, for all ſorts of *Angling*, which muſt be Taperwiſe; ſo that near the Hook they may be of one or three *Hairs.* Next to *Lines* all of *Hair*, are thoſe made of *Raw Ardas Silk* neatly twiſted, which in the Opinion of many are excellent, for theſe are far ſtronger and finer than *Hair*, and will not Rot or Twiſt in the Water, or elſe where. And for the *Trowling* or *Snapping Lines*, let them alſo be made of *Raw Ardas Silk*, worked with *Bobbins*, being far ſtronger than the coloured *Silk Lines*, and much ſmaller, and freer from Twiſting.

Let all your *Hair*, as near as you can, be of an equal Bigneſs, and if you lay them about a quarter of an Hour in Water, you will find which of the *Hairs* do ſhrink, and ſuch are not good. The beſt *Hairs* are plucked from the innermoſt Middle of the Tail of a White, or Grey *Stone-Horſe.*

When you make a Line of Three *Hairs*, add one Thread of *Silk*, which is ſufficient; if you make *Lines* of Five *Hairs*, add Two Threads of *Silk*, and if of Seven, then Three of *Silk*; this latter will be ſufficient for the *Chub*, *Barbel*, *Pike*, nay *Salmon*; the ſecond for the *Carp*, *Trout*, *Greyling*, &c. and the firſt for the *Gudgeon*, *Roach*, *Bleak*, &c.

In twiſting your *Hair*, great care muſt be uſed that they be exactly done, without Gaping and Snarles, and that they be ſtrong tied at the Ends with the *Fiſher's Knots*, which is folded Four times about, under and above. You muſt in drawing this Knot temper your *Hair* with ſome Water, or Spittle, for that will make it hold. For the Length of your *Lines* they muſt be proportion'd to the Place, and the *Fiſh* you deſign to take, and your own Diſcretion muſt be your Guide.

For the Colour of your *Lines*, they ſhould as near as poſſible imitate the Colour of the Water, ſo that if your *Hair* be White, let your *Silk* be Green, for that mixture draws to a light Gray. If it be in a Muddy Stream, the *Silk* had beſt be of a dark Aſh-colour; but for your exact Water Green, Take a Quart of ſmall Ale, and boil therein half a Pound of Allum until it be diſſolved, then put in the *Hair*, and let it boil half an Hour; then take it out, and let it dry in the Shade a Night and a Day; then take Two Handfuls of Elder, and boil it half an Hour in a Pottle of Water, until you ſee a Yellow Scum riſe, then put in your *Hair* with about half a Pound of beaten Copperaſs, or inſtead thereof the like quantity of Verdigreaſe, or a quarter of a Pound of each, and let the Water boil about half an Hour more; then take it off, and let your *Hair* lie therein four or five Hours infuſing, and you will have an excellent Green. To make your *Hair* yellow, ſteep it in Water wherein you have either boiled, or bruiſed two or three Handfuls of Green Walnut Leaves. To make your *Hair* Ruſſet, take a Pint of ſtrong Lye, half

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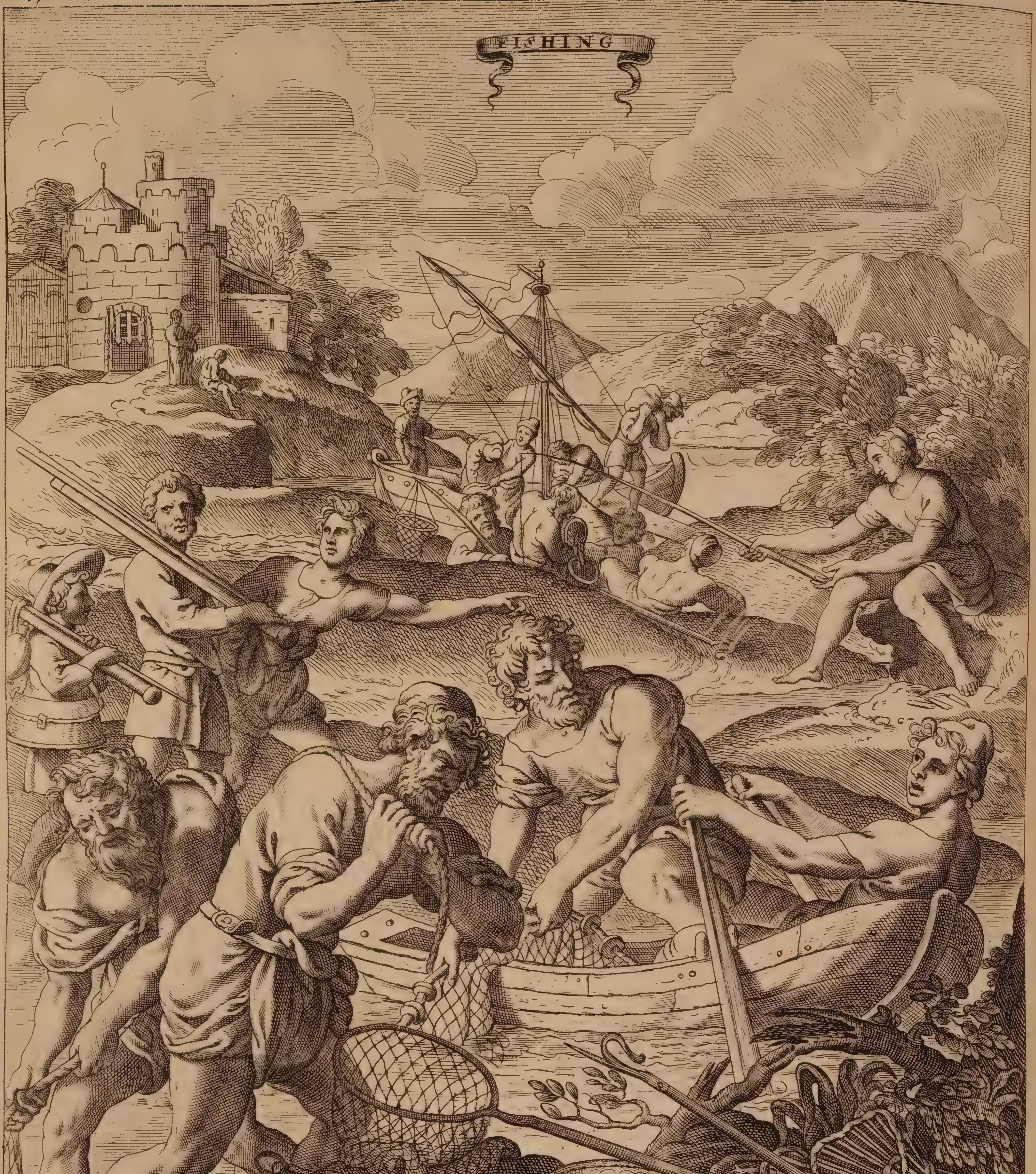


To ye Rt noble Chriſtopher Duke of Albemarle, Earle of Torington,
Baron Monke of Potheridge, Beauchamp and Teys, Kt of ye
Garter, Captaine of his Matys life Guard, Ld Leiutenant of
Eſsex and Devonſhire, one of the Gentlemen of his Matys
Bedchamber, and one of the Lord of his moſt Honourable
Privy Councell &c.
This Plate of Fiſhing is moſt humbly Dedicated by Ric Blome.

HONI SOIT QVI MAL Y PENSE

FORTITER FIDELITER FŒLICITER

half a Pound of Soot, and two Spoonfuls of the Juice of Walnut Leaves, and when they are well boiled together, take it off the Fire, let it cool, and put therein the Hair, and let it continue until it be dyed enough; To make it darker put ſome Umber into the Liquor. If you would have the Hair Tawny, bind it cloſe up at both Ends, and ſteep it in *Tanners-Ouz* until it be according to your liking; and if you firſt ſteep the Hair in a little Lime-Water, it will take the Tawny Colour the better.

You muſt die your Hair before you make it up into *Lines*, for then you may mix it as you ſee cauſe. The Green Hair is good from *March* to *September*; from thence to *December* the Yellow, and from thence to *Eaſter* the darkeſt Colours.

At each End of your *Line* make a Loop, the one for your *Rod-Loop*, and the other for your *Hook*.

CHAP. IV.

Inſtructions relating to Corks, Flotes, *&c.*

TOuching your *Flotes*, order them in this manner; Take the cloſeſt *Cork* you can get, and with a ſharp Knife pare it very ſmooth about, which for ſize and form is left to your Judgment, it being only to ſhew you when and how the *Fiſh* are at your Bait; the leſſer it is ſo much the better in this reſpect that it will not frighten the *Fiſh* away, then with a hot Iron bore a Hole through it, and therewith put a Gooſe Quill of a fit ſize for the *Cork*, which muſt be fitted with regard to the proportion of your *Line*, and that again to the ſtrength and dimenſions of the *Fiſh* you deſign to take with the *Line*, as before noted in the ſecond Chapter. The ſmall End of the *Cork* muſt be towards the Hook, the *Quill* muſt be pegged into the *Cork*, and ſo your *Line* into the *Quill*, which you may raiſe or let down as you ſee cauſe.

Your *Flotes* are made of *Muſcovy-Duck Quills*, or *Swan-Quills* which are held the beſt for ſtill Water; but the flat and round *Flotes* are eſteemed the beſt.

When your *Cork* is gently drawn under Water, then ſtrike and not with too ſmart a Jerk, but only to faſten your Hook, and then draw with an even Touch according as you ſee cauſe. If your Tackling be ſtrong, and your *Fiſh* large, you may be the bolder; but to go ſecurely to work, never let the *Fiſh* feel the ſtrength of the *Line*, leſt he ſnap it off; but hold him gently under the *Rod*, and let him tire out himſelf, which he will ſoon do by Eight, or Ten Plunges, and then you may draw him gently towards you; if you be too haſty you are not a good *Fiſher*, for this Recreation requires great Patience, Induſtry, and Vigilance.

CHAP. V.

Rules for the Chuſing, making and fixing your Hooks, Plummets, *and for ſounding the Depths of* Water.

AS for your *Hooks* chuſe them in proportion according to the ſize of the *Fiſh* you intend to catch; Therefore as for the making them follow theſe Directions. Take either Old Spaniſh Needles, or ſtrong Wire, drawn to the ſame Height of Temper, that being nealed and laid in the Fire you may bend at pleaſure. If you make them of Needles, it is but holding them in the Fire, or in the Blaze of a Candle, until they be Red-hot; then let them cool, and you may turn them into what Form you pleaſe; but for Wire you muſt uſe a Charcoal-Fire, and turn it up and down until it be red-hot, then let it cool, and ſo work it. Firſt, file out the Point of the *Hook*, which muſt be neither too ſharp, nor too dull; for the one will be too quick to catch every thing, and the other will hit nothing: Let it be therefore ſharper than a Pin, and ſomewhat duller than a Needle; then with a ſharp Knife raiſe up the Barb, or Beard, wherein be careful not to weaken the Strength of the *Hook* too much; then with a Pair of Plyers form your *Hook* rounder than a Semicircle, and let the Bow come in enough, ſo as to be hooked; for it is that which chiefly holds the *Fiſh*, and not the Barb, as by Experience hath been often found; for the taperer all *Hooks* are filed, the ſtronger they are to hold a *Fiſh*.

The Shank of your *Hook* ſhould be of a moderate Length, a little flatter towards the End, and knobbed, for the better faſtning it to your Warp of *Hair*, or *Line*. You muſt then poliſh it all over, heat it Red-hot in a Pan of Charcoals, put it ſuddenly into the Water, and that will bring it to its true Strength and Hardneſs.

By this Direction you may likewiſe form your double *Hooks*, which are two *Hooks* made of one Wire, joined Back to Back, and turned the contrary way from each other, with a ſtrong Wire to the Stem, or Shank, about three or four Inches long, and a Link fixed thereto with fine ſmall Wire, and unto this laſt Link faſten your *Line*, or elſe the Teeth of the *Pike* will ſoon ſhear it off.

For the faſtning your Length, or Link of *Hair*, to the *Hook*, do thus: Lay it on the Inſide of the Shank, and ſo whip it about with a ſmall Silk-thread well waxed, and neatly done, without any Knot in the Hair, and faſten the Ends of the Silk, by drawing them under your Bows at the two or three laſt Turns; then cut off the Ends of the Hairs which you turned from the *Hook*, and it is no ordinary Twitch which can ſeparate one from the other. On the other End of that Link of Hairs make a Loop, to faſten the remaining *Line* thereunto.

In caſe you Plumb your *Line*, obſerve theſe Directions: Your *Plummets* muſt be of Lead, ſome bigger ſome leſs, with relation to the Proportions of the *Hook*, *Line*, *Cork*, &c. the End of the *Plummets* being to ſink down your *Hook* and *Line*, that it may lie either towards the Middle, or Bottom of the Water, as you deſign to Fiſh; but they muſt not be ſo heavy as to ſink the *Floats*. Your firſt *Plummet* may be about twelve Inches from the *Hook*, and the reſt about an Inch diſtant from each other; and of theſe you may uſe five, ſeven, nine, as you ſee occaſion; for the form of the *Plummets* it is not material, provided they be ſmooth, for otherwiſe they will endanger the tangling of the *Line*, catching Filth, or the like; yet ſome are of Opinion, that more than oue *Plummet* is inconvenient.

To be exact in *Plumming* and *Corking*, you ſhould know to an Inch the Depth of the Water where you Fiſh; for which purpoſe you muſt have a Musket-Bullet bored through, with a double Thread tied at it, which Thread being laid over your *Hook* you may therewith Sound the Bottom, and then Plumb and Cork accordingly.

That you may not incommode your Tackle, it will be requiſite to keep every Thing or Utenſil apart, and that you be provided with all your Tackle upon occaſion, as your *Bob* and *Palmer*, your *Hooks* of ſeveral ſizes; alſo your *Corks*, *Flies*, *Silk*, *Thread*, *Lead*, &c. each in its ſeveral Box; likewiſe your *Linnen* and *Woollen* Bags, for your ſeveral Baits; alſo a *Whetſtone* to ſharpen your *Hooks*; and forget not to be provided with a ſmall Pole with a Loop at the End thereof, to which a ſmall Net may be faſtned for your Landing of great *Fiſh*; and be ſure let not your *Paunder* be too heavy, thoſe that are made of *Oſiers* are the beſt.

CHAP. VI.

Cautions to be obſerved in Angling, *as to the Seaſons of the Weather, the Time of the Day and Year,* &c.

IN *Angling* ſo place your ſelf that your Shadow do not at any time reſt on the Water: But in very deep Waters that is not ſo neceſſary to be obſerved, yet to be exact you ſhould uſe all the Advantages the Place will afford.

In a Pond you ſhould Angle near the Foard where Cattle go to drink; and in Rivers, in thoſe Places where ſuch ſorts of Fiſh that you intend to *Angle* for do uſually frequent, *viz.* the *Chub* in deep ſhaded Holes; *Roach* and *Pearch* in Scowrs; *Eels* under hanging-over Banks; *Trouts* in quick Streams, and with a *Fly* upon the Stream on the Top of the Water; and for *Breams* in the deepeſt and quieteſt part of the River. And if in ſuch Places where the Gravelly Bottom may be diſcerned, then be ſure to conceal your ſelf as much as poſſible. In Waters peſtered with Weeds, Roots of Trees, and ſuch like, Fiſh lie cloſe and warm, and reſort thither in great Shoals, there they will Bite freely; but take great care how to caſt in the *Hook*, and how to ſtrike a Bite, for the leaſt Raſhneſs looſeth *Hook* and *Line*. But in caſe your *Hook* be at any time entangled, you ſhould be provided with a Ring of Lead ſome ſix Inches about, which faſten to a ſmall long Packthread, and thruſt the Ring over your *Rod*, letting it go into the Water, and work it gently up and down with your Packthread, and it will ſoon diſengage your *Hook*.

It is good *Angling* in Whirlpools, under Bridges, at the Falls of Mills, and in any Place where the Water is deep and clear, and not troubled with Wind, or Weather. The beſt Times are from *April* to *October*, for in cold, ſtormy and windy Weather *Fiſh* will not Bite; and the beſt Times of the Day are from Three to Nine in the Morning, and from Three in the Afternoon to Sun-ſet. If the Wind be Eaſterly 'tis in vain to go forth to *Angle*, any other of the Points are well enough, if it blow not hard; but the South is the beſt, and a cloſe, lowring warm Day, with a gentle Wind, and after a ſudden Shower, to diſturb the Water, at which time they will beſt riſe at the Fly and bite eagerly, and therefore the moſt to be deſired by the *Angler*; and the cooler the Weather is in the hotteſt Months it is the better. In Winter all Weathers, and all Times are much alike, only the warmeſt are the beſt.

It is very good *Angling* a little before the Fiſh ſpawn, for then their Bellies being full, they frequent Sandy Foards, to rub and looſen their Bellies, at which time they will freely Bite.

After a clear Moonſhine Night, if the Day prove Dull and Cloudy 'tis very good *Angling*; for in ſuch Nights they are fearful to ſtir to get Food, lying cloſe, ſo that being Hungry the next Day they will boldly and eagerly Bite.

At the opening of Sluces, or Mill-Dams, if you go with the Courſe of the Water, you can hardly miſs of Fiſh, that ſwim up the Stream, to ſeek for what Food the Water brings down with it.

In Waters that ebb and flow, 'tis beſt *Angling* at the Ebb; but if the Tides are not ſtrong, then the Flood is to be preferred.

At any time when you perceive the *Trouts* to Leap pleaſantly at the Flies above Water, or the *Pikes* to purſue other Fiſh, then it is a good Time to *Angle*.

I have ſhewed the moſt proper Seaſons for *Angling*; there are other Times as improper, and ſuch are after great Rains, whilſt the Waters are violent and diſcoloured: In the Extremity of Heat, when the Earth is parched with Drought, eſpecially in Muddy or clear Shallow Rivers: At the Fall of the Leaf; not ſoon after Spawning-time, for then their Appetite is much abated; nor is it good to *Angle* near ſuch Places where *Husbandmen* waſh their Sheep, for that kills all ſorts of Fiſh: To conclude, The Experienced *Angler* muſt obſerve the Times, Seaſons, and Places, otherwiſe his Baits, though never ſo good, will be but little effectual.

CHAP. VII.

Concerning the Natures of Fiſh, *in what Waters and Soils they delight.*

I Shall next deſcend to the particular Nature of Fiſh, and conſequently to the Rules to take them.

Carps, *Eels*, *Tench*, *Breams*, *Chevins* and *Pikes*, delight moſt in ſtanding Waters, and ſtill Pools; the three former in Muddy Bottoms, the latter in Sandy. *Salmons*, *Trouts*, *Perch*, *Gudgeons*, *Barbels*,

bels, *Chubs*, *Roach*, and *Dace*, delight in running Streams; the former in the ſwifteſt and deepeſt Places thereof, the latter in the ſtill Pools and ſhady Places of the ſame Brooks and Waters. The *Shad*, *Mullet*, and ſome others, delight in ſuch Waters as ebb and flow, provided the Floods be not exceeding ſalt.

In this Chapter I have been very brief, by reaſon I intend to be more large when I ſpeak of each Fiſh in particular.

CHAP. VIII.

Concerning Baits *Natural and Living, Artificial and Dead*, &c. *with Directions for the Making and Preparing them*, &c.

THERE are three Sorts of Baits for taking *Fiſh*: Firſt, The Natural ones, and thoſe are generally living, as Worms of all Kinds, eſpecially the Red, Maggots, Bobs, Frogs, Graſs-hoppers, Bees, Beetles, Dors, Butter-flies, which are admirable for the Chubs, Waſps, Hornets, Snails, ſmall Fiſh, *&c.* Next, the Artificial Baits, and they are of two Sorts; firſt ſuch as imitate the Living Baits, eſpecially Flies, for every Month and Seaſon of the Year; nay, almoſt for every *Fiſh*, ſo great is the Variety of them that frequent the Meadows and Rivers. Theſe Flies are made on the Bodies of your Hooks, the Body of the Fly being made of Wool, and the Wings of ſeveral Sorts of Feathers colour'd to the Life, to reſemble thoſe you counterfeit; and with theſe you draw your Hook gently on the Top of the Water, and generally againſt the Stream, and the Fiſh will bite at them with ſuch Greedineſs, that you can hardly miſs a Bite.

The Second Sort of Artificial Baits are Paſtes, which are made of ſeveral Compoſitions, as the young Brood of Bees and Waſps, clotted Blood of Sheep, Cheeſe, White Bread, Corn, Seeds, Bramble-berries, Flowers, *&c.* of all which I ſhall ſpeak more particularly in their due Places, when I come to treat particularly of the Ways of taking each Sort of *Fiſh*; however, a Word or two.

The Red Worm is good for ſmall *Fiſh* the whole Year round, and ſmall *Fiſh* are good Baits for Pikes at all times. Sheeps-Blood and Cheeſe is a good Bait in *April*: The Bob, dry'd Waſps and Bees are for *May*: Brown Flies are for *June*: Maggots, Hornets, Waſps and Bees for *July*: Snails for *Auguſt*; Graſs-hoppers for *September*; Corn, Bramble-berries and Seeds at the Fall of the Leaf. Your Artificial Paſtes are for *May*, *June* and *July*, and Frogs are for *March*.

Now as concerning your Artificial Flies: The great Dun-fly will do well enough the latter End of *February*, if there be fair Weather; for 'tis a Sign the Air is warm, and that the *Fiſh* begin to partake of the Sun's Heat, ſo that in reaſon you may expect they will bite freely. The little Dun-fly is proper for *March*; the Stone, or May-fly, is for *April*; the Red and Yellow Fly for *May*; the Black, Dark, Yellow and Mooriſh Fly for *June*; the Waſp and Shell-fly for *July*; and the cloudy or blackiſh Fly is for *Auguſt*. But generally *Fiſh* moſt eagerly riſe at theſe Flies, at the Seaſon when moſt Sorts of Flies reſort to the Water-ſide.

The beſt Way to make theſe Flies is, to get the living ones of the ſeveral Kinds, and thereby to imitate Nature, both for Shape, Colour and Size; for the nearer the better. Thoſe *Fiſh* that bite freeſt at Flies are Chubs, Chevins, Trouts and Salmons.

The great Dun-fly is thus made: Let the Body be of black Wool, and the Wings of the Dun-feathers of a Drake's Tail. The little Dun-fly hath his Body made of Dun-wool, and his Wings of the Mail of a Partridge; theſe are for *March*. The Body of the Stone or May-fly muſt be of black Wool, but under his Wings and Tail give it a little Tincture of a pale Yellow, with ſome Silk of that Colour, and his Wings muſt be of Drake's Down: This Fly is for *April*. The Red, or Ruddy Fly, muſt have his Body made of reddiſh Wool, capt about with black Silk, and the Wings mix'd of the Mail of a Mallard and the red Feathers of a Capon's Tail: This Fly is for *May*. The Yellow, or Greeniſh Fly, muſt have his Body made of black Wool, with a Yellow Liſt on either Side, and the Wings of a Red Cock's Mail. The Mooriſh Fly hath his Body made of duſkiſh Wool, and the Wings of the blackiſh Mail of a Drake. The Tawny Fly muſt be made of Tawny Wool, the Wings made contrary one againſt the other, of the whitiſh Mail of a white Drake: Theſe Flies are for *June*. The Waſp-fly is made of black Wool, capt about with yellow Silk, and the Wings of a Buzzard's Down, or of a Drake's Feathers: This Fly is for *July*. The Shell-fly, term'd alſo the *Green Fly*, hath his Body made of greeniſh Wool, and his Wings of the Herle of a Peacock's Tail: This is alſo for *July*. The Cloudy Dark Fly muſt be made after a different Way, for it muſt be form'd on a ſmall Piece of Cork, bound adout with black Wool and black Silk, and his Wings of the Under-Mail of a Mallard, with a black Head. When you draw it on your Hook, be ſure no Part of the Hook is diſcern'd: This Fly is for *Auguſt*.

The rougher the Bodies of your Flies are, and the more ſhining, the better are they eſteem'd; and when you have got a Set of good exact Flies, they will ſerve you many Years, if carefully kept in a handſome Box, free from bruiſing and cruſhing. Obſerve this for a Rule, that the higheſt Flies are for cloudy and dark Weather, and the darkeſt for the bright and clear Weather.

It's not amiſs to lay down ſome Directions to be obſerv'd for *Artificial Fly-Fiſhing*. Firſt, Obſerve to have the Wind in your Back, and in caſting off your Line be ſure that the Fly fall firſt to the Water. For every Sort of Fly have ſeveral of the ſame, differing in Colour, to ſuit with the ſeveral Waters and Weathers. In ſlow Rivers, or ſtill Places, caſt your Line as far as you can, and let it ſink a little; then gently draw it back, and let the Fly float leiſurely with the Current. When you angle after Rain, and that the Water begins to become clear, uſe the Red Fly for dark Waters, keep not near the Water-ſide, and fiſh down Stream; and let not your Line touch the Water, but only the Fly. Your Line ſhould be as long again as your Rod, unleſs the River be very ſhallow, and clogg'd up. You muſt have a nimble Hand, and a quick Eye, to ſtrike preſently upon the Riſing of the *Fiſh*, otherwiſe the *Fiſh* will be apt to ſpew out the Hook, as finding his Miſtake.

I ſhall next proceed to Live Baits, which are to to be kept each Sort by themſelves; and to be fed with ſuch Things as they uſe to eat when at Liberty.

The Red Worm delights much in black fat Earth; and if you mix therewith ſome Fennel ſmall chopt, they will very much improve; and ſometimes give them a little Ox, or Cow-Dung newly made. They may be kept in ſome little Bag, or Box.

But Red Worms, as alſo all other Sorts of Worms, ſcour quick, grow very tuff and bright, by putting them into a thin Clout, greaſed with freſh Butter or Greaſe before you put them into Moſs, which of all Things is beſt to keep them in, and the Moſs muſt be prepared by waſhing it very clean, and ſqueezing out the Water: And for the Feeding them, drop a Spoonful of Cream into the Moſs every three or four Days, and remove the Moſs every Week, keeping it in a cool Place. And note, that a dead Man's Skull, beaten to Powder for the Worms to ſcour in, is excellent.

White great Maggots are to be fed with Sheeps Tallow and Beaſts Livers cut ſmall.

Frogs and Graſs-hoppers will do well in wet Moſs and long Graſs, which muſt be every Night moiſtned. When you uſe them, cut off their Legs and Wings.

The Bob, Cadis-worm, Canker, and ſuch like, are to be preſerved with the ſame Things where you take them.

Live Flies muſt be uſed as you catch them.

The Waſp, Hornet, and Humble-Bee, may be dry'd in an Oven after the Bread is drawn; but be careful of ſcorching them; then dip their Heads in Sheeps Blood, which muſt be dry'd on, and ſo keep them in a clean Box, and they will continue good a Quarter of a Year.

In the laſt Place, touching compounded Paſtes, there are as many ſeveral Sorts as there are Medicines for the Tooth-Ach. I ſhall take notice of ſome few, and ſuch as are excellent and approved Secrets, reſerving others to be treated of in their due Places, when I come to ſpeak of the particular Ways of taking each Sort of Fiſh.

If you take Bean-flour, and thoſe Parts of the Rabbet's Legs, call'd the *Almonds*; or if it be of a fat young Whelp, or Cat, 'twill do as well; add to them a like Quantity of Sheeps Suet and Virgin-Wax, and beat them in a Mortar till they are incorporated into one Body; then temper it with clarified Honey before a gentle Fire, and make it up into Balls. When you uſe it, bait your Hooks artificially with a little thereof, and you will find a notable attractive Quality in it. It will keep good at leaſt a Year.

If you take the Kidney-Tallow of a Sheep, and a like Quantity of new Cheeſe, and beat them together; then adding ſo much Wheat-Flour as will ſtiffen it, and kneading it before a Fire, allaying the Stiffneſs of the Paſte with ſoft Honey, 'tis an excellent Bait for all or moſt *Fiſh*, and will keep good a long time.

Honey, with the Crumbs of white Bread made up ſtiff, is a good Bait for drawing *Fiſh* to it.

It is ſaid, that all ſtrong Smells, whether ſweet or ſtinking will attract *Fiſh*, ſuch as *Musk*, *Aſſa-fœtida*, *Sperm-acæti*, *Oil of Bays*, *Turpentine*, *Gummi Hæderæ*; and likewiſe the Sight of fine Colours, eſpecially of Flowers, which have alſo a fine Smell.

The next Thing to be conſider'd is the Floating in a Pond or River for Scale-Fiſh, and then take notice that Food brings them together. Now there is no better Food to be caſt in than Blood and Grains, although Paſte is very good: Alſo Crumbs of Houſhold-Bread, mix'd with Mens Dung, and made into Paſte, is ſaid to be admirable to attract *Fiſh*, eſpecially all white-ſcal'd *Fiſh*: Alſo Paſte made of bruiſed Hemp-ſeed is very attractive.

CHAP. IX.

Some general Obſervations, Directions, and Cautions to be obſerved in Angling.

IT is cuſtomary for every *Angler* to have his peculiar Haunt. Now for the Attracting together the *Fiſh* in ſuch a Place, once in four or five Days caſt in ſome Corn boil'd ſoft; alſo you may caſt in Garbage, Worms chopt to Pieces, or Grains ſteep'd in Blood, and dry'd: But for Carp and Tench throw in ſome Ground-Malt, to keep them together.

If you fiſh in a Stream, then caſt in your Grains above your Hook down the Stream.

If when you are fiſhing, you would know what Bait the *Fiſh* at that Time beſt love, when you have taken one, ſlit the Gill, and take out his Stomach, and open it without bruiſing, and you will there find what he laſt fed on, and accordingly bait your Hook.

In *Fiſhing* have a great Care of wearing light and dazling Apparel, but chuſe thoſe that are Dark, or Sad-colour'd; alſo, if poſſible, ſhelter your ſelf under ſome Buſh or Tree, or ſtand ſo far from the Bank-ſide, that you can only diſcern the Float; for *Fiſh* are timorous and fearful of every thing they ſee.

The beſt Way of Angling with the Fly is down the River, not up; and if you would have them to bite freely, be ſure of having ſuch Baits as they are naturally inclined unto, and in ſuch manner as they are accuſtom'd to receive them. If your Baits be of Paſte, as before noted, for the keeping them on your Hooks, add a little Flax or Wool. The Eyes of *Fiſh* are ſaid to be good Baits for all *Fiſh*.

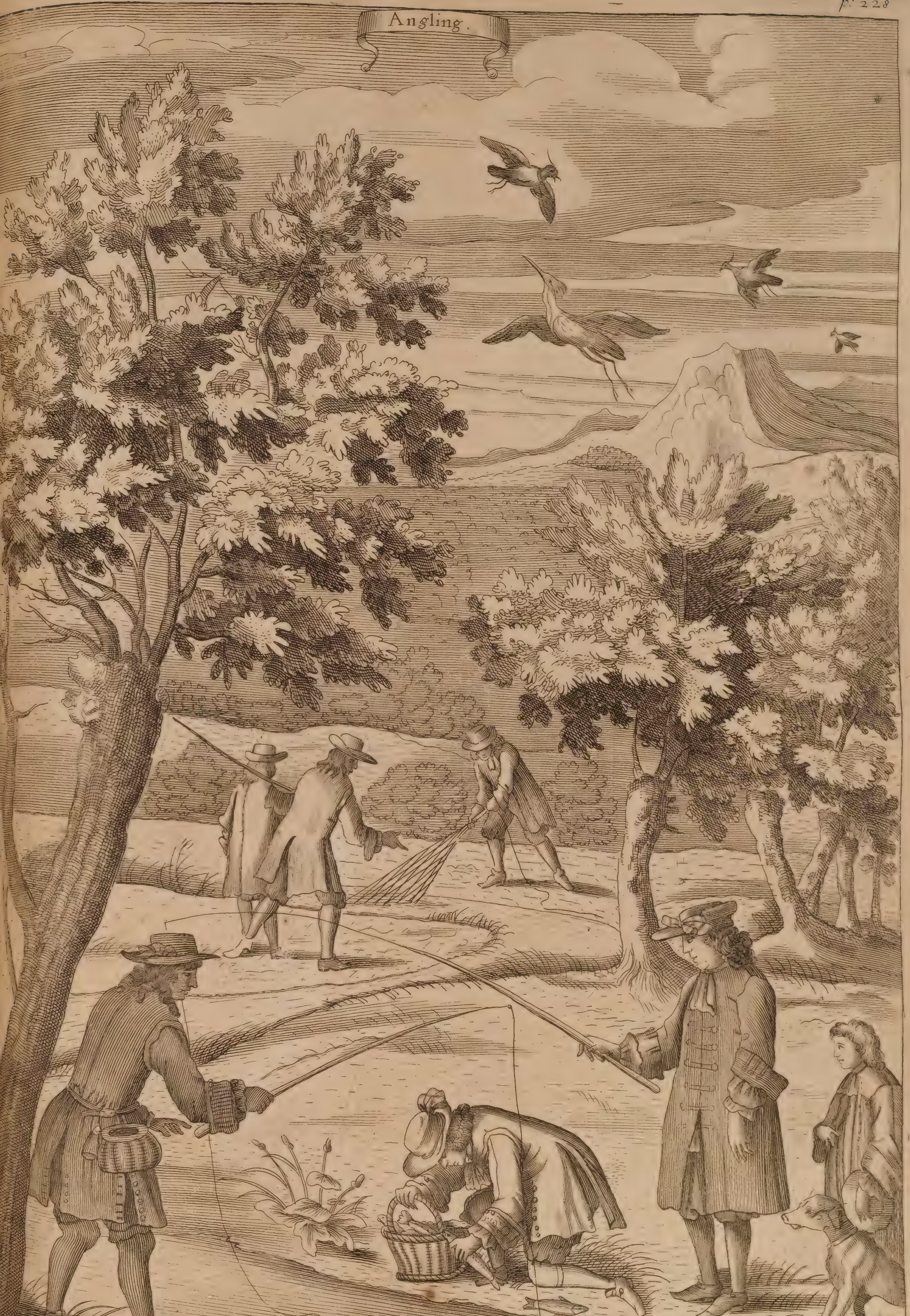
Keep your Rod neither too dry, nor too moiſt; for the one will make it brittle, and the other rotten.

CHAP. X.

Of the Natures, Qualities, &c. of ſeveral Sorts of Fiſh, *with Directions to take them.*

THE *Gudgeon* is a ſmall, but excellent *Fiſh*, being not much inferior to the *Smelt* for an excellent pleaſant Taſte. He ſpawns three or four times in the Summer Seaſon, and delights in ſwift Streams and gravelly Bottoms, lying low, ſo that he ſeldom bites eagerly; and if once he be ſtruck, you can hardly loſe him, being a Leather-mouth'd *Fiſh*.

Your



the Right Worſhipfull Sr John Bellew of Bellews=
wn in the County of Meath in Ireland Kt whoſe family
r many deſcents have been Knighted for their ſervice to ye
wn; This Plate is humbly dedicated by Richard Blome

Tout vient d'en haut

Your Bait muſt always trail gently on the Ground, whether you uſe Float or not. Some uſe a Running-Line, without Cork or Float as for the *Trout*; but of all Baits the ſmall Red-Worm is the beſt; alſo Waſps, Gentles, and Cad-baits are very good. In the Heat of Summer this *Fiſh* lies ſcatter'd up and down in ſhallow Places of the River; but in the cold Weather they betake themſelves to deep Places, and accompany together. If you would catch ſtore of this *Fiſh*, be provided with a long Pole to ſtir up the Sand and Gravel, which will gather them together, and cauſe them to bite more eagerly.

You may fiſh for *Gudgeon* with two or three Hooks at once, and find very pleaſant Sport when they riſe any thing large. A *Gudgeon* feeds much like the *Barbel*, and ſlights all manner of Flies.

The *Roach* is a Leather-mouth'd *Fiſh*, and being once ſtruck, ſeldom loſeth his Hold, having his Teeth in his Throat, as all Leather-mouth'd *Fiſh* have. This is no delicate *Fiſh*, being ſo full of Bones: The beſt Part is the Spawn. He is very eaſily taken, biting eagerly; and as the *Carp*, for his Cunning, is eſteem'd the *Water-Fox*; ſo this, for his Simplicity, is term'd the *Water-Sheep*. They are great Storers of Ponds and Rivers, but thoſe in the former are of leſs Eſteem, though not ſo long. The *Thames*, below Bridge, abounds with ſuch as exceed all others in Bigneſs.

This *Fiſh* ſpawns about the Middle of *May*. The general Baits are ſmall white Snails, Cad-baits, Bobs, Sheeps Blood, all Sorts of Worms, Gnats, Waſps, and Paſte. In *April* the *Cadis*, or Worms, are proper: In the hot Summer Months the white Snails and Flies; but note, they muſt be under Water, for they will not bite at the Top. In Autumn you may fiſh for them with Paſte only, made of the Crumbs of fine white Bread, moulded with a little Water and the Labour of your Hands into a tough Paſte, colour'd not very deep with Red-Lead, with which you may mix a little fine Cotton or Lint, and a little Butter; but with this you muſt fiſh with much Circumſpection. This will alſo ſerve in the Winter, but Gentles are eſteem'd a better Bait in the cold Weather. You muſt fiſh about a Handful from the Bottom. The black Ant-Fly, which is plentifully to be found in Ant or Mole-hills about *Auguſt*, if it hath her Wings entire, is an excellent Bait; the like is the ſhort, thick, white Worm, which is uſually found at the Plough-tail at the Breaking up of the Ground.

An experimentally uſeful Bait for Winter or Summer is this: Take a Handful of well dried Malt, and put it into a Diſh of Water, and having grubbed and waſhed it betwixt your Hands till it be clean and free from Husks, put that Water from it, and having put it into a little freſh Water, ſet it over a gentle Fire, letting it boil till it be pretty ſoft; then pour the Water from it, and with a ſharp Knife turning the Sprout-End of the Corn upwards, take off the Back-part of the Huſk with the Point of your Knife, leaving a kind of inward Huſk on the Corn, or elſe all is ſpoil'd; then cut off a little of the Sprout-End, that the White may appear, and alſo a very little of the other End for the Hook to enter: And to uſe this Bait, caſt a little now and then into the Water, and if your Hook be ſmall and good, 'twill be found to be admirable, both for *Roach* and *Dace*. Alſo young Waſps and Bees, their Heads being dipt in Blood are excellent Baits. There are ſeveral other good Baits, as Sheeps Blood dried hard, mix'd with a little Salt to drain out the Waterineſs, and cut into ſmall Pieces; alſo take a Handful or two of good Wheat, boil it in Milk till it be ſoft, then gently fry it with Honey, and a little beaten Saffron diſſolv'd in Milk.

They have a peculiar Way of Fiſhing for *Roach* at *London*, and thoſe that uſe it there take a ſtrong Cord, at the End whereof is faſten'd a Three Pound-Weight, and a Foot above the Lead a Packthread of Twelve Foot long is made faſt to the Cord; and to the Packthread, at proper Diſtances, they add a Dozen ſtrong Links of Hair, with Roach-Hooks at them, baited with a white Snail or Periwinkle; then holding the Cord in their Hands, the Biting of the *Fiſh* draws the Packthread, and that the Cord, which gives them Notice what to do, whereby ſometimes they draw up half a Dozen, but commonly two or three at a Draught.

Dace are much of the ſame Nature with the *Roach*, ſo that what Directions you find for the one may ſerve for the other, with this Diſtinction, that *Dace* will bite towards the Top of the Water very freely, but better at the Bottom. If you boil a Handful of Wheat in a little Milk until it be ſoft, and then fry it gently with ſome Honey, ſo that you break not the Wheat, 'tis an excellent Bait, eſpecially if in the Frying you add a little Saffron, diſſolv'd in two or three Spoonfuls of Milk. The ſeveral Sorts of Cadis-Worms are alſo all proper Baits for this *Fiſh*. It will bite at any Fly, but principally at Ant-Flies, of which the Blackiſh, found in Mole-hills in *June*, *July*, *Auguſt*, and *September*, are the beſt. For preſerving them for Uſe, put them alive into a Glaſs-Bottle, in which is ſome of the Earth from whence they are taken, with ſome of the Roots of the Graſs of the Hillock; then lay a Clod of Earth over it, and they will keep good a Month, provided you bruiſe not their Wings. But if you would keep them above a Month, put them into a large Runlet, whoſe Inſide is firſt waſh'd with Water and Honey, and they will keep three Months: But the beſt Time to take them is when they ſwarm, which is about the latter End of *July*, and Beginning of *Auguſt*. This Sort of *Fiſh*, in a warm Day, rarely refuſes a Fly on the Top of the Water; but remember when you fiſh for him under Water, 'tis beſt to be within a Handful, or ſomething more, of the Ground: But if you would find *Dace* or *Dare* in Winter, then about *Alhalontide*, wherever you ſee Heath, or ſandy Ground ploughing up, follow the Plough, and you will find a white Worm, with a red Head, as big as the Top of a Man's little Finger, very ſoft, and is nothing but the Spawn of a Beetle; which gather, and put into a Veſſel, with ſome of the Earth from whence they were taken; you may keep them all the Winter, and they are an excellent Bait.

The *Chub* (ſays our Author) is known by the Name of a *Chevin*, or *Chavender*, in ſeveral Places. He ſpawns in *March*, is very full of fork'd Bones, and eats very wateriſh. Of all *Fiſh* he is beſt to enter a young *Angler*, as being very eaſie to be taken, greedily biting the Bait; and altho' he is a Leather-mouth'd *Fiſh*, and will not eaſily get free, yet being ſtrong, you muſt give him Play, for fear of breaking your Line. He delights to lie on the Top of the Water, but is of that fearful Quality, that he will ſink down at the Shadow of any thing that he eſpies, were it a Bird that flieth over the Water, but he ſoon riſeth up again.

Now for the Taking this Fiſh obſerve theſe Directions : Find out ſome Hole, (for he delights in ſuch Places, and in Pools rather than in Rivers) and in a hot Day ſeveral of them will lie floating almoſt on the Surface of the Water ; and having your Tackle in a Readineſs, and your Hook baited with a Graſs-hopper, (which for that Seaſon is beſt) be ſure ſo to order your Buſineſs, (by abſconding your ſelf behind ſome Tree) that you are not eſpied ; then caſt in your Hook gently about two Foot before the *Chub* that you deſign to take, and you will hardly miſs him. For want of a Graſs-hopper you may uſe any great Fly, Beetle, or Dor, having his Wings cut off, and in Winter the Brains of a Horſe is a moſt certain Bait to take them ; for they bite ſo greedily at it in the Extremity of Winter, that you may in a manner clear a River of them ; and indeed they will greedily bite at any Bait.

In hot Weather angle for him near the Top of the Water, and in Cold near the Bottom. In *March* and *April* bait with Worms ; in *May*, *June*, and *July* with Flies, Snails, *&c.* and in *Auguſt*, *September*, &c. uſe Paſte, made of Brimſtone, or *Holland* Cheeſe, pounded with Saffron in a Mortar, adding a little Butter thereto ; but others make a Paſte of Cheeſe and Turpentine for the Winter Seaſon, at what time the *Chub* is in his Prime ; for then his forked Bones are either loſt, or turned into Griſtles, and he is excellent Meat baked. His Spawn is excellent, and if he be large, the Head, when the Throat is well waſh'd, is the beſt Part of the Fiſh.

Obſerve, that in Fiſhing for the *Chub*, your Rod be ſtrong and long, your Line not above a Yard long, very ſtrong, and an indifferent large Hook, which you are to bait with a Graſs-hopper, as before.

Though our Author makes the *Chevin* to be the ſame as the *Chub*, yet the Deſcription I find of it being different in divers Reſpects, we ſhall inſert it briefly in this Place. He is a ſtrong, but unactive Fiſh, yielding in a very little time after he is ſtruck ; and the larger he is the quieter he is taken.

As for his Food, he loves all ſorts of Worms and Flies, alſo Cheeſe, Grain, black Worms, ſlitting their Bellies, that the White may appear. He loves to have his Bait large, and Variety of them at one Hook ; but more particularly his Delight is in the Pith that grows in the Bone of an Ox's Back, of which you muſt be careful, in taking off the tough outward Skin.

Angle for this Sort of Fiſh early in the Morning with Snails, but in the Heat of the Day chuſe ſome other Bait, and in the Afternoon fiſh for him at Ground, or Fly, and there is none he loves better than a great Moth with a large Head, whoſe Body is yellow, with whitiſh Wings, commonly found in Gardens about the Evening ; nay, this Fiſh will not ſtick ſometimes to ſnap at a Lamprey.

Trouts are not only a delicate Fiſh, but afford great Pleaſure in taking them. They bite either high or low at Flies or Ground-Baits, in Pools or in ſwift Streams. 'Tis pity he is not always in Seaſon, yet he comes in and goes out with good Company, *viz.* the Stag and Buck. His chief Delight is in hard Gravels. She ſpawns in *October* and *November*, which is contrary to the Nature of other Fiſh, which ſpawn in the Spring, which is a Seaſon moſt fit for Generation.

The *Trout* is always lowſie, lean and unwholſome in cold Weather ; but when it begins to be warm, he gathers Strength, and forſaking the ſtill and deep Streams, keepeth in the gravelly and ſhallow Waters, for the rubbing and cleanſing himſelf from his Lowſineſs. Theſe Lice are a ſmall Worm, with a pretty big Head, and ſtick cloſe to his Sides, ſucking away his Moiſture.

The Baits moſt proper for the *Trout* are, Worms, Minows, or Flies, either Natural or Artificial : And of all Worms, thoſe called the *Dew-Worm*, *Lob-Worm*, and the *Brandling*, found in old Dung-hills, are the beſt.

By the way remember, that in Fiſhing with Worms, you always clap them alive on your Hook, and get ſuch as are ſtrong and luſty, ſuch as will ſtir and move a good while in the Water on your Hook ; for when once they are dead, it is to little Purpoſe to keep them on. For the Preſervation of theſe Worms, keep them in a Box, with Moſs to nouriſh them, which muſt be often ſhifted, and their Food as often changed, eſpecially in the Summer Seaſon.

If you fiſh with the *Minnow*, or *Stickle-bag*, let it not be too big ; or for want of Natural *Minnows*, uſe Artificial ones. All the Skill is in baiting your Hook, which muſt be hid in the Mouth of the *Minnow*, and let the Point a little come out of his Gill, but his Body muſt be ſtreight.

Uſe neither Cork nor Plummet when you fiſh for the *Trout*, either with *Minnows* or *Flies*, Natural or Artificial. Now concerning the Flies, I have already treated how to make them, however a Word or two more. If you can bait your Hook with a natural live Fly, ſuch an one as you perceive to uſe the Water at that Time, and at which the *Trouts* leap, that is beſt, and next to that an Artificial Fly exactly made, for which take the Aſſiſtance of ſome expert Fly-maker ; for one ocular Obſervation will make a deeper Impreſſion than twenty verbal Lectures, for Example teacheth better than Precept.

In carrying your Rod, move it with an even Hand, ſo as your Fly may gently touch the Top of the Water, cutting the Stream as it were juſt as you ſhall ſee the Natural Flies do.

As for Paſtes, they are not very kindly for *Trouts*, unleſs for old large ones, which are difficult to be got out of their Holes, unleſs by Night ; for they are as crafty as old beaten Hares. When you ſuſpect that any lie conceal'd in Holes, then go out in the Evening, and bait your Hook with any Paſte, drawing it gently on the Top of the Water ; and the *Trout* will then make to it very greedily ; but be ſure lie conceal'd, if it be Moon-ſhine, for this Fiſh is exceeding quick-ſighted, and very coy, ſo that the Mornings and Evenings are the beſt, except in gloomy Weather.

The *Eel* was by the *Romans* eſteem'd the *Helena* of their Feaſt, as being ſo dainty a Fiſh. Moſt Men differ about their Breeding ; for ſome are of Opinion, that they breed by Generation, as other Fiſh ; whilſt others ſay, that they are bred of Mud, or other Putrification of the Earth (as are Rats, Mice, and many other Creatures) and deny them to have either Spaw, or Melt. Others hold, that when they grow old, others breed out of the Corruption of their old Age : And others are of Opinion, that they are bred of a particular Dew that falls in the Months of *May* or *June*, on the Banks of Rivers and Ponds, which in a few Days, by the Heat of the Sun, is turn'd into ſmall *Eels*, and theſe are by ſome called *Yelvers*.

It is by Experience found concerning the Breeding of *Eels*, that take two large Turfs of Graſs, which cut about a Foot ſquare, and three Inches thick, lay them Graſs to Graſs, tie them together with Packthread, and lay them in a Pond in *May*, and they will breed *Eels*; and this may be done for the Storing Ponds therewith.

The moſt Curious have diſtinguiſh'd *Eels* into four Sorts, *viz.* the *Silver Eel*; the greeniſh *Eel*, which is called a *Greg*; the blackiſh *Eel*, which hath a broad flat Head, and the *Eel* with reddiſh Fins. I ſhall only ſpeak of the *Silver Eel*, which is believed to be bred by Generation, and not by Spawning, the Young coming forth alive from her about the Length and Bigneſs of a middle-ſized Pin; and this Sort is eſteem'd the beſt and delicateſt Diſh.

Eels delight in muddy Banks, and in rotten Roots of old Trees, that grow on the Banks of Rivers. The beſt Places to fiſh for them with the Angle are at Mill-Ponds, Wears, Bridges, great Falls, and the like. Your Lines muſt be ſtrong, not very long, well plummed, and muſt have a good round Hook without a Cork; for you muſt hold your Line ſtiff, and not pull ſmartly, but ſuffer him firſt to tire himſelf. They ſeldom ſtir out of their Holes during the Winter Seaſon, but keep in the Mud; nor do they much ſtir abroad at any Seaſon in the Day, ſo that the moſt proper Time to take them is in the Night.

The beſt Baits to take them are the Red Worm, the Minnow, Pieces of Sheeps or Hens Guts, young Lampreys or Lamperns; but, above all, Pieces of raw powder'd Beef. Now the Ways to take *Eels* with the ſaid Baits are as followeth: Faſten your Line to the Bank-ſide, with your Laying-Hooks in the Water, or you may throw in a Line with good ſtore of Hooks baited and plumm'd, with a Float to diſcover where the Line lieth, that when you come in the Morning you may take it up with your Drag-Hook.

Bobbing for Eels.

THere is a Way to take *Eels*, *viz.* *Bobbing*, that is, Take very large Lobs, ſcour them well, and with a Needle run ſome ſtrong twiſted Silk thro' them from End to End; then take ſo many as to wrap them about a Board, at leaſt a Dozen times, and tie them faſt with the two Ends of the Silk, that they may hang in ſo many Hanks; then faſten all to a ſtrong Cord, and about four Inches above the Worms faſten a Plumb of about three Quarters of a Pound, and ſo faſten your Cord to a ſtrong Pole. Having thus your Tackle ready, chuſe a muddy Place to fiſh in, and when you think they have ſwallow'd them as far as they can, draw up your Line gently, and bring them to Shore.

Snigling for Eels.

THere is another Way to take *Eels*, called *Snigling*. This is done in the Day, and after this Manner: Take a ſtrong Line and Hook baited with a Lob, or Garden-Worm, and obſerving ſuch Holes and Places where they uſe to lie, (as near Wears, Mills, or Flood-Gates) and gently, by the Help of a Stick, putting your Bait into ſuch Holes or Places where you think they lie, you will hardly miſs taking them; but be careful of pulling it out too boiſterouſly.

Eels are alſo taken by Eel-Spears, which you are to ſtrike into the Mud to the Bottom, where they lie, and if it chance to light where they are, there is no fear of taking them. Theſe Spears are common, and are for the moſt part made with three Forks, or Teeth jagged on the Sides, but thoſe are better that have four: But to take the largeſt *Eels* of all, the Night-Hooks are to be baited with ſmall *Roaches*, and the Hooks muſt lie in the Mouth of the Fiſh. And this Way is beſt in Winter, for then they lie in deep, muddy, ſedgy Beds, many together.

Flounders delight in brackiſh Streams, wherein the ſalt Water ebbs and flows, as the *Thames*, *Medway*, *Severn*, and the like; yet will they get up a good way into freſh Streams, where they will thrive very well. It is a Fiſh that affords good Sport to the *Angler*, and are greedy Biters; nevertheleſs they are crafty, ſo that you muſt not let your Bait lie ſtill, to draw them on the more eagerly. The Months moſt proper to fiſh for them are in *April*, *May*, *June*, and *July*, at any time of the Day. They delight to lie either in a ſwift Stream, or in the ſtill Deep, but chiefly in the Stream. The beſt Baits are the Red Worms, Waſps and Gentles; your Line muſt be ſtrong, and plumm'd within eight Inches of your Hook. The *Flounder* will thrive and grow exceedingly in Ponds, but will not breed there.

The *Char* is a Fiſh not known to be taken any where but in *Wimander-Meer* in *Lancaſhire*. It is eſteem'd a delicate Diſh, and is often uſed for Pies, and ſent to *London* for Preſents. 'Tis a ſpotted Fiſh like a Trout, and ſeldom exceeds a Foot and an half in Length, being free from Bones, having ſcarce any but what is on his Back. This Fiſh is for the Generality taken with Nets.

The *Guiniad* is an excellent Fiſh, and only found in *Pemble-Meer*, and generally taken with Nets.

The *Graling* and the *Umber* are by ſome eſteem'd all one Fiſh, but differ in Size, as the *Herring* and *Pilcher*, and are much of the Nature and Property of the *Trout*, but ſcarce ſo big. They delight in clear ſwift Streams, with ſandy Shores, and are taken with the ſame Baits, and after the ſame Manner; but eſpecially the Fly is the chief Bait, at which he is very greedy and bold. He is no Leather-mouth'd Fiſh, therefore eaſily loſt after he is ſtruck. In the Winter he lieth very cloſe, but after *April* he appears, and is eaſily taken. But the beſt Fiſhing for the *Graling* is to go into the Water, and to ſtir up the Gravel and Sand with your Feet, or with a Pole; and then with a Worm fiſh down the Stream, where the Water runs thick.

You ſhould do well to head your Hook upon the Shank, with a very ſlender narrow Plate of Lead, and let it be ſlenderer at the Bent of the Hook, that the Bait may the eaſier come over it, and keep your Bait always in Motion.

The Bait muſt be a large Graſs-hopper, but at the Point of the Hook let there be a Cad-bait, and forget not to pull off the Graſs-hopper's Wings that are uppermoſt. Now an excellent Bait in *March* and *April* for the *Graling* is a *Tagtail*, which is a Worm of a pale Fleſh-colour, with a yellow Tag on his Tail, not half an Inch long, and is to be found in marled Grounds and Meadows in fair Weather, but not to be ſeen in Cold, or after a Shower of Rain.

The *Stickleback* is a ſmall prickly Fiſh without Scales, and not fiſh'd for but for Baits to catch other Fiſh.

The *Minnow* is alſo a ſmall Fiſh without Scales, and uſed alſo for a Bait for other Fiſh. It is a great Spawner, and ſerveth as well for a Prey as a Bait for Fiſh. The like is the *Stickleback*.

The *Barbel* is ſo called by reaſon of the Barb that is under his Noſe or Chops, and is a Leather-mouth'd Fiſh; and though he ſeldom breaks his Hold when hook'd, yet he oft breaks both Rod and Line, if he proves to be a big one. The Male is eſteem'd much the beſt, but neither very good. They ſwim together in great Shoals, and are at their worſt in *April*, about which time they ſpawn, but ſoon come in Seaſon. This Fiſh loves to frequent weedy Places, and in a gravelly riſing Ground, wherein he is ſaid to root with his Noſe like a Hog. In the Summer he alſo frequents the ſtrongeſt Swifts, of the Water, as deep Bridges, or Wears, *&c.* amongſt the Piles, hollow Places and Weeds; but in the Winter he retires into deep Waters, and there helps the Female to make a Hole in the Sand for her Spawn, which ſhe hideth from being devour'd by other Fiſh. It is a very cunning and curious Fiſh for his Baits; for if they be not clean, ſweet, and well ſcour'd, and kept in ſweet Moſs, he will not bite, which, if well order'd and curiouſly kept, he will bite with great Eagerneſs. The beſt Bait is the Spawn of a *Salmon-Trout*, or any other Fiſh; and if you would have good Sport, bait the Places where you intend to fiſh therewith a Night or two before, or with big Worms cut into Pieces; and the earlier in the Morning, or later in the Evening that you fiſh, it is the better. Alſo the Lob-worm is a very good Bait: Be ſure to cover all your Hook with the Bait. Your green Gentles are alſo a very good Bait, and ſo are Bits of tough Cheeſe laid a-ſteep about 24 Hours in clarified Honey; and if you bait the Ground with the ſame, you can hardly miſs taking them, if there be any. Your Rod and Line muſt be both long and ſtrong, with a running Plummet on the Line, that is a Bullet, with a Hole through the Midſt, and let a little Bit of Lead be placed a Foot or more above the Hook, to keep the Bullet from falling on it; ſo the Worm will be at the Bottom, where they always bite; and when he takes the Bait, your Plummet will lie, and not choak the Fiſh; you may know by the Bending of the Rod when he bites, and alſo with your Hand feel him make a ſtrong Snatch; then ſtrike, and you will rarely fail, if you play him well, and heave him: And, in ſhort, if you manage him not dexterouſly, he will break the Line. As for the beſt time of Fiſhing, let it be about Nine in the Morning; and the chiefeſt time for it is the latter End of *May*, *June*, *July*, and the Beginning of *Auguſt*.

Breams are of two Sorts, the one a ſalt, and the other a freſh Water Fiſh, but differ little from each other as to Taſte, Shape, or Nature. The freſh Water ones breed in Ponds and Rivers, but delight moſt in the former, and are generally fairer and fatter in them than in Rivers. The *Bream* is a very broad ſhaped Fiſh, and thick, ſcaled very excellently, with a fork'd Tail, large Eyes, but a little ſucking Mouth, diſproportionate to his Body. It is a luſty ſtrong Fiſh, ſo that your Tackling muſt be very good. He hath two Sets of Teeth, is a very great Breeder, the Melter being obſerved to have two large Melts, and the Spawner as many Bags of Spawn, and ſpawneth in *June* and *July*. The beſt Seaſon of Angling for him is from St. *James-Tide* until *Bartholomew-Tide*.

This Fiſh is a great Lover of Red Worms, eſpecially ſuch as are to be found at the Root of great Docks; alſo Flag-worms, Waſps, green Flies, Graſs-hoppers, which muſt have their Legs cut off, and Paſte, of which there are many Sorts, which are found very good Baits for him; but the beſt are made of brown Bread and Honey, Gentles, young Waſps, Graſs-hoppers, and the Red Worms.

It is a curious Fiſh to be taken with Hook and Line, therefore obſerve theſe Directions, which may alſo further you in your *Carp-Fiſhing*, which is much of the ſame Nature. Get a Quart of large Red Worms, and in about three Weeks they will be thoroughly ſcour'd, if you put them into freſh Moſs well waſh'd and dry'd every three or four Days, feeding them with fat Mould and chopt Fennel.

Your Lines ſhould be Silk and Hair; but the beſt are all Silk. Your Floats ſhould be Swan-Quill Floats, or large Gooſe-Quills. For your Plumb take a piece of Lead faſhioned like a Pear, with a ſmall Ring at the little End of it; faſten your Lead to your Line, and your Line-Hook to your Lead, about ten or twelve Inches ſpace between Hook and Lead is ſufficient, and be ſure your Lead is heavy enough to ſink the Float. Your Hook being well baited, and your Worm ſtrong, the Worm will draw your Hook up and down on the Bottom, which will provoke the *Bream* to bite the more eagerly.

If you fit three or four Rods and Lines in this manner, and ſet them as ſhall be directed, your Sport will be much the better. Get the exact Depth of the Water (if poſſible) that your Float may lie juſt equal with the Water, directly over your Lead. Then provide this following Ground-Bait; Take about a Peck of ſweet Groſs-ground Malt, and boil it a very little; then ſtrain it hard through a Bag, and carry it to the Water-ſide where you have ſounded, and where you ſuppoſe the Fiſh do frequent, there throw in the ſaid Malt by Handfuls, well ſqueezed, that the Stream may not ſeparate it before it comes to the Bottom; and be ſure to caſt it in at leaſt a Yard above the Place where you intend your Hook ſhall Lodge, otherwiſe the Stream will carry it ſomewhat down. Do this about Nine of the Clock at Night, and preſerve ſome of your Malt in your Bag, and about Three in the Morning Viſit the Place, but with great care at a diſtance, leaſt you are eſpied by them; for it is certain, that they have their Sentinels watching on the Top of the Water, whilſt the reſt feed under; then dexterouſly Bait your Hook, ſo that the Worm may crawl too and fro the better to entice the Fiſh to bite; and where you find the Fiſh to play moſt, and ſtay longeſt (which is generally in the deepeſt and broadeſt Part of the River) there caſt it in, that it may reſt about the Midſt of your Bait that is on the Ground. Caſt in your ſecond Line to reſt about a Yard above that, and a third about a Yard below it. Let your Rods lie on the Bank, with ſome Stones, or the like, to ſtay them at the great Ends, and then withdraw your ſelf, yet ſo as to have in your Eye all the Floats, and when you ſee one bitten, and carried away, be not over-haſty to run in, but give time to the Fiſh to tire himſelf, and then gently touch him.

If there be any *Carps* in the River, 'tis an even Lay you take one or more of them; and if there be any *Pike* or *Perch*, to be ſure they'l viſit the Ground Bait, though they touch it not, being drawn thither by the great Reſort of the ſmall Fiſh; and until you remove them 'tis in vain to think of taking the *Bream*, or *Carp*. In this caſe let one of your Hooks be baited with a ſmall *Bleak*, *Roach*, or *Gudgeon*, about two Foot deep from your Float, with a little Red Worm at the Point of your Hook, and if a *Pike* be there he will be ſure to ſnap it.

This Sport is good till Nine in the Morning, and in a gloomy Day till Night; but however it is good to withdraw; and about Four in the Afternoon caſt in the Remainder of your Malt, and proceed as before; but do not frequent one Place too much, leſt the Fiſh grow too crafty for you.

The *Tench*: This Fiſh has but ſmall Scales, tho' yet ſmooth, very large Fins, with a red Circle about his Eye, and a little *Barb* hanging at each Corner of his Mouth: He lies (for the moſt part) at the Bottom of the Water, and chiefly in muddy Soils, and amongſt Weeds; he delights in Pits and Ponds, more than in Rivers; his Fleſh is very good, and of a pleaſant Taſte, although he frequents muddy Places: In the Heat of the Year he will Bite freely, elſe not; therefore the beſt Seaſon for *Angling* is in *June*, *July*, and *Auguſt*, and early in the Mornings, and late at Nights.

Though the *Pike* preys on moſt Sorts of ſmall Fiſh, yet he will not touch a *Tench*, which is ſuppoſed to proceed from the Benefit he receives from them in point of Health; for being Sick, the Approach of this Fiſh to rub againſt him revives him, and the Slime is very good for all wounded Fiſh, and therefore he is called the *Fiſhes Phyſician*. Authors write ſtrange Vertues to be in the *Tench*; but how true, I dare not affirm.

The Baits which the *Tench* delight in are ſweet Paſtes, as that which is made of Brown-bread and Honey; he will alſo bite very greedily at any Paſte wherein Tar or ſweet Oil is an Ingredient; alſo at the Maggot, Red-Worm, Cad-Worm, Lob-Worm, Gentle, and at dried Waſps, eſpecially if dipt in Honey.

To take good Store of this Fiſh obſerve theſe Directions: Provide your ſelf with a good large Caſting-Net well Leaded, with a large Meſh, and deep tucked; then make the Place (where you intend to Fiſh) clean from Stakes and Buſhes with a Rake, or ſome ſuch thing, that there may be nothing to entangle it; then take a Quarter of a Peck of Wheat baked well in an Oven, with about three Quarts of Water, alſo five Pints of Blood, and mix it with the Wheat well together, adding thereto as much Bran as will make it become a ſtrong Paſte; then take about a Quart of Lob-worms, chopt in Pieces, and mix them in the Paſte, and make it up into Balls about the Bigneſs of a Gooſe-Egg, and throw them into the Pond within the Compaſs of the Caſting-Net, and betwixt whiles caſt in ſome Grains; then when you think the Fiſh have found the Baiting-place, about the Cloſe of the Evening caſt in your Net over the ſaid Baiting-place. This being done, have a long Pole with a large Cork to ſtir all about the Net to raiſe the Fiſh, which are generally ſtuck in the Mud, where they can't long endure, and let the Net lie near half an Hour before you take it up. When you have covered the Fiſh, you may go into the Pond and take them out with your Hand; but if the Water be deep, when you find them begin to ſtir, be ſure to lift up the Crown of the Net upright with a long Staff, that the Fiſh may play in the Tuck of the Net.

The *Perch* is Hook-back'd, ſomewhat like a Hog, and arm'd with ſtiff Griſtles, and his Sides with very dry Scales; he is a bold biting Fiſh, being one of the Fiſhes of Prey, that like the *Pike* and *Trout* he carries his Teeth in his Mouth, which are very large; and he is ſo Voracious, that he dares attack one of his own Kind, which the *Pike* will hardly do: He hath an Hooked or Hog Back, which is armed with ſharp and ſtiff Briſtles, and all his Skin is covered with dry hard Scales, having two Fins on his Back which few other Fiſh have; he is alſo a ſlow Grower, and ſeldom exceeds two Foot in Length; he Spawns but once a Year, and that in *February* or *March*. There are ſaid to be two ſorts of *Perches*, the one Salt-water, and the other Freſh; the firſt hath but one Fin on his Back, the other hath two. By the *Phyſicians* this Fiſh is held very Nouriſhing, but hard of Digeſtion.

The *Perch* biteth well all the Day in Cloudy Weather, but chiefly in the Morning, and towards the Evening: The beſt Seaſon of the Year is when the Spring is far ſpent, at which time he Bites ſo greedily, that you may take at one ſtanding all that are in one Hole; and in a fair warm Day in the Winter he will alſo Bite, elſe not.

The proper Baits for the *Perch* are the Belly of a *Mackrel* cut into ſmall Pieces about the Size of a *Minnow*; the ſmall *Frog*, the *Minnow*, and the Worm called the Brandling, if well ſcoured is the beſt; you may alſo uſe the Lob-worm well ſcoured, likewiſe Bobs, Gentles, Oak-worms, Waſps, and Cad-baits.

The *Perch* is no Leather-mouth'd Fiſh, and therefore when he bites, give time enough to pouch his Bait, and carry your Bait about Mid-water, with a Cork on your Line.

If you bait with a *Minnow* (which affords the moſt Diverſion), fix your Hook through his upper-Lip, or in at the Back, only taking up the Skin, and then he will Swim up and down, being kept up by the Cork and Line. If you Bait with a Frog, then put the Hook through the Skin, and his Leg towards the upper part.

Your Line ſhould be good and ſtrong, and a good Hook arm'd with Wire, ſo that if a *Pike* comes you may be prepared for him. But before you go to your Work, it were not amiſs to bait the Ground where you intend to Fiſh over Night, with Lob-worms chopt in Pieces.

The *Bleak* is by ſome called the Freſh-water Sprat, or the River-Swallow, by reaſon of his continual Motion; for it delights to be on the Top of the Water, and always in Motion, making ſhort and quick turns to entrap the Flies. He is an eager Biter, and is caught with all ſorts of Worms bred on Trees, or Plants; alſo with Flies, Paſte, Sheeps-Blood, *&c.* and in an Evening the *Bleak* will take the Natural, or Artificial Fly, that is but ſmall, and of a browniſh Colour, with a Hook anſwerable.

This Fiſh uſeth to keep in Company together, ſo that a Pater-Noſter Line is good to take them; that is, a Line with ſeven or eight ſmall Hooks faſtned to it, at every Six Inches Diſtance, and with this a reaſonable *Angler* may take four or five at a time.

The beſt Bait in a warm clear Day is the ſmall Fly, at the Top of the Water, at which they will bite very eagerly, eſpecially in the Evening; and if it be Cold and Cloudy, Gentles, or Cadice are the beſt, and to fiſh at about two Foot under Water.

There is an excellent way to catch *Bleaks*, by whipping them in a Boat, or on a Bank-ſide, in ſwift Water in a Summer's Evening with a Hazel Top about five or ſix Foot long, and with a Line about twice the Length.

The *Pope*, or *Ruff*, is a Fiſh not very common, eſpecially in ſome Rivers; for Shape it is like a *Perch*, but for Bigneſs ſeldom exceeds the *Gudgeon*. It is an excellent taſted Fiſh; they bite freely and keep in Shoals, where the Water is deep, and runs quick, ſo that an *Angler* may catch forty, or fifty at one ſtanding.

Your Bait is the ſmall Red-worm, and if you give him firſt a Ground Bait of freſh Earth, it is very good to draw them together, and to keep them there. Bob-worms, and Maggots are alſo good Baits, and generally all ſorts of ſweet Paſtes.

The *Pike* is a Fiſh of a great Strength, is ſaid to live longer than any other Fiſh; he is a great Devourer of all ſmall Fiſh; but will not meddle with the *Tench*: They are bred ſome by Generation, and others by the Sun's heat reflecting on ſecret and unknown prediſpoſed Matters, which is a Truth paſt Controverſie.

He is of ſuch a voracious Nature, that he is called the *Freſh-water-Wolf*; he is a Malancholy Fiſh, and loveth to be alone, as greedy to ſeek his Prey; his common Food is either Pickerel-Weed, Frogs, or ſmall Fiſh. The beſt *Pikes* are found in Rivers, and moſt in Meers and Ponds.

The *Pike* is a bold Fiſh in this reſpect, that he feareth not to ſee or to be ſeen by a Man, which is contrary to the Nature of all other Fiſh. You may Fiſh for him with Ledger, or a Walking-bait, the former is fixed to ſome certain Place, of which hereafter, for the latter is it which is now to be handled.

The Skill in Baiting your Hook with a Frog, or Fiſh, ſo that they may receive little hurt, and live long in the Water after, is the chief Thing in this Art of *Pike-fiſhing* with an *Angle*. To be exact at it, do thus; Take the Yelloweſt Frog you can get (for thoſe are not poyſonous, and *Pikes* are greedy of them) from *April* till *Auguſt* you may find their Mouths open, but all the Year after quite lock'd up, ſo that how they can then feed is a ſecret in Nature not known; having ſuch a Frog, put your Arming Wire through his Mouth, and out at his Gills; then with a Needle and Thread ſtitch up the upper part of his Leg to the ſaid Arming Wire, and ſo fix it; one Stitch is enough, and do it ſo as not to give him any Hurt, that he may continue in full Strength: Alſo cut a little the Skin of his Back and put in ſome Salt; this will make him Croak, or Cry, which will the ſooner draw the Fiſh to him.

If you bait with a Fiſh, let it be either a *Perch*, *Roach*, *Daice*, or large *Minnow*; the Manner is thus, Between the Head and Fin or the Back, make an Inciſion with a ſharp pointed Pen-Knife, that you may put in your Arming-Wire, and force it out at another Skar at the lower End of the Back near the Tail, then tie him about with a Thread, but no harder than juſt to keep on the Fiſh and not to hurt it. If you uſe a dead Bait, then put your Hook in at the Tail, and let the Point come out juſt at the Gills, and ever move your Line to and fro, that the *Pike* ſeeing the Fiſh move, may not diſcover your Fraud, and be provoked to come on the more eagerly. The moſt excellent attractive way for a *Pike* is to anoint your Baits, whether dead or alive, in a little Ivy-Gum, diſſolved in ſome Oil of Spike, and caſt it where you intend to Fiſh, and having lain a little while at the Bottom, draw it to the Top, and ſo up the Stream, and if there be any *Pikes* within Scent of it, they will eagerly purſue the Bait, and the bigger the Bait is the better. Having taken one be ſure to tire him well before you Land him, and let your Hook be well armed, and your Line all of Silk, except within about a Yard of the Hook, which muſt be a ſtrong Wire twiſted and ſtrengthen'd about with other ſmall Wire.

In *May*, *June* and *July*, *Pikes* are ſaid to go a *Frogging* in Ditches, and do alſo lie a Sunning themſelves; at theſe times they are eaſie to be taken, and that by this means; Take a Line of ſeven or eight Foot, then Arm a very large Hook to the Line which muſt be neatly leaded at the Shank of the Hook, and of ſuch a weight that he may guide the Hook at pleaſure, and with this Hook without a Bait, a *Pike* may be ſtruck without fear of loſing it.

Trowling for the Pike.

THere is a Way to take *Pikes* called *Trowling*, which is thus done; Take a Hazel-Rod about twelve Foot long, then fix to the Top of the Rod ſome ſtrong Wire, which muſt have a Nooſe to draw up, when you have entangled the *Pike*.

Snapping for Pikes.

THis is thus performed, put a ſtrong double Hook well Armed upon a very ſtrong Line, which muſt be of the Length of your Pole. Bait the Hook as before directed for the *Trowling*, either with a ſmall Fiſh, or for want thereof with a ſmall Bird, his Feathers being all pulled off. Keep your Bait always moving, and ſo ſoon as the *Pike* bites, with a ſtrong ſmart Jerk, ſtrike, and fling him out of the Water.

There is another way to take the *Pike*, and that is, take a forked Stick, with a Line about twelve Yards long wound upon it, and leave at the upper End about a Yard to tie a Bladder, or ſomething to keep it from the Ground. The Bait muſt be a live Fiſh, *viz.* a *Daice*, *Gudgeon*, or *Roach*. The forked Stick muſt have a Slit in the one Side of the Fork to put in the Line, that the live Fiſh may be ſet to ſwim at a Gage; and that when the *Pike* takes the Bait, he may have the full Liberty of the Line for his Feed.

This Device may be turned looſe either in a Pond, or River, and be carried about with the Wind or Stream.

The Hook muſt be large, and the Shanks ſomething ſhorter than ordinary; and it muſt be armed either with ſmall Wire ſoftned, or with twiſted Silk, which is eſteemed the beſt.

Huxing the Pike.

WHat has been ſaid juſt before, is ſomewhat like what they call *Huxing the Pike*, a Method for the taking of this ſort of Fiſh, that is very agreeable; but not being ſo particular as it ought; for this End take thirty or forty as large Bladders as can be got, and blow them up, and tie them cloſe and ſtrong; then at the Mouth of each tie a Line, longer or ſhorter according to the Depth of the Water, and at the End of the Line, faſten an armed Hook artificially baited, and put them into the Water with the Advantage of the Wind, that they may gently move up and down the Pond: Now when Maſter *Pike* has ſtruck himſelf, 'tis a moſt pleaſant Diverſion to ſee him bounce about in the Water with the Bladder at his Tail, and when you perceive him almoſt ſpent take him up.

The *Salmon* is ſaid to be the King of Freſh-water Fiſh, and is always bred in Rivers near the Sea, yet where they are not ſalt. He caſts his *Spawn* in *Auguſt*, making a Hole in ſome ſafe gravelly Place in the River, and therein hides his Spawn, covering it over with Stones, and Gravel, and ſo leaves it; and both the Melter and Spawner betake themſelves to the Sea before Winter, and if they meet with any Obſtructions by Floodgates, or Wears, or become loſt in the freſh Waters, then thoſe ſo left do by degrees become Sick, Lean, Unſeaſonable, Pining away and Die in about two Years; notwithſtanding which they delight moſt in freſh Waters, nor will they be ſo fat, and good in ſalt Water as in freſh; and 'tis obſerved that thoſe little *Salmon's* called *Skeggers*, are bred by ſuch ſick *Salmon*'s. Theſe will never grow large; for 'tis the Sea that makes the *Salmon* grow big, and freſh Rivers fat; and ſo much farther they are from the Sea up the River, the fatter they grow, and the better their Food: Nay 'tis very remarkable that he grows from a *Samlet* to a *Salmon*, in as ſhort a time, as a *Goſlin* will grow to be a *Gooſe*.

The *Salmon* uſually ſtays not long in a Place, but covets to get nearer the Spring-head, and generally keeps in the middle of the River, and near the Ground, ſo that it is the more difficult to fiſh for them with the Hook and Line from the Bank's ſide; you ſhould therefore be provided with a ſmall Boat at Anchor, and from thence you may caſt your Hooks. Your Tackling muſt be ſtrong, and well fitted, for you are to encounter with a Fiſh of Strength and Greatneſs. He biteth beſt at about three a Clock in the Afternoons in the Months of *May*, *June*, *July* and *Auguſt*, eſpecially if the Water be clear, and that there be a ſmall Breeze of Wind blowing againſt the Stream.

The Baits proper for the *Salmon*, are the ſame as for the *Trout*, but above all others he will bite beſt at the Garden-worm called a Lob-worm, provided it be well ſcoured, and kept clean in Moſs, as formerly directed; and if you anoint the Box wherein you put the Worms only three or four at a time, about an Hour before you uſe them, with two or three Drops of the Juice of Ivy-berries, or Oil of Polipody of the Oak mixt with Turpentine, it is an excellent Attractive.

There is a way to fiſh for the *Salmon*, with a Ring of Wire at the End of your Rod, through which the Line may run to what Length you pleaſe, by which means he will not come to feel the Strength of the Line or Rod, for it is to be feared if he ſhould, he would with a Jerk of his Tail break either the Line, or Hook, and ſo eſcape.

The artificial Fly is a good Bait, but you muſt uſe a Trowl as for the *Pike*, and your Fly muſt be large, with the Wings and Tail very long. Be ſure to give him time to gorge the Bait, and be not over-haſty in drawing him up, but let him plunge and tire himſelf.

The *Millers-Thumb*, or *Bulls-Head* is a broad headed, and wide mouthed Fiſh, having two Fins under his Belly, and as many near his Eyes, which are broad; he hath alſo Fins on his Back. This Fiſh begins to ſpawn in *April*, and is full of Spawn all the Summer Seaſon. He delights in Holes, or amongſt Stones in clear Water in the Summer, but in the Winter frequents the muddy Places like the Eel. In hot Weather he uſeth to lie Sunning himſelf in ſhallow gravelly Places, and is eaſily taken, not refuſing your Bait, the beſt being the Red-worm. It is an excellent Fiſh for Taſte, but of ſo ill a Shape much reſembling the Toad, that it is not much regarded.

In the laſt Place I ſhall ſpeak of the *Carp*, in the taking of which there lies the main Skill of an *Angler*.

Carps are ſaid to be of no long continuance in *England*; It is an excellent Fiſh, and acknowledg'd by all to be the Queen of Freſh-water Fiſh, being not only good, but a ſubtil Fiſh; and living the longeſt of all, excepting the Eel out of his proper Element: It's a great Encreaſer, breeding ſeveral Months in the Year, which *Pikes* and moſt other Fiſh do not; and it ſeems to be true, becauſe that you ſhall ſcarce take a *male Carp* without a Milt, and a *Female* without a Row or Spawn, eſpecially all the Summer Seaſon; and by Obſervation they agree more naturally in Ponds than Rivers, or Running Streams if they breed there at all. In ſome Ponds they will alſo not breed, and ſuch are thoſe that have too cold Springs, but in Ponds agreeable to them, provided their Spawn is not devoured by *Pikes* or *Perch*, they greatly encreaſe. I ſhall elſewhere give you ſome Rules for the knowing a breeding Pond from a Growing one, with ſome Directions for the well ordering the ſame.

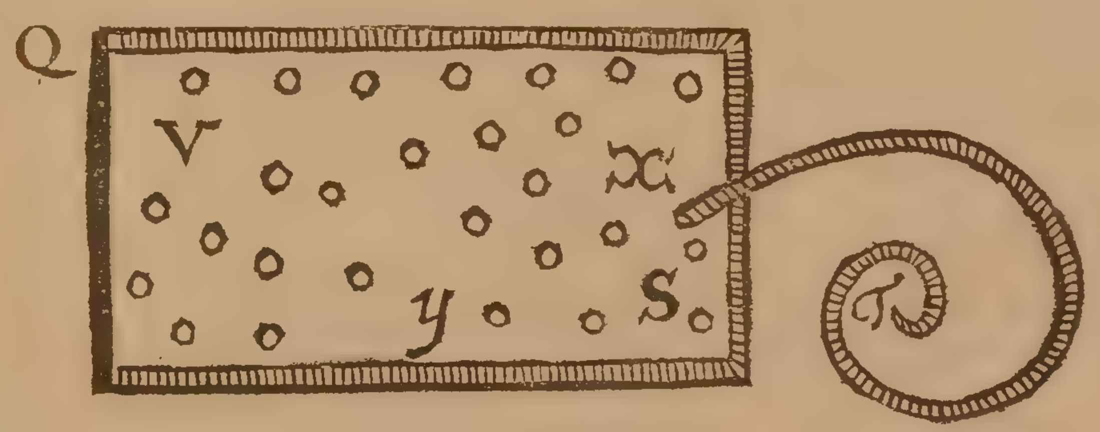
The *Carp* is a Leather Mouthed Fiſh, ſo that if your Hook be once ſtruck into his Chaps, he doth ſeldom break his Hold. He is the moſt ſubtle Fiſh that is, and not eaſily taken by the Angle, eſpecially in Rivers, or in ſome Ponds, where they have Store of Food and the Water is of a Clayiſh Colour. The *Carp* will ſeldom bite in cold Weather, and in the hot Seaſon you can ſcarce be too early or too late at your Sport, for he is a very difficult Fiſh to be taken: In the Heat of the Summer, they ſhew themſelves on the Top of the Water, at which time if you Fiſh with the Lob-worm as you do with the natural Fly, you will have very good Sport, eſpecially if it be amongſt Reeds.

If your *Carps* breed too faſt in your Stews, then put in ſome *Gudgeons*, which will cauſe them to grow Fat and Thrive, and ſo leſſen their Breeding.

The Baits moſt proper for the *Carp* are *Worms* or ſweet Paſtes, of which there are great Variety, for he is a Fiſh that ſeldom troubles the Top of the Water for Flies. Of Worms, the blue Marſh-worm, the knotted red Worm, and the Gentle are the beſt; if you Fiſh with Gentles, anoint them with Honey before you put them on your Hook. As for Paſtes, thoſe that are made of ſweet ſmelling, and ſweet taſting things are the beſt. Honey and Crums of White Bread is very good, being wrought up very ſtiff. Alſo *Bean-Flour*, or other Flour, Virgin-Wax, ſome raw Fleſh of a Rabbet, or ſuch like, being beaten well together in a Mortar to a Paſte, is a very good Bait for them.

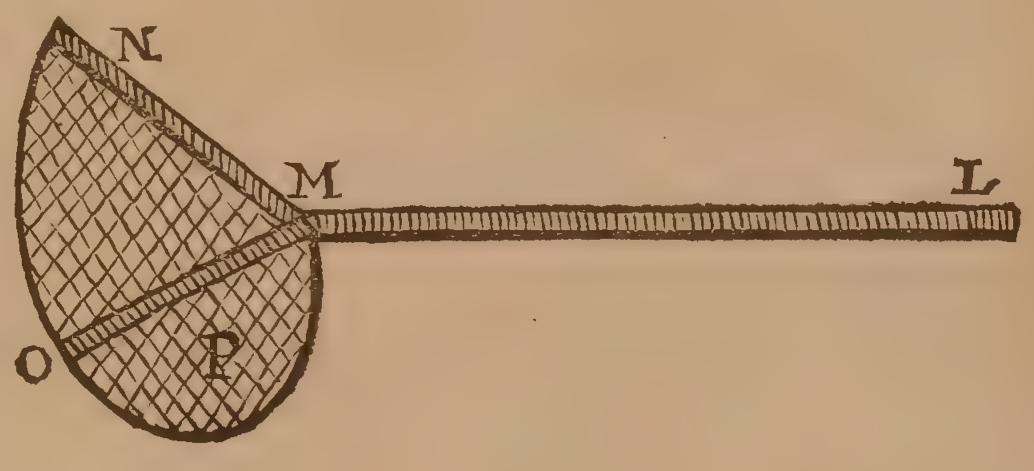
When you angle for a *Carp*, your Rod and Line muſt be ſtrong, and by reaſon he is ſo ſhie, it is very good to bait the Ground where you intend to fiſh two or three Days before, with ſome Paſte made up into Pellets, or Blood mixt with Bran, and Cow-Dung; alſo take about a Peck of Ale-grains mixt with Blood, and caſt into the Place over Night, and it will gather the Fiſh together.

But all this While you are detained from the chief Secrets, which in Truth ſhould not be made common. You muſt be firſt aſſured that the Place where you fiſh for *Carps* is provided therewith, which to know make uſe of theſe following Directions, not that they tend barely to make the Diſcovery and no more; for you may find other neceſſary uſes made of them, for Inſtance, you bait your Fiſh thereby, and make them bold; you alſo obtain a ſafe and ſure Place for your Hook to reſt on, which is a good Conveniency; and you are alſo aſſured that there are *Carps* in the Place, the Figure ſhews the Form.



Frame ſome Boards together of ſuch Length and Breadth as you think fit, but for want of other Conveniencies, an old Door may ſerve the purpoſe, but the larger your Platform is, ſo much the better. The End Q is that which muſt lie next the Water-ſide; at the Letter *S* make a Hole to receive a good ſtrong Cord, faſtned with a knot on the Inner-ſide, then floor over your Door with ſtrong Earth or Clay about two Inches Thick; and ſo ſtiff, that it may not eaſily diſſolve, nor work off with the Water, then ſtick the ſaid Earth full of Beans (prepared as hereafter) at every four Inches Diſtance; the Letters *V*, *X*, *Y*, denote them; they muſt be very gently put in, ſo as a *Carp* may eaſily bite them out, yet ſo faſt as not to be waſhed out by the Water. When all is fixed, let the End *Q* be put into the Water ſloping downwards, then when the Board is cloſe on the Bottom, faſten the Cord *T*, at the Root of ſome Tree; the next Morning viſit your Baits, pull out your Door leiſurely; if the *Carps* have eaten the Beans, 'tis a good Sign of catching ſome, but if not, try it a ſecond Day and Night; if you then alſo find the Beans unmoved, conclude there are no *Carps*. If you find the ſecond time your Baits eaten, repleniſh them, and think not your Time loſt. In caſe the Bottom of the Water where you ſet your Door be clean and ſmooth, then remove your Door, caſting in two or three Handfuls of the aforeſaid Beans; but in caſe the Ground be Muddy, Weedy, Rooty, or the like, let the Door be rebaited, and returned to the Place where it was, for there you may boldly let fall your Hook. The way of ordering your Beans is thus. Take half a Buſhel of Beans, and let them lie ſeven or eight Hours in warm Water, then boil them in a large clean Earthen Pot with four Ounces of Honey, and as many Grains of *Musk*; then boil them about a quarter of an Hour, and ſo preſerve them for your uſe, to bait your Door, &c.

When you perceive that *Carps* are in the Place, and that they bite your Bait, then the Night before you fiſh do thus; Put in ſome of your aforeſaid Beans into ſome River Water to boil, and when they begin to bubble, put the quantity of two ſmall Beans of *Aloes-Socotrina* into your Pot to about a Handful of your Beans, and let it boil a little; when the Beans are cold bait your Door with them, the Effect will be this, The *Carps* will eat them as before, and withal fall a Purging and Scouring whatever is within them; and Conſequently will be exceeding Hungry, ſo as to bite at any thing; then early in the Morning bait your Hook (which ſhould be ſtrong and large) with your biggeſt Beans, and let the point of your Hook but juſt pierce the skin of your Bean (but note that the Beans wherewith you bait your Hook, muſt not be of the bitter ones) your Hook muſt have a Boot of Line to Trail on the Water; and your Line ſhould be made of Green Silk, with a Device to let go ſtore of it as you ſee occaſion. When you perceive your Float to Sink, then ſtrike him, but upright not ſlanting; and when once he is hit, let him have Line enough to tire himſelf. In like manner you ſhould be very careful in Landing him, for many a goodly Fiſh hath been loſt by over Haſtineſs, to prevent which you may uſe a commodious Net, which may ſerve for other Conveniencies. I ſhall here inſert the Figure of it.



This Net is to be extended on a forked Stick; the two Branches *N*, *O*, ſhould be each two Foot long, and from the End *N* to the other End *O*, ſhould be likewiſe two Foot Diſtance. The Net *P* being tied on, ſhould be about two Foot deep. When the *Carp* is within five or ſix Foot of the Land, ſet your Foot on the Line, and gently put the Net under the *Carp*, and ſo ſecure him. One Man may manage three or four Lines at this Sport, provided they be near him, and well ſecured on your Rods, and your Rods well fix'd on the Land with ſome weighty Things on the great Ends; and if you ſtuck a ſmall forked Stick into the Ground about a Foot high, to ſupport the Middle of your Rod, it were very ſecure, both for preventing the Drawing of your Rods, and the *Carps* would then ſtrike themſelves.

I ſhall next give you two Receipts for Paſtes, which are moſt excellent and approved: Take a Heron, plume him, then chop and mince him very ſmall, and put into a large ſtrong Glaſs-Bottle, which ſtop very cloſe, and bury in an hot Dung-hill for two or three Weeks, ſo that it may be brought to an Oil by a thorough Corruption. Keep your Bottle always well cork'd. When you go a *Carp-Fiſhing*, make up a Paſte with Crumbs of white Bread, ſome ground Hemp-ſeed, with this aforeſaid Oil; and with this Paſte bait your Hook ſo artificially, as no Part be diſcernible: The Quantity of a large Bean is enough. Alſo with this Oil anoint all that Part of your Line next the Hook, and let your Paſte reſt a Foot on the Ground, as before directed.

The other Paſte is more chargeable; but the Excellency and Goodneſs doth countervail the Coſt, were it far greater. Take a Pound of the Dregs of Hemp-ſeed, (by the Dregs is to be underſtood the bruiſed Body of the Seed, after the Oil is ſqueezed out) two Ounces of Mummy, or the Fat of a Man, which may be had at the Apothecaries; the like Quantity of Pork Lard, alſo two Ounces of the Oil of Herons, the like Quantity of Honey, one Pound of grated Crumbs of white Bread, and four Grains of Muſk. Make all theſe up into a Paſte, and if you find it too ſtiff, mollifie it with Honey, and if too ſoft, thicken or ſtiffen it with the Dregs of Hemp-ſeed. You may roll it into Pellets of the bigneſs of large Beans.

Carps ſpawn in *May* or *June*, after which they (as all other Fiſh) uſe to be very hungry, and will then for ſome time bite at any thing.

The Grope, *or* Tickle.

THis is a kind of Fiſhing, by diving under Water, or in ſhallow Waters, where Fiſh is ſeen, by putting one's Hand into the Water-Holes where Fiſh lies; and when felt, tickle them about the Gills: They will lie ſo quiet, that you may take 'em in your Hands, and caſt them to Land; or, if great Fiſh, thruſt your Finger into their Gills, and bring them out.

The Herring-Fiſhery.

H*Errings* and *Pilchards*, being Fiſh peculiar to the happy Coaſt of this Iſland, and there being great Profit, as well as ſome Pleaſure, in the Catching of them, it will not be improper to add ſomething here concerning this Sort of Fiſhery.

Thoſe that are beſt experienced in the *Herring-Fiſhery* inform us, that the Shoal of *Herrings* comes from the North, I mean from about the Coaſt of *Norway*, and thoſe Seas onwards to *Shetland* and the *Orkneys*, part of which come down all along our Coaſt to the *Britiſh* Channel, and the other to St. *George*'s Channel, and having ſpent themſelves by the Time they come towards the Land's-End, ſwim back on the *French* and *Dutch* Coaſts, but in ſo lean and ſhotten a Condition, that they are not then worth catching. The *Dutch* with their Buſſes begin as early as *June* to fiſh for *Herrings* about *Shetland*, and follow the Shoal into our Channel, and make ſo vaſt a Profit by it, that 'tis to them of more Value than the Mines of *Potoſi* to the *Spaniards*.

There are ſeveral Names given to *Herrings* according as they are order'd. The *Sea-Sticks* are ſuch as are caught all the Fiſhing-Seaſon, and are but once pack'd. A Barrel will hold ſix or eight hundred, as they ſhall riſe in Bigneſs, eight Barrels to the Tun by the Law. A Hundred of *Herrings* is to be a Hundred and twenty, and a Laſt Ten thouſand; and they commonly reckon fourteen Barrels to the Laſt. There are thoſe that are reckoned on Shore, and are called *Repack'd Herrings*. Seventeen Barrels of *Sea-Sticks* will make from twelve to fourteen Barrels of *repack'd* ones. Now the Manner of Repacking is to take the *Herring* out of their Pickle, waſhing them in their own Pickle, and ſo lay them orderly in a freſh Barrel, which have no Salt put to them, but are cloſe pack'd and headed up by a ſworn Cooper, with Pickle, when the Barrel is half full, that is, with Brine, ſo ſtrong as a *Herring* will ſwim in it.

Thoſe *Herrings*, called *Summers*, are ſuch as the *Dutch* Chaſers or Divers catch from *June* to the 15th of *July*. Theſe are ſold away in *Sea-Sticks*, to be ſpent preſently in regard of their Fatneſs, and will not endure Repacking, and ſo go on with another full and ſhotten; but the Repack'd *Herrings* are ſorted, the full *Herrings* by themſelves.

The *Shotten* and *Sick Herrings* are put into Barrels by themſelves, marking the Barrel diſtinctly.

Crux-Herrings are ſuch as are caught after the 14th of *September*: Theſe are cured with Salt upon Salt, and are carefully ſorted out, all full *Herring*, and uſed in the Repacking as before mention'd.

Corred-Herrings are thoſe that ſerve to make *Red-Herrings*, and ſuch as are taken in the *Yarmouth* Seas, from the End of *Auguſt* to the Middle of *October*, provided they can be carried aſhore within a Week, or thereabouts, after they are taken: The ſooner the better. And this is the Reaſon why the *Engliſh* have all the *Red-Herring* Trade, excluſive of the *Dutch*, who catching them on our Coaſt, cannot ſo timouſly carry them on their own Shore to cure, it being not to be done on Board. Theſe are never gibed, but row'd in Salt, for the better Preſervation of them, till they be brought on Shore, and ſuch as are preſerv'd to make *Red-Herrings* are waſh'd in great Fats in freſh Water, before they are hanged up in the *Herring-hangs*, or *Red-Herring-Houſes*.

As for the Manner of Salting *Herrings*, when the Nets are hawl'd on Board, the Fiſh is taken out of them, and put into the *Warbacks*, which ſtand on one Side of the Veſſel and reaſonable Cheſts; and when all the Nets have the *Herrings* taken out of them, one fills the Gipper's Basket; the Gippers cut their Throats, take out the Guts, and fling the full *Herrings* into one Baſket, and the ſhotten into another. One Man takes the full Baſket, when they are gipt, and carries them to the *Rowerback*, where there is Salt. One Boy takes the row'd *Herrings*, and carries them in Baſkets to the Packers. Four Men pack the *Herrings* into the Barrel, and lay them one by one ſtreight and even. One Man, when the Barrel is full, takes the ſame from the Packer, and it ſtands one Day, or rather more, open to ſettle, and that the Salt may melt, and diſſolve to Pickle, and then fills them up, and heads up the Barrels. The Pickle muſt be ſo ſtrong, that an *Herring* may ſwim in it, and then it does ſo pine and overcome the Nature of the *Herring*, that it makes it ſtiff and preſerves it, otherwiſe it will overcome the Strength of the Pickle, and ſo the *Herring* decay.

Pilchard-Fiſhing.

THis is a Fiſh only to be met with on the Coaſt of *Cornwall* and *Devonſhire*, and they are fiſhed for near the Shore in *Auguſt*, *September* and *October*; and the Directors on Shore eſpying by the Colour of the Water where the Shoals are, make Signs unto the Boats to get into the middle of them; and they are impowered to this by the Statute 23 *Jac.* I. in any Man's Ground. They preſently bring the Fiſh into a Ware-houſe on Shore, where they are laid up in Piles as broad as a large Table, ſupported with Backs or Sides. They are ſalted in the piling of them up with Bay-Salt, wherein they lie ſoaking twenty or thirty Days together; in which time much Blood runs away with dirty Pickle and Bittern, which laſt draws out much of the Oil from the Fiſh before it comes to the Preſs, to the great Loſs of the Undertakers. When they are taken out of the Pile, there remains much Salt at the Bottom, intermix'd with much Dirt, Blood and Scales; to prevent the Loſs of this, they uſually make another Pile, and uſe the ſame with more freſh Salt: Then they waſh them in Sea Water, to waſh off the Dirt and Blood; and when they are dried they are put into Barrels and preſs'd, to drive out the Oil, which iſſues away at a Hole in the Bottom of the Caſk, and they are then counted fit for Exportation.

Now to prevent the Inconveniency that may ariſe from the Badneſs of Salt, that is incumber'd with much Dirt, Sand and Bittern, which carries away the Oil, Goodneſs, and Moiſture of the Fiſh; *Engliſh* refin'd Salt, made of Brine, raiſed by the Sun, and embody'd by Fire, ſhould be uſed; and the Brine and Oil, or Pickle, that runs away, having no Dirt in it, in ten or thirteen Days may be received into a Well, or Receptacle, at the End of the Pile; and what Oil ſwims may be ſcumm'd, or taken away, and put into a ſeparate Caſk. The remaining Brine, having no Dirt or Bittern in it, is of it ſelf a good Preſervative for Fiſh, and may be thrown on the ſame twice or thrice over, to haſten the Deſtroying of the Salt, whereby there will be much Time and Salt ſaved. It may be boil'd, and ſcumm'd when it becomes bloody and ſcaly, and ſo refitted for another Uſe. When the Fiſh are waſh'd and drain'd, they are fit to be preſs'd as before, and will not have that fiery Taſte which the Bittern occaſions; and the Waſhing, ſince the Fiſh are not dirty, need not be perform'd in the Sea, but in a Store-houſe, where one Hogſhead of Water or Liquor will waſh many Caſks, and may by often Uſe be made ſo ſtrong by the Salt hanging on the Fiſh, that being laved on the Pile, 'twill not only ſupply the Uſe of Salt, but haſten the Curing of the Fiſh, by melting the Salt in which they lay ſoaking.

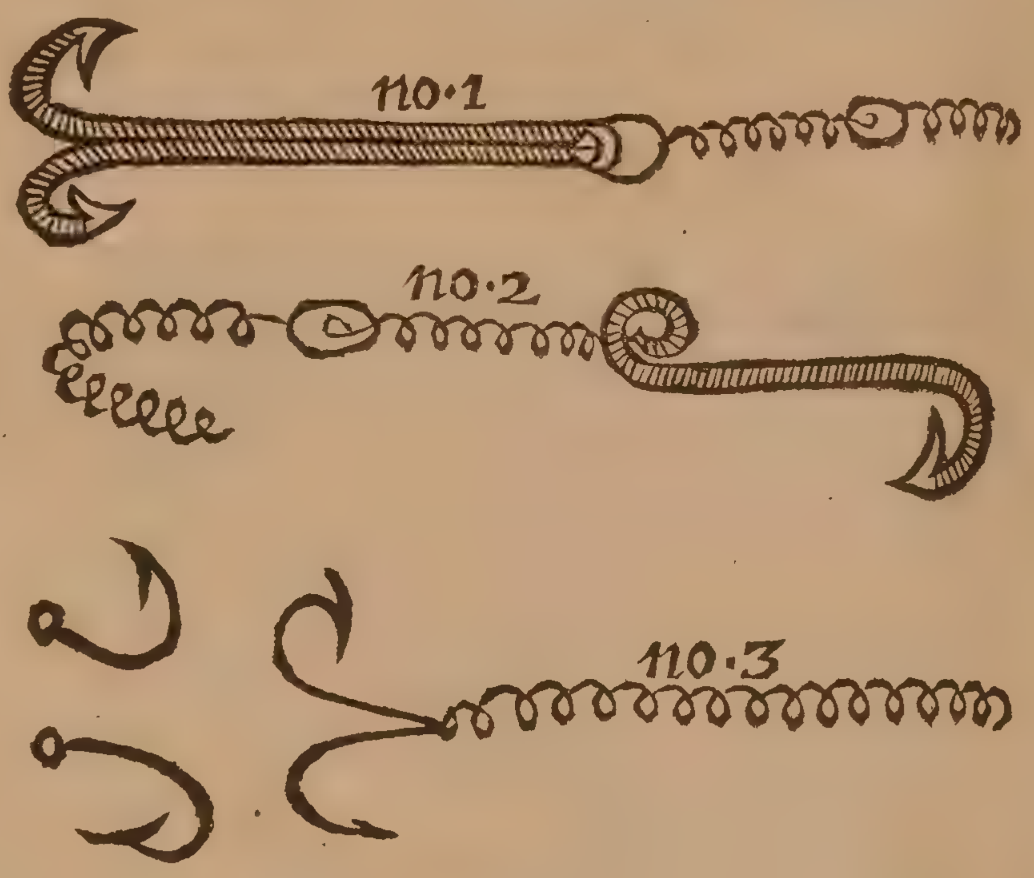
Thoſe that are catch'd at the firſt Arrival may be ſalted as *White-Herrings*, and kept a Year, more or leſs, and will be more acceptable than ſuch *Herrings*, becauſe they are more fat and oily; and they may be uſed like *Anchovies* for Sauces; and this Sort are commonly called *Tumatho's*. They may be cured with a Pickle, and barrell'd up like *White-Herrings*; for the Reaſon why in the common Method they preſs out the Oil, is becauſe they know not how to cure them in the Pickle, which may be done by Repacking them with dry refin'd Salt, and the Caſk afterwards fed with good Pickle in ſix or eight Hours Diſtance. After the firſt or little Salting, they may be dried, and render'd like *Red-Herrings*.

CHAP. XI.

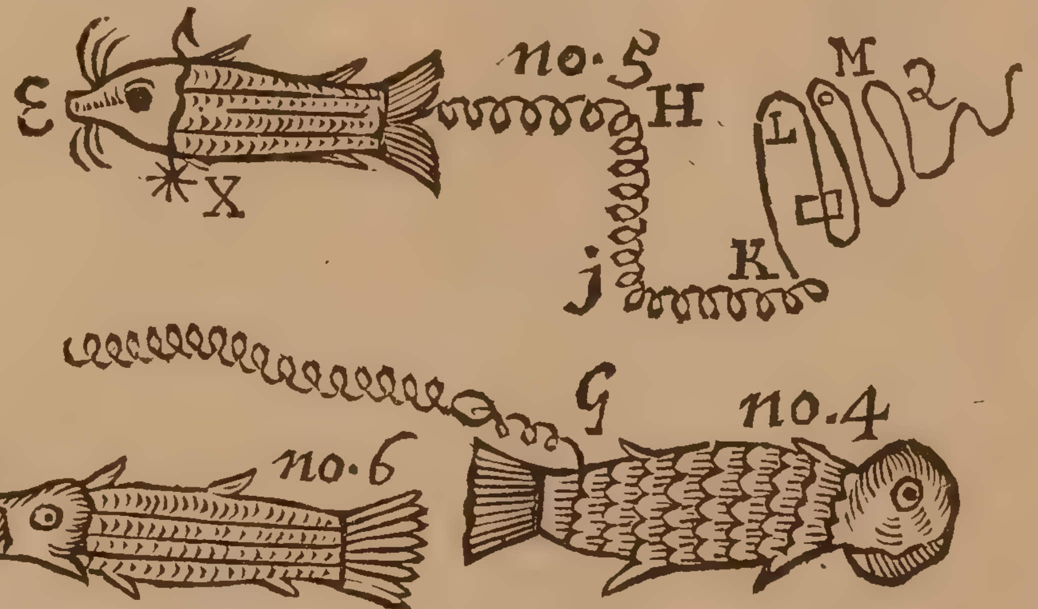
Directions for taking Fiſh, *by laying Hooks and Lines in the Water, by Day or Night.*

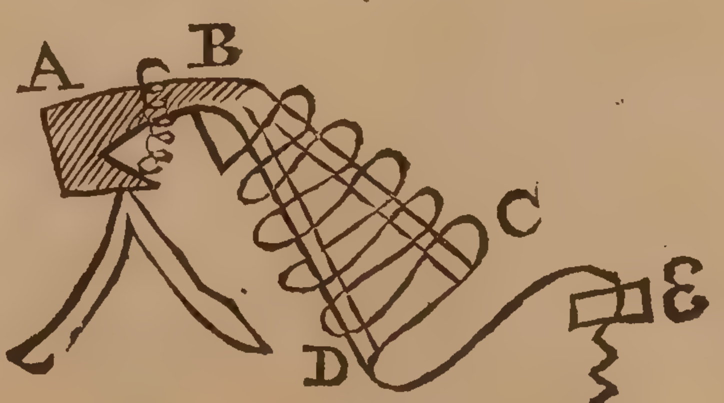
Having gone through that part of *Fiſhing* which relates to *Angling*, I ſhall now proceed to give you ſome other neceſſary Rules to be underſtood and practiſed in this Art, that you may thereby take divers Sorts of Fiſh, as well by Day as Night, without being obliged to the continual Attendance, which the former part of this Diſcourſe doth neceſſarily require; that is, the Laying of Hooks and Lines, which are uſually intended for taking of Fiſh. If you ſet them for the *Pike*, *Perch*, or *Barbel*, you would do well to keep your Hook and Bait about a Foot from the Ground by the Help of ſome Cork; but for *Eels*, your Bait muſt lie on the Ground. You are to know, that beſides the foregoing Sorts of Fiſh, there are ſome others, which are uſually taken with the ſaid Night-Hooks; for which you muſt prepare your Ground-Paſtes and your Hook-Baits, according to their ſeveral Natures; all which is already treated of.

But whereas I have in the Fourth Chapter treated of Hooks, I hold it not amiſs to ſupply here ſome few Omiſſions, which indeed were purpoſely there made, as conceiving them more proper for this Place. This following Figure repreſents the exact Forms and Proportions of ſeveral Hooks, which ought to be uſed in this kind of *Fiſhing*, and to faſten them to Links of twiſted Wire, juſt as you ſee in the Figures, which are ſo plain, that there needs no further Explanation, unleſs of the laſt of them, *Numb.* 3. which is fram'd by tying two ſingle ordinary Hooks together in the Manner as this is; for your Help, when you are in a Place where you cannot procure any of the former, as ſometimes it falls out.



There is a great Care required in baiting theſe Hooks; for your Directions herein obſerve the Manner of theſe following Figures.





If you are to bait your great Hook, *Numb.* 1. take the firſt Link of the Chain, and put the End *P* into the Throat of the Fiſh with an Arming Bodkin made for that Purpoſe, ſo as to come out at his Gills *X*, *Numb.* 6. and then draw it cloſe, that the Hook may reſt at the Beginning of the Mouth *V*: Then faſten the Shank of your Hook with a Thread about the Tail of the Fiſh, as *G*, in *Numb.* 4. and then tie the other Line, or ſtrong Packthread well twiſted at the laſt Link *K*, which ſaid Line muſt be faſten'd to ſome ſtrong Stake, Root of a Tree, or the like.

Obſerve, when you bait with any live Fiſh, to have them preſerved in the Water alive, and to move up and down on, and with your Hook, as long as poſſible. Now if you draw your Hook or Line quite through them, they will immediately die, and conſequently are but dull Inventions to fiſh. Let your great Care therefore be to preſerve your Bait-Fiſh ſtrong and luſty, and hurt him as little as poſſible.

By the Directions given you in baiting the Hook, *Numb.* 4. you may ſoon learn how to do that, *Numb.* 5.

Young *Carps* are the beſt Baits for *Pikes* or *Barbels*, for they will live long in the Water. If you bait with a *Perch*, cut off a good part of his Back-Fin; for when he briſtles that up, (as his Cuſtom is when any Fiſh of Prey comes near him) it will hinder the Fiſh from biting.

Be careful in what Places you lay your Night-Hooks in regard of Stumps, Roots, or the like; for when once a Fiſh of great Strength finds himſelf hook'd, he uſeth to entangle all, that he may break ſome Part of the Line, and ſo eſcape, which oft-times proves ſucceſsful to him.

For *Pikes*, and the like, lay your Hooks in the midſt of the Stream, in Ponds, and other Places; for *Eels* by the Bank-ſides.

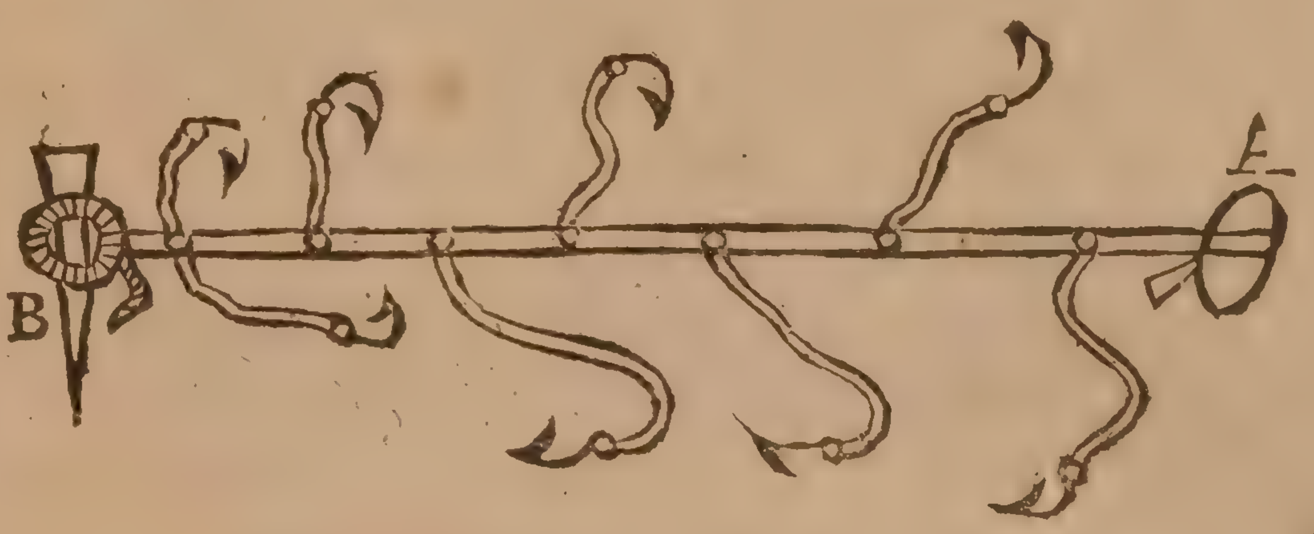
When you caſt in your Baits, as *Numb.* 4. have your Line folded up, as you there ſee, with a Piece of light dry Wood, bored through the Middle, as *L*, and that you ſhould place ſome three or four Foot from your Bait, more or leſs, according to the Depth of the Water; but if you made the ſaid Float of a ſmall Bundle of Ruſhes looſly bound up, it were better, and would not fright the Fiſh. In Summer you ſhould have all your Hooks laid between three and four of the Clock in the Afternoon; in Winter an Hour or two earlier, and both Winter and Summer, viſit them about Eight or Nine in the Morning.

You muſt not ſet your Night-Hooks in the ſame manner in running Streams and ſwift Rivers, as you do in ſtanding Ponds and deep ſilent Pools; for you muſt in Rivers and Streams tie a ſmall Stone, of about four Ounces Weight, two or three Yards from the Hook; the Letter *N* in *Numb.* 5. ſhews it, by which means your Bait may ſwim about a Foot, or fifteen Inches clear from the Bottom.

If you ſet Night-Hooks in Rivers, have a Boat; for it is very difficult to caſt your Lines off from the Land in ſuch direct Places as is neceſſary. If the Sides of the River where you intend to lay your Night-Hooks be deep, then you may carry on your Deſign well enough without a Boat, and in ſuch Places you may uſe the Manner, as *Numb.* 7.

You muſt provide ſo many forked Sticks as you intend to ſet Lines. The Letters *A*, *B*, *C*, *D*, repreſent the Form. From *A* to *C D* let there be a Diſtance of four or five Inches, in this Manner: From *A* to the Twiſt, or firſt Beginning of the two Branches, let there be about two Inches, from thence to the End of each Branch about three Inches: The very Ends of the two Forks muſt be cleft to receive your Line, as hereafter. At *A* make a Notch to faſten a ſmall Cord of about two Foot long, which Cord tie to ſome Tree, Stake, Stump, or the like, to hold all ſure. Faſten the End of the Line at *B*, and fold the reſt about the two Branches in and out, as you ſee by the Figure, until within eight or ten Foot of the Hook. At *E* place a Piece of Wood, or Bundle of Ruſhes, together with a Stone, *&c.* of both which I have juſt before treated; then paſs your Line into one of the Clefts at the End of either of your Forks, and that will hold it firm until ſome good large Fiſh be caught, which having bitten and ſwallow'd the Bait, will preſently change Place, imagining all is well; but finding he is ſurpriz'd, will begin to plunge, and to draw out your whole Line; and the longer it is, the better. Be ſure all be well fixed, and ſtrongly tied, or elſe you run a Hazard of loſing your Lines, as well as your Labour.

This Figure ſhews how to faſten ſeveral ſmaller Hooks and Lines upon your main Line, and ſerves to take *Eels*, *Barbels*, *Perches*, and the like.



Your Hooks ſhould be ſmall, and baited ſome with Minnows, ſome with Frogs, ſome with Worms, others with Pieces of powder'd Beef, and the like. You may faſten particular Lines, about two Foot Diſtance from one another, the ſmaller Lines being each about two Foot long. Every thing being ſo diſpoſed, tie the End *B* faſt to ſome Stake, Bough, or the like; the other End *A* faſten to ſome heavy Stone, which throw into the River as far as you deſign. Your Lines and Baits hanging thus croſs the Water, no Fiſh can paſs by without ſeeing them, and be ſure to lay theſe kind of Lines in Places free from Traſh, Roots, or the like; for the great *Eels* will elſe endanger all by twiſting themſelves and the Lines about the Weeds, Roots or Stumps.

It is good to lay ſome Ground-Baits, which may draw ſmall Fiſh, and thoſe will attract great ones, for which this ſaid Device is chiefly intended.

CHAP. XII.

Of Night-Angling, *and* Ground-Angling.

GReat Fiſh (but chiefly *Trouts*) are ſhy and fearful of Enſnarements, and do obſerve the moſt ſecure Seaſons to ſeek their Food, which is at Night.

In *Night-Angling* you ſhould be provided with ſome great Garden-Worms, or, inſtead thereof, with black Snails; with theſe bait your Hook, and caſt them off at a Diſtance, and draw your Line to you again upon the Surface of the Water, not permitting the Bait to ſink, to which uſe not a Plummet of Lead, but only a Float; whereas in Ground-Angling you muſt uſe a Plummet without a Float: And this Sort of Ground-Angling is very good in cold Weather, for then the Fiſh lie low. You may eaſily hear the Fiſh riſe, and therefore give him Time to ſwallow the Bait, and then gently give him a Twitch to ſecure him. If you find that the Fiſh will not freely take the Bait at the Top of the Water, then ſink your Bait, by putting thereto ſome Lead, and order your ſelf as at Day-Angling. It is obſerved, that the beſt *Trouts* bite in the Night, and do moſt commonly riſe in the ſtill Deeps, ſeldom in the quick Streams.

CHAP. XIII.

Directions for Taking and Preſerving Worms, *very uſeful in* Angling.

W*Orms* of all Sorts are very neceſſary, as well for Night-hooks and Nets, as Angling, or the like. They are not at all times to be had on a ſudden, nor without Labour and Induſtry. I ſhall here ſhew you ſome Ways to furniſh your ſelf therewith at all times. If you be in any Place where you ſuppoſe *Worms* are, the Way to get them out of the Ground is to keep a continual Motion with your Feet, by moving up and down in one ſmall Tract of Ground, and the *Worms* hearing the Noiſe, will work themſelves out round about you; then, being provided with a Stone-Pot, put them therein, and ſo order them as already directed, and keep them for your Uſe.

If in the Summer-time, you take about a Quart of green Walnuts, with the Huſks and Shells, beating them in a Pottle or two of Water, with ſome Brick or Tile, the Water will become bitter; which being ſprinkled on the Ground, ſo as to ſoak into the Earth, will preſently cauſe the *Worms* to come out of the Earth. If you take a ſtrong Stake, and drive the ſmall End about a Foot into the Ground, and then ſettle your ſelf to pull it out, not ſtirring your Feet from the Place, but continue this kind of Motion for about a Quarter of an Hour, all the *Worms* that are within a Fathom round you, hearing the Noiſe, will come up.

Another Way is thus: Take a Candle and Lanthorn that hath clear Horns, and being provided with an Earthen-Pot, in a dark Night go into the Walks of your Garden, or elſe into ſuch Lands that are in Tillage, and free from Graſs. You muſt walk ſoftly, and ſtooping downwards, you may perceive the *Worms* half out of the Ground, not only to enjoy the freſh Dew, but alſo to couple, and thus all Summer long you may find ſuch Places full of them from an Hour after Sun-ſet to near Day-break, eſpecially after a Shower of Rain, and in Winter the ſame, upon a warm Thaw after a Froſt.

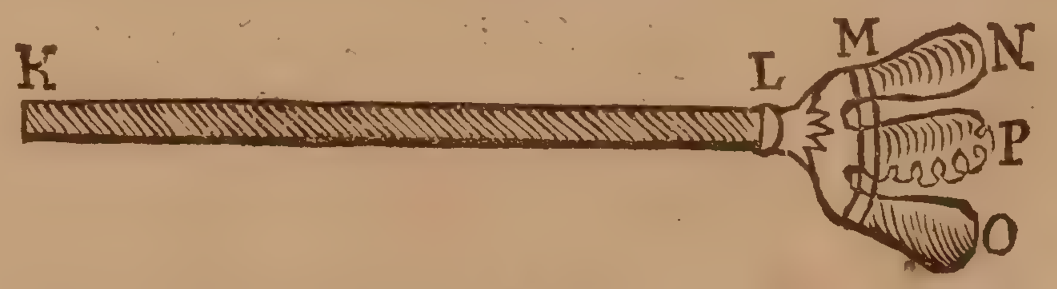
Having ſhew'd you to take *Worms*, I ſhall proceed to inſtruct you how to preſerve and keep them all the Winter. About *November*, when you ſee any Husbandman breaking up a Piece of Lay-Ground, if you follow the Plough, you will find good ſtore of ſmall whitiſh *Worms*; ſome call them *Grubs*. They are bred of the Eggs of a Beetle, which ſhe leaves in Holes under Cow-Turds, or Horſe-Dung. Theſe *Worms* in *March* and *April* become red, and not long after grow to be Beetles. If you gather two or three Thouſand of them, and put them into a large Tub, with about two Buſhels of the ſame Earth from whence they were taken, and keep it well ſecured from cold Blaſts and Froſts, they will live all the Winter, eſpecially, if you give them a little freſh Earth once in about a Fortnight. A Day before you uſe them, take ſo many out as you think to uſe, and let them be put apart into a little freſh Earth, moiſten'd with Honey, and they are excellent Baits.

Gentles are thus bred and preſerv'd: Take a Piece of Beaſt's Liver, and with a croſs Stick hang it up in ſome Place over a Barrel half full of dry Clay: They will fall into the Barrel, and there ſcour themſelves. You may breed them in this manner until the Middle of *October*; but if you would breed them to keep all Winter, get a dead Cat, Kyte, or the like, and let it be fly-blown: When you perceive the *Gentles* begin to ſtir, bury the Carkaſs in ſome moiſt Earth, where it may remain as free from the Froſt as you can. You may make uſe of them at any time all the Winter, until *March*, and then they begin to turn to Flies.

CHAP. XIV.

How to take Eels *with a Speer, or Darting-Rod, much uſed in* Flanders *and* Holland.

IN *Flanders* and *Holland* they take *Eels* in great abundance, with the help of a Dart, or Striking-Iron; this Figure repreſents the Faſhion thereof, and its Uſe I ſhall here explain.



The Iron, or Steel, muſt be about a Quarter of an Inch thick all over, and in the End muſt be a Socket to receive the End of a good ſtrong Pole, the Letter *L* denotes the Socket, *K* and *L* the Pole, which ſhould be about fifteen Foot long, and muſt be faſtned into the Socket with a couple of Iron-Pins, to take off, and put on when occaſion ſerves. The Iron, or Steel, muſt be framed into a Fork with three Teeth, as the Figure preſents, mark'd *N, O, P,* each above nine Inches long, the two outermoſt *N, O,* bending outwards, and the middlemoſt muſt be pointed like an Adder's-Tongue, a little rounding; and all three muſt have ſmall Teeth within, and the whole encompaſſed by an Iron-band, or Hoop, that neither of them may ſtir out of his Place, as you ſee the Letter *M*. The Teeth of all muſt be ſo cloſe, that a ſmall Eel can't paſs between; but towards the End *P*, you may leave them a little wider. The manner of uſing this Inſtrument is eaſie, being only to poke and ſtir with it up and down in ſuch muddy dy Places as Banks, and Bottoms, where you ſuppoſe they are; and if there be any, you can hardly miſs of them.

CHAP. XV.

How to take Frogs *in a Dark Night, by Torch-Light, uſeful for Baits.*

FOR the taking Frogs in the Night with Light, there muſt be in Company three or four; one muſt carry Bundles of dry Straw to make the Flame, for the Frogs will not fail to make towards it. If it be a good big Torch it is much better, eſpecially if Wax; you muſt not make any Noiſe, but ſtand ſtill, and let them come about you in the Water; then for the taking them, each Perſon ſhould be provided with a Bag put between his Legs, with the upper part of the Sack faſtned to his Codpiece, and he may hold the Sack cloſe with one Hand, and put them in with the other; and ſo take either Great or Small, as you ſee occaſion; and if you be ſilent, they will not forſake the Light.

CHAP. XVI.

A Pleaſant Way to take Pikes, *called* Huxing *of the* Pike.

IF you are minded to ſee excellent Sport, chooſe out ſome Pond or Pool, where you are aſſured *Pikes* of a large Size are, and ſuch as have good ſharp Appetites. Then take Thirty or Forty good Bladders the largeſt you can get, blow them up, and tie them cloſe and ſtrong; then at the Mouth of the Bladder tie a Line, longer or ſhorter according to the Depth of the Water; at the End of the Line faſten your armed Hook Artificially Baited; and put them into the Water with the advantage of the Wind, that they may gently move up and down the Poud. When once Maſter *Pike* hath ſtruck himſelf, it is a moſt pleaſant Diverſion to ſee him bounce about in the Water, with the Bladder at his Tail; and when you perceive him almoſt ſpent, take him up. The ſame Diverſion may be done by tying your Lines and Baits at the Legs of Geeſe or Ducks; but the Geeſe that have been once ſo ſerved, will be afraid to come near the Water for a good while after, according to the Proverb, *Hang a Dog in a Crab-tree, and he will not care for Verjuice.*

CHAP. XVII.

Obſervations concerning Nets, *very uſeful in Fiſhing.*

THE next thing ſhall be to treat of the taking Fiſh with Nets; and by the way 'tis not amiſs to give ſome few Directions concerning the Making, Buying, Fitting, and Preſerving them; not that I intend to inſert the Art of making Nets, but only to give ſome neceſſary Hints; nevertheleſs take notice, that one Home-made Net will out-laſt three Sale ones, and yet not coſt the tenth part ſo much; beſides, with good uſage it will do three times the Service; and without Nets you can be no *Fiſher*, or *Fowler*, which are two delightful Country Diverſions. The Charge, or Difficulty of making them is eaſie, for almoſt every *Barber* is a Proficient therein, and for the Expence of about five Shillings, you may be provided with all Inſtruments and Tackle neceſſary to be uſed therein.

Now taking it for granted, that you will learn this eaſie and cheap Slight of Net-making, I ſhall proceed to ſome Directions how to preſerve them, in which obſerve eſpecially theſe three Cautions: Firſt, that you Dye them into good Colours, wherein there is a double Advantage, as not frighting the Fiſh, which White One's are apt to do; and they will laſt ſtrong and ſound much longer. Secondly, that you mend them upon the leaſt Breach, for which end you ſhould always have your Implements about you, when you go to fiſh with them; and Laſtly, that you lay them well up, which conſiſteth in theſe two things, firſt, that you carefully dry them after Uſage, and ſecondly that you keep them from damp Walls; and ſuch Places where Rats and Mice may annoy them; to prevent which, keep them in ſome cloſe Preſs, or let them hang down from the middle of ſome Beam, remote from any Wall, as tied thereto by a Cord.

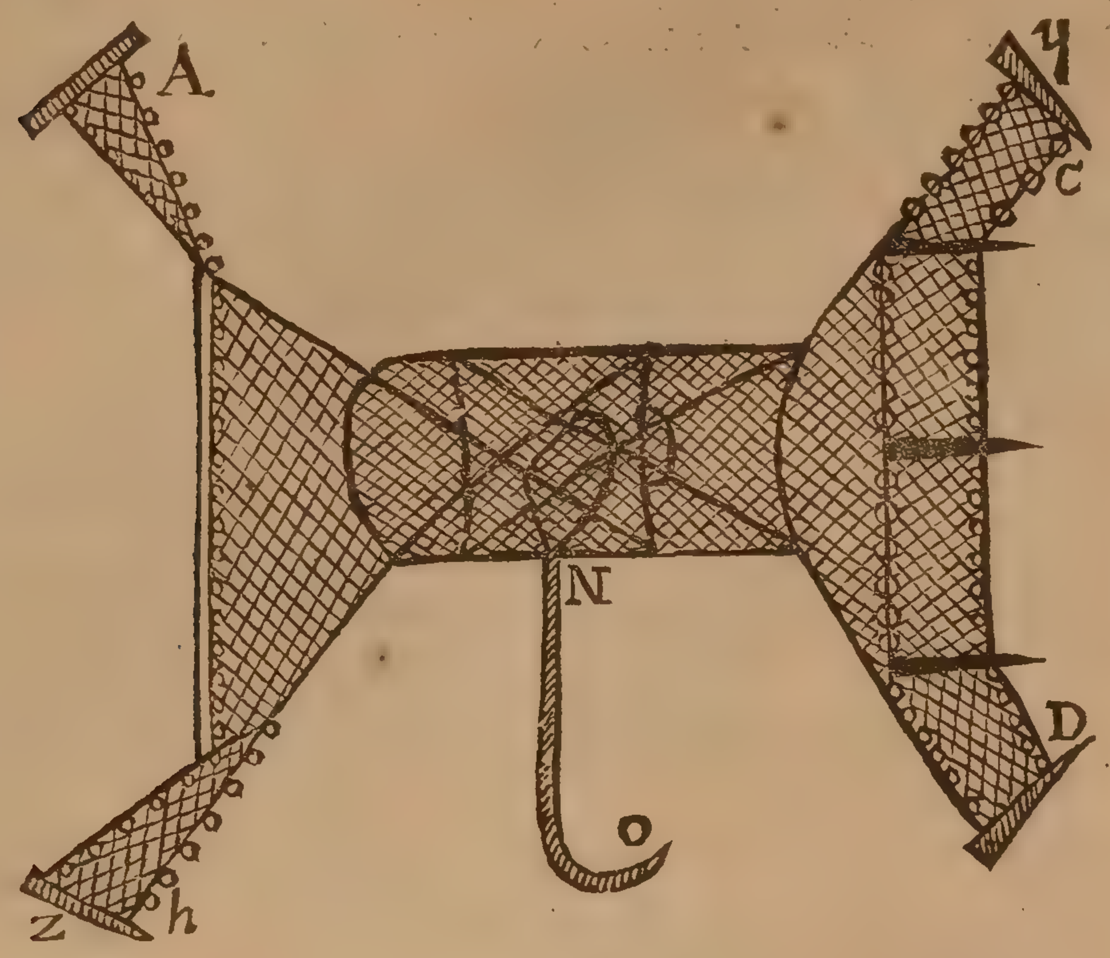
For the Dying of Nets, there are but theſe Colours proper for Fiſhing, *viz.* Green, Yellow, and a Sad Ruſſet, the latter is effected by the help of ſome *Tanner's Vate*, which is a great Preſerver of them; and in caſe you have not that Conveniency, take about half a Buſhel of the outward Rind or Bark of a Walnut-tree, and cut it into ſmall Pieces, then boil them in a reaſonable Quantity of fair Water about two Hours, then take it off the Fire, and put your Nets into the Bottom of the Veſſel, laying the Bark upon them, and ſo let them lie a Day and a Night to infuſe; and when you take them out, they will be a good brown. The Yellow is made by rubing over the Nets with Celandine well bruiſed, ſo that the Juice may ſoak into the Thread; And the Green Colour is made by boiling young Wheat, Barly, or Graſs chopt ſmall, and let the Nets lie a Day and a Night in the ſaid Liquor. But if you would be at the Charges, it were better to have them done by a *Dyer*.

CHAP. XVIII.

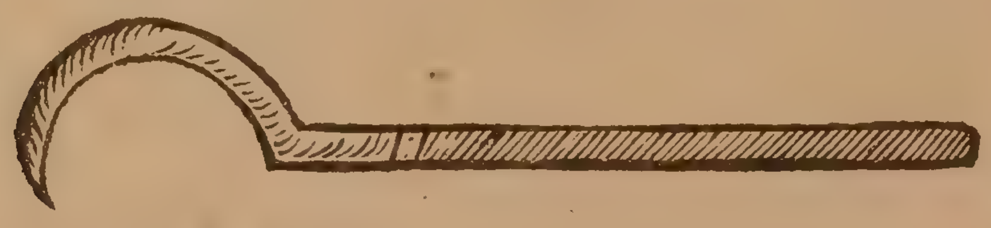
Directions for pitching a Net called the Raffle, *both by Day and Night.*

THE firſt Net that I ſhall take notice of, is called a *Raffle Net*, 'tis to be ſuppoſed from hence, that nothing can eſcape it, when once gotten in. The Form thereof is preſented unto you in the following Page, whoſe Uſe I ſhall next deſcribe.

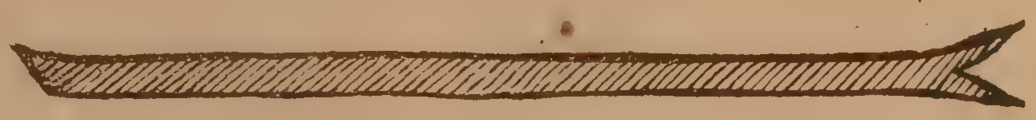
You



You muſt be provided with five or ſix Poles of Sallow, or ſuch light Wood, which is ſtrong withal, and each of nine or ten Foot long, but more or leſs, according to the Depth of the Water; at the great End ſharpen them, the better to be fixt into the Ground at the Bottom of the Water. You muſt alſo be provided with a Paring-Knife to cut away all Weeds, Roots, Stumps, Boughs, or the like, which are in or near the Places where you deſign to pitch your Net, for them you muſt remove out of the way. The Figure of the ſaid Paring-Knife is here deſcribed.



Then faſten one of your Poles at either End of your Net, at either of the two Wings, that is to ſay, the Cord below where the Lead is, unto the bigger End of your Pole, and the upper Cord where the Cork is to the ſmaller End of the Pole. Then in caſe you have no Bait, contrive to get ſome Man on the oppoſite Side of the River with a Cord in his Hand, one End whereof muſt be faſtned to one of the Poles, which are fixed to the Net according to this Figure of the Pole.



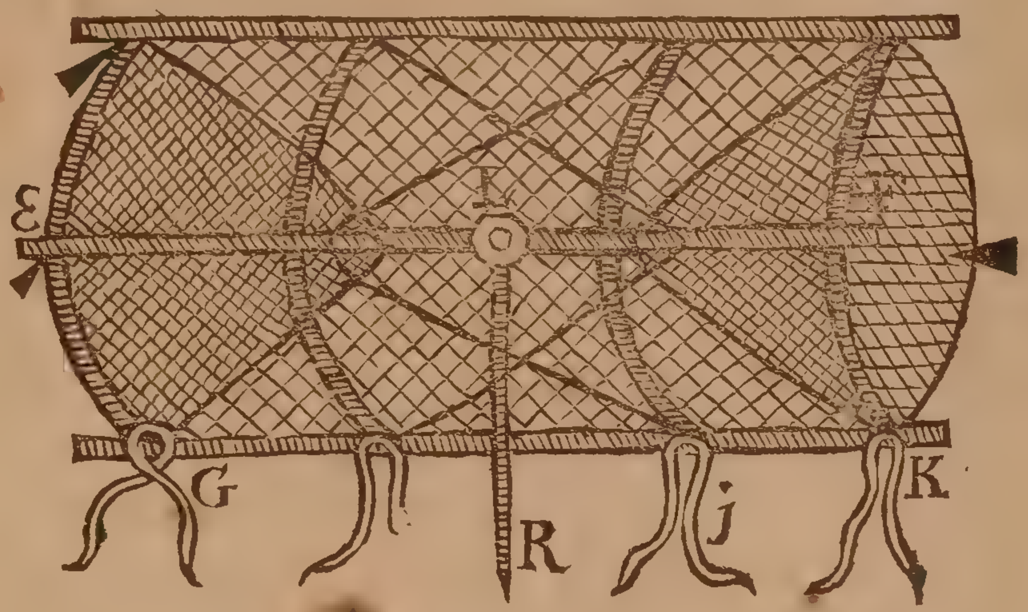
The Man having drawn over that Wing, muſt force the great End *A* of the Pole in the ſaid Net into the Ground at the Bottom of the Water *C*, the like muſt be done with the other Pole of the ſaid Net marked *Z*, *h*, on the Side, juſt over againſt the former.

Then muſt he throw over one End of the Cord, which faſten to the Wing of the ſaid Net, *y*, *C*, when it is drawn over, you muſt go along the whole Length of the Net. Your Poles being ready faſtned as the two former, and ſtraining the Cords of your Net indifferent ſtiff, drive the two latter Poles into the Ground as you did the two firſt. Be ſure all be well and ſtrongly done, that the Current may not force away your Supporters, then with the ſaid long Pole you may ſpread the Graſs and Traſh you formerly pared away all over the Net, as well to ſecure it from the Sight of Thieves, as to give a Shade to the Fiſh, for they covet Shelter, eſpecially in hot Weather. The Cord *N*, *O*, is your Lock and Key, for by it you are ſure no Fiſh can eſcape that are in your Net, therefore be careful to hide it. You may let the Net ſtand a Day and a Night, and if the Place be well ſtored with Fiſh, you will hardly miſs them. But if you deſign to fiſh only by Day, and not to let the Net lie in the Water, then after the Net is planted, let a couple of Men beat up and down with long Poles, taking a good Circumference; and beating towards it about the Sides of the Water, ever now and then thruſting their Poles into the Bottom of the Water, and when you are minded to draw, be ſure in the firſt place to ſtrain in the Lock and Key *N*, *O*, and then having a Cord at each Wing of the Net, from the other Side draw them both at once gently towards you; and when they are near at Hand together make what haſte you can, and thus you may make ſeveral Sets in a Day.

CHAP. XIX.

Directions for pitching a Net *called the* Wolf, *together with its* Form.

THE next ſort of Net that I ſhall deſcribe is called the *Wolf*, being a great deſtroyer of *Fiſh*; as well in Rivers as Ponds, and may not unfitly be called the little *Raffle*, as exactly the ſame, except the four Wings; the Figure followeth.



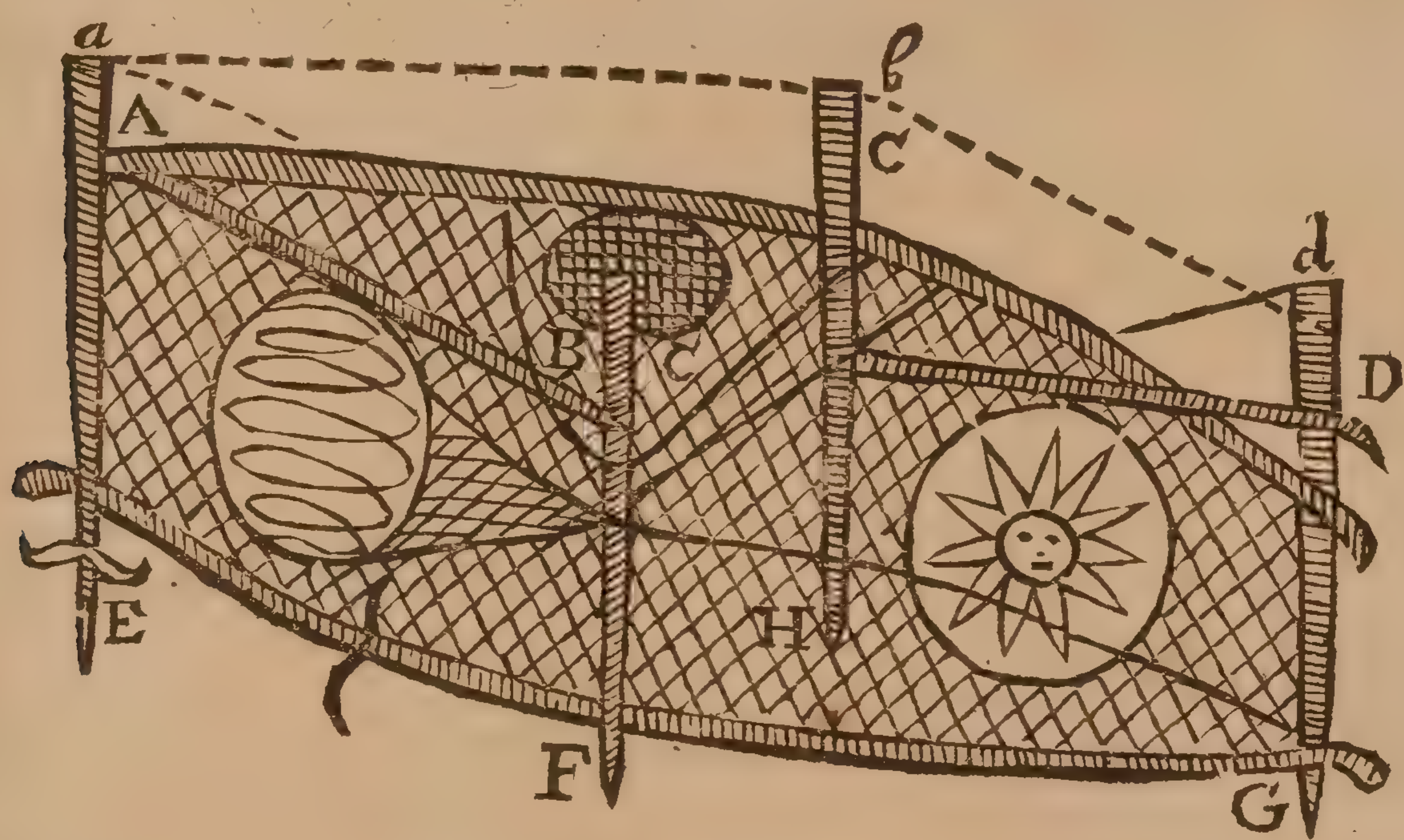
You muſt carry this Net to the Water-ſide, near the Place where you intend to pitch, which to do well, ſhould be ſome Ground full of Ruſhes, Sedges, and ſuch like Water-graſs. Then with your Paring Knife aforeſaid, quarter out a Place for the Net, by cleanſing away all the Traſh, and Weeds near it, the larger the better; eſpecially if you did cut two Alleys in a direct Line, a pretty Length, one to each Side of the Net, by which the *Fiſh* might be invited, and as it were guided unto the Net, at the two Doors *E*, and *F*. Then get four Stones each of five or ſix Pounds, which tie to the Cords mark'd *G*, *R*, *j*, *K*, which Cords faſten to ſome ſtrong Staff, as by the ſaid Figure is repreſented. About the Middle of the Pole *E*, faſten a Cord *L*, *R*, of a convenient Length, whereby to draw the Net on Shore without being neceſſitated to go into the Water for it, though poſſibly you were forced to do ſo when you placed it there, which do in caſe you ſet the Net in the Middle of any wide River: But if you place it within ten or twelve Foot of the Bank, you may then caſt in your Net; and ſettle it afterwards according to your Mind, by the help of ſome long Pole or the like, tho' the former muſt be confeſſed to be the better way, but more troubleſome.

CHAP.

CHAP. XX.

Directions for pitching a Net *called a* Cinque-Port, *and its Uſe.*

THis Net is ſo termed from the five Entrances into it, and is of excellent uſe for any Pond or River, Swift or Standing Water. The Figure here followeth.



For the making uſe of this Figure be provided with four Poles, which muſt be ſtraight and ſtrong, and for the Length anſwerable to the Depth of the Water; the great Ends muſt be ſharpned like Stakes, and notched within a Foot of the Ends to faſten the four Corners of the Net, as *E, F, G, H*; the like Notches make on the ſame Poles at a convenient Diſtance for the faſtning the four upper Corners in the ſame manner, as *A, b, C, D*. The Bottom of the Net is four Square without any Entrance; to do well you ſhould have the Help of a Boat, when you place the Net in the Water, for that you muſt drive your Poles faſt into the Ground; and at ſuch a convenient Diſtance, that your Net may be ſtiff ſtretched out, each Pole anſwering his Fellow in an exact direct Line, and this may ſuffice in any ſtanding Water; but if it be in a ſwift Stream, the Motion of the Water will always move the Net, and ſo frighten away the *Fiſh*, to prevent which uſe this Help; faſten at the very Top of the four Poles, certain ſtrong Sticks to ſtreighten and ſtrengthen one another, and to keep all tight; as for Example, obſerve the ſame pointed Line marked with little *a, b, c, d*, and you will eaſily comprehend it: But then if you faſten two other Poles croſs ways from *A, a*, unto great *D*, and little *d*, and from *C, c*, to great *B*, and little *c*, you need not fear it, for the Water can have no Power over it.

CHAP. XXI.

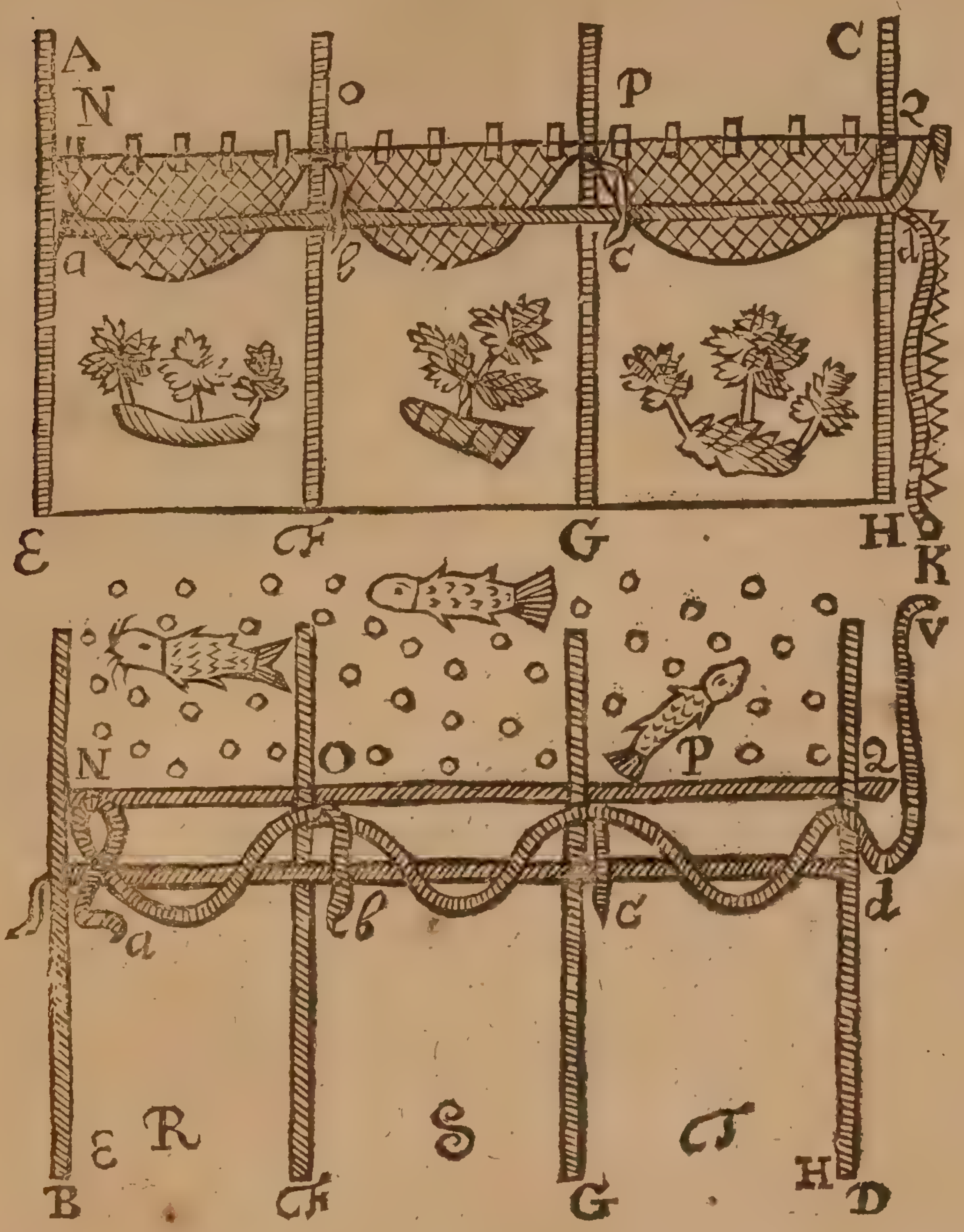
Inventions to draw or force Fiſh *into ſuch* Nets *as you ſet.*

BEfore I proceed further in the Diſcourſe of Setting and Laying of Nets, I hold it neceſſary to preſent you with ſome Directions for the Attracting by fair Means, or Frighting by violent one's the *Fiſh* into your Net. You muſt know that *Fiſh* (as moſt other Creatures) do delight in the Company of thoſe of their own Kind, ſearching after each other, except the *Pike*, that takes no Pleaſure in his Companions, unleſs to eat them, and therefore is moſt eaſily taken; the like is the *Tench*, not upon the ſame Reaſon, but becauſe he is always hungry, which compells him to hunt up and down expecting to get his Prey, neither is he afraid of the Net, as moſt other Fiſh are. It is moſt certain that if when you ſet your Net, you put ſome live *Fiſh* into it, or for want thereof a piece of ſome dead One, it will draw others to it: It is alſo certain that if you put into the Net any freſh coloured Flowers of divers ſorts, either the Smell or Sight will invite them to it. But if you bait your Net with a live *Fiſh*, let it be once taken out of the ſame River; and if you can, come near the ſame Place where you pitch, for *Fiſh* do know and are acquainted with each other, as well as any other ſorts of Creatures. If you hang in the Net a Bone of ſome ſalt Pork without any Fleſh it will attract *Fiſh*. The Dreggs of Hempſeed, that is, the Refuſe after the Oil is extracted, is a very great Attractive of *Fiſh*; But of all other Paſtes for Nets, and to ſay Truth for a Ground-Bait, on any occaſion this following one is the beſt. Take a *Leveret*, or young *Hare*, let it begin to ſmell ſtrong, then roaſt it with a gentle Fire, and baſte it well with Honey; when it is half roaſted, put in the Dripping-pan Sippets of White Bread; and let it drop thereon till the Bread be well ſoaked, then take them out of the Pan, and put in more; and ſo continue until all the Liquor be dryed up. If you tie a Piece of this Bread with a little of the Fleſh upon any part of the Net within-ſide, it will draw the *Fiſh* to them in great plenty.

CHAP. XXII.

A Device to take ſtore of Fiſh, *at one Draught, and that in difficult Places, by reaſon of* Rocks, Roots, Stumps, Holes *and the like.*

IN ſuch Ponds and Rivers that are peſtered with Weeds, Stumps of Trees, great Stones, and the like, there the *Fiſh* uſe to ſhelter themſelves from the Extremity of Heat, as well as Cold, as likewiſe to ſecure themſelves from the Snares and Surprizes of ſuch as deſign to take them. In ſuch Places *Fiſh* grow fat and large. You muſt therefore be at ſome Pains and Charges to prepare the Place; but the beſt of it is, that being once fitted, it will coſt nothing to repair. Cleanſe ſome part of the ſaid Ground of all the aforeſaid Traſh and Impediments for a good Space, both in Length and Breadth, and then bait the middle thereof with the boiled Beans, as directed in the latter End of the Ninth Chapter. The ſame Day that you caſt in the ſaid Ground-bait, drive certain Poles into the Ground under the Water, according to the ſubſequent Direction. Theſe enſuing Figures do preſent the Manner how to employ and order them; but for the better Apprehenſion thereof I ſhall give you ſome Directions therein.



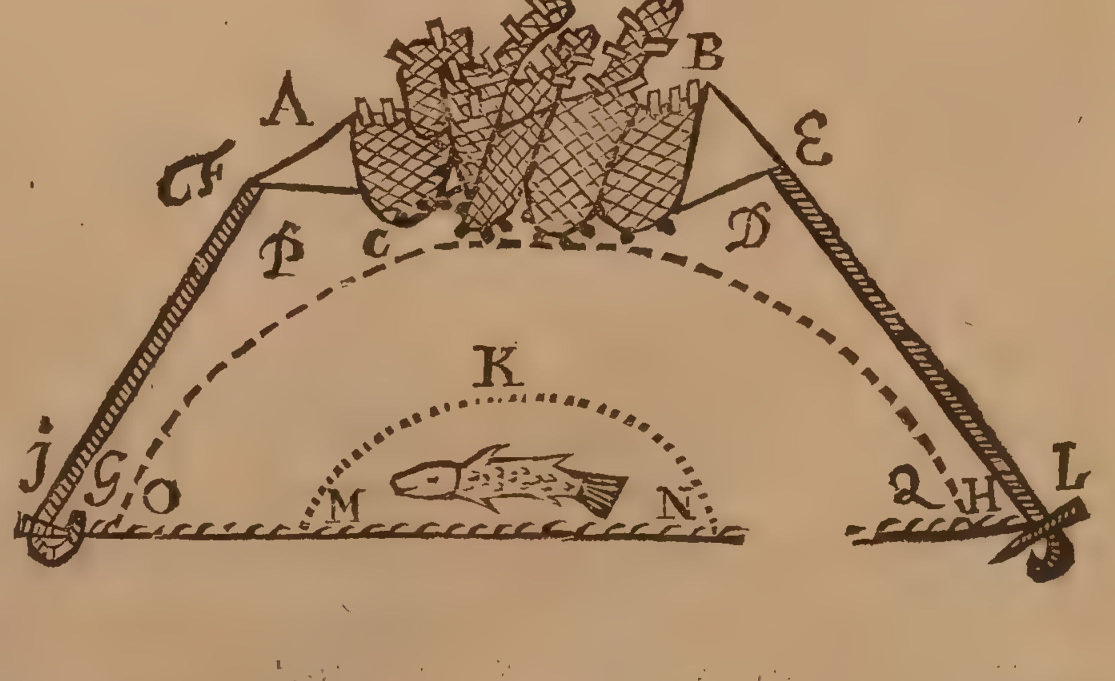
Get a certain number of Poles, each as big as a Man's Arm, ſtraight, and of ſuch Length as the Depth of the Place requires; the greater Ends whereof muſt be ſharpned the better to be drove into the Ground; plant them at equal Diſtances on the Border of the *Plat-form* croſs the Water as *E*, another at *F*, about Ten or Twelve Foot diſtance, and ſo at *G*, and *H*. In like manner oppoſite to theſe faſten as many others on the other ſide of your *Platform*, which *R*, *S*, *T*, doth denote, the ſaid Poles being obvious by the Letters *E, F, G, H*, the ſame with the foregoing: Then pierce all the Stakes at the Top juſt level with the Superficies of the Water, with Holes large enough to receive certain Pegs as big as one's little Finger; which Pegs muſt ſlip in and out very eaſily; and at the bigger End of the Pegs make a Notch for the Snare, tying on a ſtrong Packthread of about a Foot and an half long. Every one of the Packthreads muſt be faſtned to a long Cord, as deſigned by the Letters *a, b, c, d.* The Pegs you may alſo diſcern to be faſtned each in the Hole by the Letters *N, O, P, Q.* When you have thus far proceeded, caſt in Morning and Evening five or ſix Handfuls of your Beans, and the Evening before you fiſh, caſt in as many of thoſe which are prepared with Aloes, and then ſet your Nets between Two and Three in the Afternoon, in this manner; Get a Pair of Tramel Nets long enough to encompaſs the whole Platform, or to ſpeak truly, the whole River above and below, faſten the Cork-Line at *A, B,* and let the Lead-Line ſink to the Bottom, then paſs along by the Poles *E, F, G, H,* and ſtrain over the Net to the other ſide of the Poles *C, D,* and there faſten your Cork-Lines and Lead-Lines in the ſame manner. Then ſtrain your Cord for the Pegs *V, a, b, c, d,, K,* tie one end thereof on the backſide unto ſome Bough, Stake or the like, as *V*, diſtant from the Pole N, about ſix Foot, then go with your Boat to the midſt of the Water, and take your Cork-Line in the Left Hand, and lift up your Net until you have the whole in your Hand, that is to ſay, the Cork-Line, Net, and Lead-Line, which place upon the Peg *O*, in the upper End of the Pole *F*, and ſo do unto every Pole one after another, until all your Net be ſo fixed. Then carry the other End of your Cord juſt over againſt the Middle of the Platform where you caſt in your Ground Baits, and faſten the ſaid End on a Stake, as at *K*; and thus having done the one Half, you are the better able to do the other, which is the ſame thing as before deſcribed, in which you cannot well miſtake, the Figure being marked with the ſame Letters, though but one with the Net ready planted, the other being to direct you by the ſingle Cords, Pegs and the like; Then at Night caſt in ſome more of the Beans, and about Nine or Ten of the Clock get Three or Four Men with you, whom you muſt divide, Two on the ſide of the River *A, B,* and the other on the ſide *C, D,* that you may have one at each End of your two Tramel-Nets, but they muſt go cunningly and quietly to work without Noiſe, and keep at leaſt Ten or Twelve Foot diſtance from the Nets, until the Signal be given by him who is to let the Nets go, who being at *K*, ſhould get hold on both the Cords that hold the Peg-Lines, and giving them a good pluck, ſhall thereby give way to the Nets to fall down, and ſo encompaſs all the Fiſh, which are at your Bait, and within the circumference of your Nets, or juſt at the ſame time that your Peg-Line is drawn, the Signal muſt be given, and then muſt the Men beſtir themſelves to cloſe in the Ends of the Nets next the Shoar, ſo that nothing may get out, and then are the Fiſh as it were in a Cage.

The next thing to be done, is to cloſe in the Ends of your Net, and from beating from one End to the other, give no opportunity to the Fiſh to eſcape, but keep them in continual Alarums until you have drawn in your Nets cloſe together, and ſo land them. You are to know, that it is to little or no purpoſe to pitch your Nets after this manner in any ſwift Stream, for that will hinder your Nets from reſting on your Pegs, and will alſo prevent your Nets from playing as they ſhould.

CHAP. XXIII.

An Excellent Way to take all manner of Great Fiſh by Night, with a Net and Fire.

IF you know any Place frequented with Fiſh that are grown Old and Subtle, obſerve theſe following Directions: If the Place be free from Weeds, and ſuch like Impediments, it needs not be cleanſed. This enſuing Figure doth repreſent the Draught to your view.

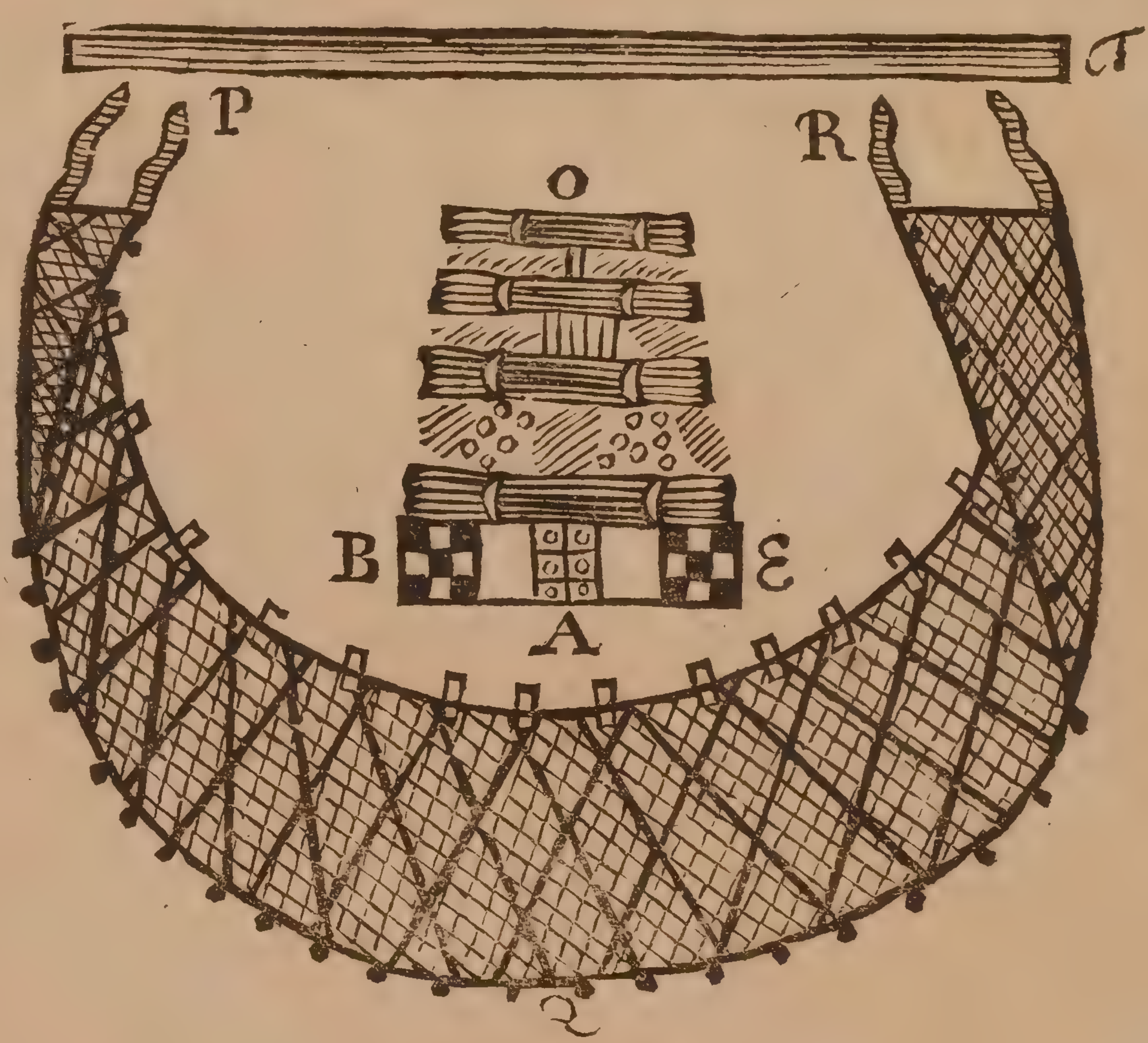


Suppoſe the Pond, or Place you deſign to Draw, be the Space marked within the pointed Line *O, P, D, Q,* *D, Q,* and that *I, L,* be the Length of the Bank-ſide which you would encompaſs; then Bait the Place with ſome good Paſtes, as the boiled Beans with Honey, *&c.* for three or four Days before you draw it; and if you caſt in all your Paſtes near one Spot, it were the better; as for Example, within the pricked Line *K.* The Morning you intend to Fiſh, bait with your Purging Beans, to make the Fiſh more hungry and eager to bite. That Day about two in the Afternoon plant your Net in this manner, with the help of a Boat or long Tub; for want thereof go to the Verge of your Platform, as *P, D,* and then let drop your Net juſt in the Form you ſee it delineated by the Letters *A, B, C, D*; that is to ſay, in a kind of Heap, yet ſo as it may be entangled by it ſelf. At the End *E,* faſten a Cord, and fix the other End of the ſaid Cord on the Shoar at *H,* on ſome Stake, or the like, and another Cord at the End *F,* whoſe End muſt be faſtned at *G,* at about an hundred Paces diſtance from *K,* the Place where you Bait, and the ſaid Place ought to be juſt in the middle between the two Cords, which are faſtned at the two Ends of the Net; Then on the Land between *M, N,* juſt over againſt your Baiting-place leave a heap of dry Leaves, Straw, Stubble, or Sticks, which may quickly take Fire; then withdraw, and let not any more Noiſe be made near the Place that Evening. The Night being come, the old crafty Fiſh will be ſure to peep out, partly to ſee what was the cauſe of the Noiſe, and partly through Hunger; The darker the Night is, the better: Then go three or four together, one muſt gently (without Noiſe) go to the Cord *G,* and another to *H,* and there lie cloſe until the Sign be given; then let one ſet Fire to his Stubble at *M, N,* as ſecretly and quietly as poſſible, and ſo lie flat on his Belly, to obſerve by his Eye and Ear if the Fiſh make a Noiſe, or Motion; if they do, let him caſt in five or ſix Handfuls of the Beans, as he lieth upon his Belly, but not the Purging one's, and lie cloſe for about a quarof an Hour, by which time the Fiſh will be all at work, ſome eating, and others looking on the Light; then give Notice by a Whiſtle to your Companions to draw the Net with all imaginable dexterity, inclining towards each other, that the Net may be extended like a Semi-circle, as you ſee the Letters *O, P, D, Q*: When the two Cords of your Net are drawn, one to *O,* and the other to *Q,* then with their Beating-Poles let them lay on at Top and Bottom of the Water, to keep the Fiſh amuſed, that they may have no Leiſure or Place to eſcape, ſo by little and little gather the two Ends cloſe together to the place *K*; then take your Lead-Lines into your Hands, and let your Companions take each one of the Cork-Lines, and gently pull in your Net, yet ſo as that your Leads may ſtill graze cloſe on the Ground, or elſe the Fiſh will get away under the Net, eſpecially the great and crafty One's.

CHAP. XXIV.

A Device to make a Fiſhery in any open River with Wants, Holes, and Weeds, to ſhelter the Fiſh from great Heats, and extream Colds, in the nature of a Warren.

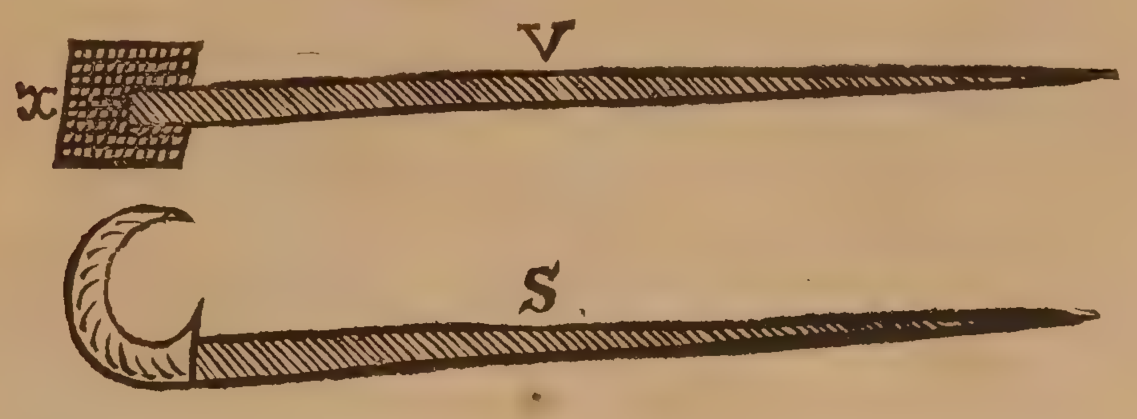
There is an eaſie and cheap Way of preſerving and ſtoring Fiſh in the Midſt of any River, by making a Warren, as it were, for the Fiſh to retreat into; yet may you take them when you pleaſe. This Figure ſheweth the Draught of the Deſign.



Suppoſe the Circuit *P, Q, R,* be the Place deſign'd for the *Fiſhery,* then provide about twenty large Fagots, bound at both Ends, of about ſix Foot long, and four Foot about; lay four of them in a kind of a Square at the Bottom, but let there be about a Foot Space between every of them; then lay a Range on the Top, croſs them, and a third Range over them, until you have piled up Fagots almoſt to the Top of the Water; then lay ſome heavy Stones on the uppermoſt Fagots to keep all cloſe and ſure againſt the Violence of the Water, in caſe it be a rapid Stream. It were not amiſs if you drove a ſtrong Pole, with an Iron Point, through the uppermoſt Fagot, and ſo through all that are directly under it, into the Ground, the better to ſupport your Covert.

When every thing is thus fitted, do nothing for about a Fortnight, that the Fiſh that paſs too and fro may have time to acquaint themſelves therewith. When they find ſuch Holes to receive them, with the Benefit of the Retreat, they will much reſort thereunto, eſpecially the larger ones.

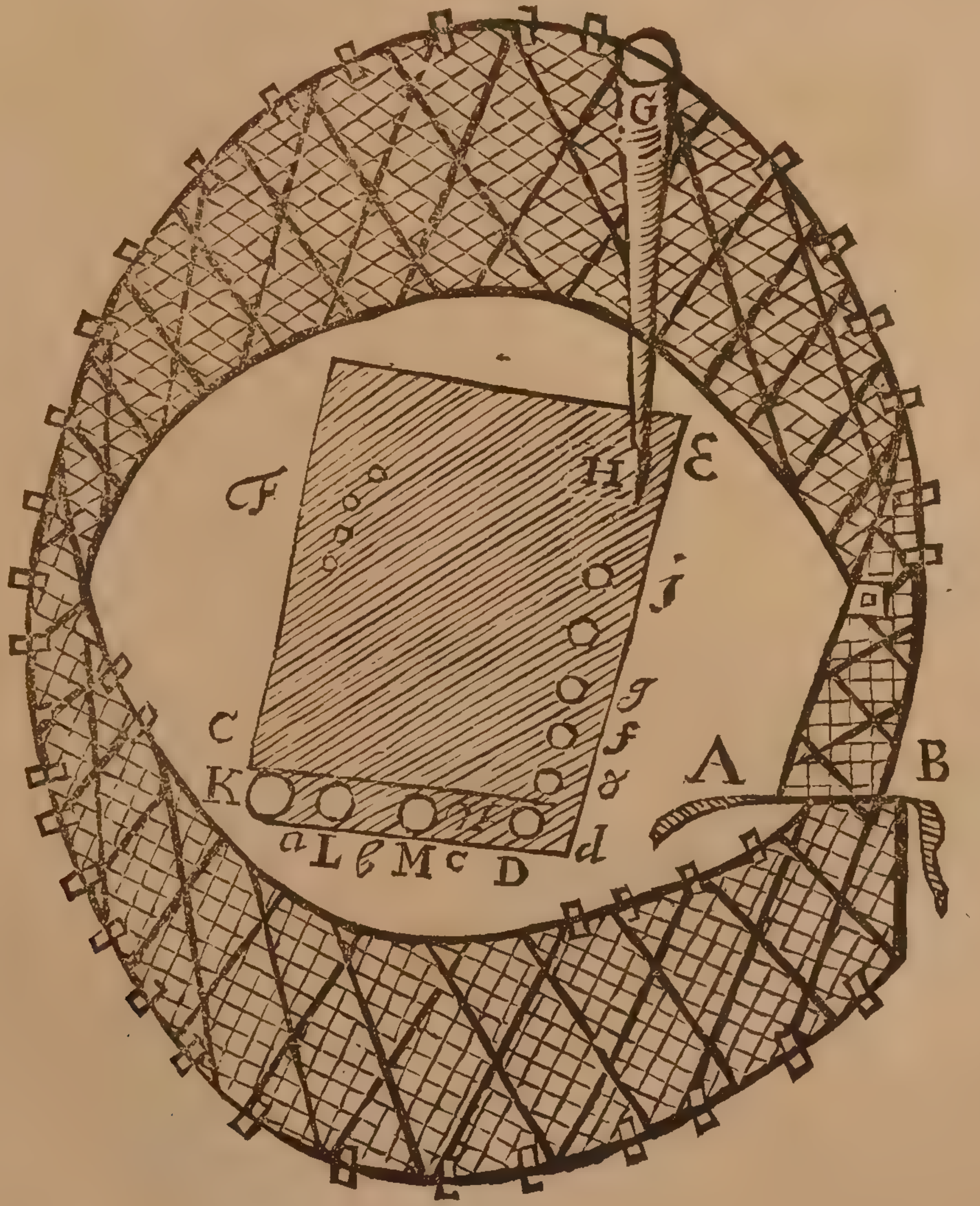
When you intend to try what Store there is, do thus: Get your Tramel-Net well leaded at Bottom, and cork'd at Top, into ſome Boat, together with an Inſtrument, being a long light Pole, with an Iron-Crook, ſtrongly fix'd at the great End; and alſo be provided with Beaters, which are light long Poles, with flat Pieces of Wood nailed to the Top of them, to make a Noiſe on the Top of the Water, as alſo to thruſt into the Bottom, thereby to drive in, and move on the Fiſh. The Figures of the Poles are as followeth.



Then beat up and down both above and below your Warren, yet drawing ſtill near towards it, thereby to force the Fiſh to retire thither; then draw about fifteen Foot from your Warren, and ſpread your Net about it. Begin at *P*, turning about towards *Q*, and you are to conclude at *R*: Withal, if you think good, and that you have Net-room enough, you may draw the two Ends of the Net croſs each other, and then with your Crook draw up the Fagots one after another, together with all the looſe Sticks, if any be: Then fall to beating the Water round the Net, as well at the Top as Bottom, and gently draw in your Net, ſuffering the Lead to drawl on the Ground; for the *Carp*, and other Sorts of Fiſh, will caſt themſelves into the Sand and Mud, that the Net may paſs over them.

When the Net is on the Land, and the Fiſh taken, you may replant the Fagots, and it will be ready for you again in about a Month's time.

There is another kind of Warren in a Pond or River, as ſhall be here deſcribed, being ſandy gravelly Bottoms, and during the Heat of the Year very excellent. In the Place where you intend to make your Warren, lay a great many Stones at equal Diſtance, ſuppoſe at eighteen Inches, and the Stones about the Bigneſs of a Man's Head. Over all place an old Plat-form, made of Boards or Doors, about fifteen Foot long, and ten broad (but the longer and broader the better) at the Sides *F* or *H*, as you ſee in this enſuing Figure.



You muſt cut out two or three Holes, that you may commodiouſly lift up your Doors or Boards, with your Iron-Crook, afore taken notice of, when you intend to fiſh it.

The blank Places are the Stones on which your Boards do reſt, ſome of them are mark'd K, L, M, D. The hollow Places are in the Intervals, all black, mark'd with the ſmall Letters *a*, *b*, *c*, *d*, *e*, *f*, *g*; upon the Door place the other Stones and Gravel, as well to conceal it from Thieves, as to ſecure it from being carried away by the Stream. You may make ſeveral of them, and fiſh them every fifteen Days, as you ſee Occaſion.

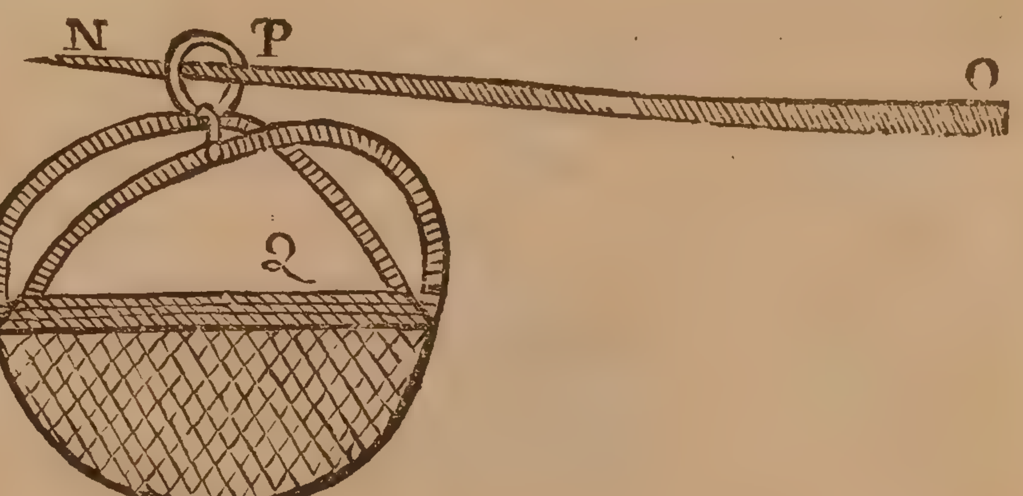
You may know whether there be any Store of Fiſh under it by this Way: If when you come near it with your Boat, and thruſt it a little with your Pole, you then perceive Store of Bubbles to ariſe, 'tis a ſure Sign of Fiſh.

The Way to draw it followeth: The Letters *F. G*, *K*, *L*, *M*, *D*, *H*, *E*, repreſent the Warren, and you alſo ſee how you muſt plant your Tramel-Net: Let the End *A* firſt go into the Water: and ſo encloſe the whole about eight Foot Diſtance in a Circle, the other End of your Net *B* clapping about a Yard over the End *A*; then muſt you get a luſty Pole or Stake, with an Iron-Point at the End *H*, which force a good way into the Ground, juſt by the Edge of the Door or Warren, by the Letter *I*; then with the Iron-Crook hook up the Door by ſome one or other of the Holes made at the Side of the Warren *F*, lift up the Door directly to the Stake *G*, and ſo faſten it thereunto at the Letter *G*, with a Cord drawn through one of the Holes. Then fall to Work, with your Beaters at the Bottom, and amongſt the Stones, and the Fiſh will entangle themſelves in the Net, ſo that you may take them with Eaſe. When you have taken in your Net, clap down your Doors again, and cover it over as before.

CHAP. XXV.

The Uſe of the Spirt-Net, *with a Device to take great* Fiſh, *as well as ſmall, with it.*

I Shall ſhew you the Manner of *Fiſhing* with a *Spirt-Net*, (which is alſo known by other Names) being a common Sort of Net, generally made with indifferent Meſhes, and ſo it may do well for ſmall Fiſh, as well as for great, and at any Time or Seaſon. The Figure followeth.



Make your Meſhes indifferent large, that you may the more readily lift the Net out of the Water, or elſe great Fiſh will be ſure to leap over it. You muſt alſo do thus: Take a Needle and Thread, which draw through the Sides of your common Earth-Worms, but not ſo as to hurt them much, to the end they may ſtir with their Heads and Tails with Strength and Vigour whilſt they are in the Water, that ſo the Fiſh ſeeing them, may imagine them to be at Liberty; then tie the two Ends of the Thread together, and hang it at *Q*, juſt over the Middle of the Net, within eight Inches of the Bottom. You muſt likewiſe have a long Pole, as *O, F, N*, and within a Foot of the ſmaller End faſten the two croſs Sticks of the Net in ſuch manner, that they may hang about two Inches looſe from the Pole, to the Intent the Net may play the better.

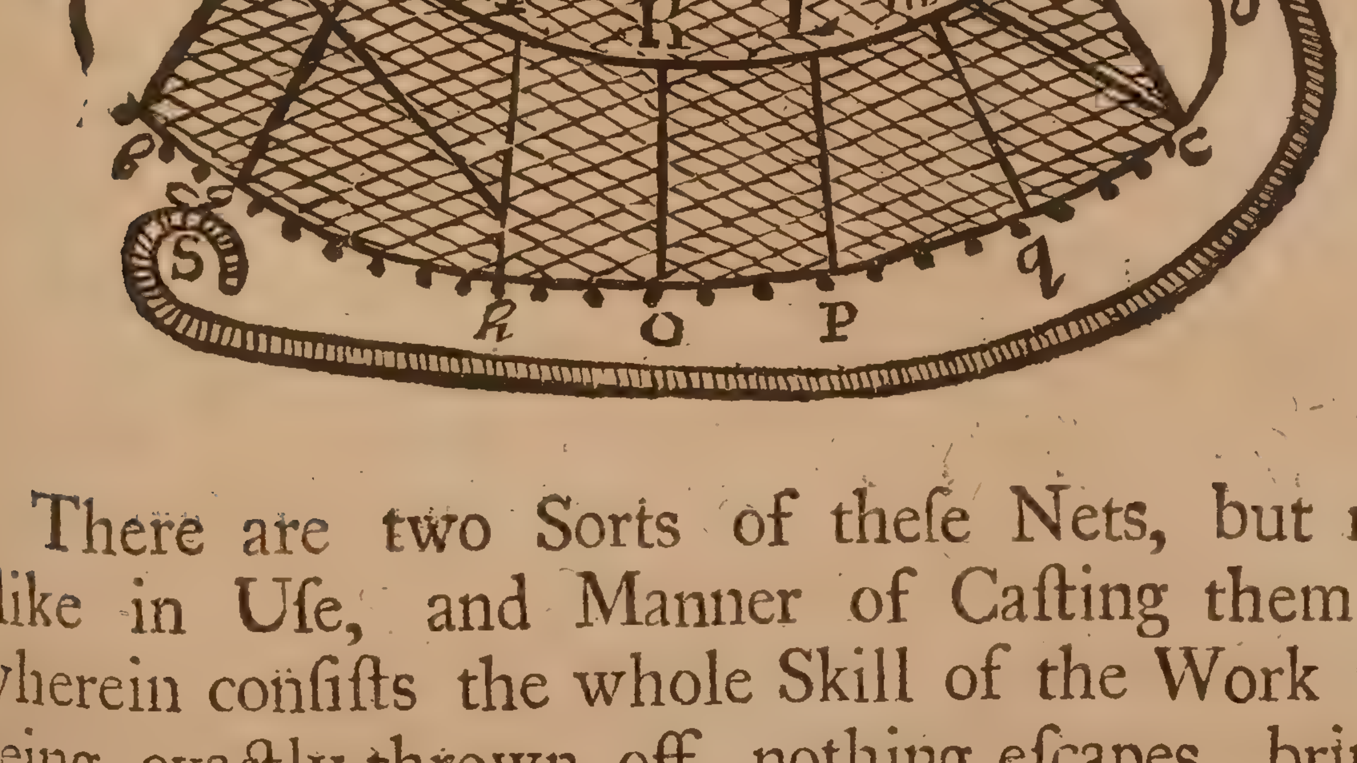
When you put the Net into the Water, make a little daſhing Noiſe with it; for the Fiſh are very inquiſitive after all ſuch Novelties, and coming to ſee what the Matter is, will perceive the Worms crawling; then will they chaſe away the ſmaller Fiſh, and each at his Side begin to pull for the Worms. You may perceive when there are any great ones, and ſtore of them, by their pulling and tugging the Net: Then clap the great End of the Pole between your Legs, and with both Hands give the Net a ſudden Mount, and you may be ſure of all that are within the Compaſs thereof.

Now, if you demand how you ought to hold the Net, I ſuppoſe that it will be moſt for your Eaſe to let the End ſtill reſt between your Legs, with both your Hands a little extended on your Pole, for the better ſupporting it; and ſometimes let it lie flat on the Ground, as the Place will permit.

CHAP. XXVI.

The Uſe of the Caſting-Net, *with Directions for throwing it off.*

TO the end the Curious may be fully ſatisfied, that there hath been no Deficiency in laying down the moſt neceſſary Directions belonging to this Art, I ſhall give you a few Cautions touching the Uſe of the Caſting-Net. This Figure preſents the Form.



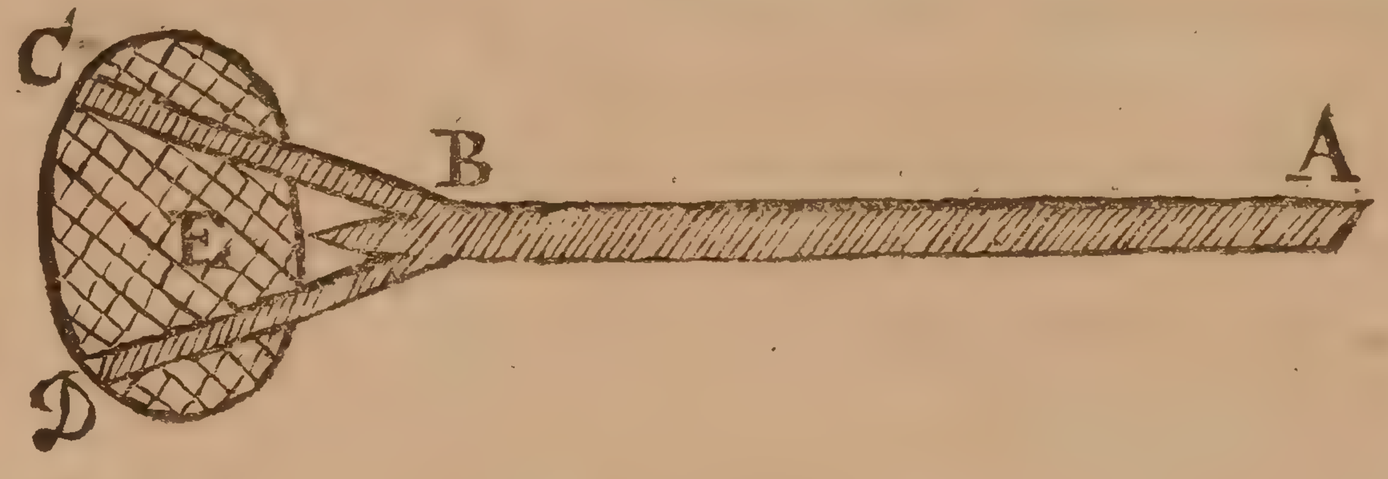
There are two Sorts of theſe Nets, but much alike in Uſe, and Manner of Caſting them out, wherein conſiſts the whole Skill of the Work; for being exactly thrown off, nothing eſcapes, bringing away all within its Extent, as well Weeds, Sticks, and ſuch like Traſh, as Fiſh; but 'tis thereby often broke. You muſt therefore be very careful in what Bottoms you caſt it in, then how you caſt it off, that your Net may ſpread it ſelf in its due Dimenſions. Draw the Loop *S* of the main Cord over your Left Arm, and graſp with your Left Hand all the Net from *T* to *V*, about three Foot from the Bottom, where the Leads hang, and let the Leads juſt reſt on the Ground. With your Right Hand take up about a Third Part, as from *d* to *L*, and caſt it over your Left Shoulder like a Cloak: Then take another Third Part, from *a* to *i* in your Right Hand, and let the Reſidue remain hanging down: Then ſtand upright, and being at the Place where you intend to caſt it off, incline your ſelf at firſt a little towards the Left, that you may afterwards ſwing about your ſelf to the Right with the more Agility; and ſo let the Net launch out into a Round, and be ſure your Buttons be not engaged in the Threads of your Net, for fear of endangering your being drawn after it.

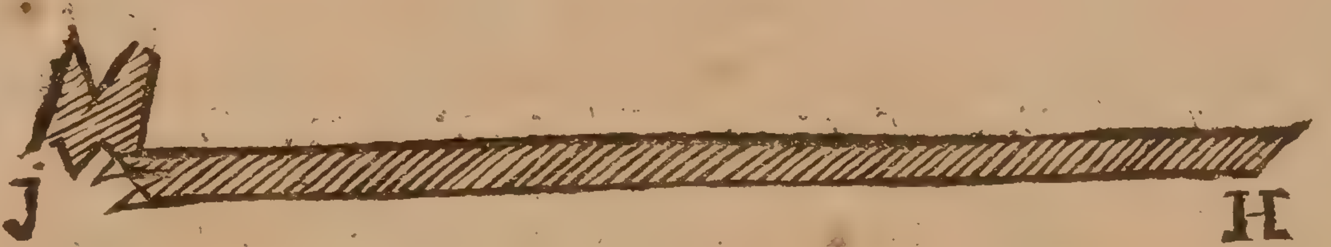
I hold it not amiſs to adviſe you to practiſe how you can firſt caſt it for ſome time on dry Land; for 'tis Uſe that brings Perfectneſs in all things.

CHAP. XXVII.

Devices to take Cray-fiſh, *or* Crevices, *very ſecure and pleaſant.*

THE uſual Way to take *Cray-fiſh* with one's Hand, by groping into Holes and hollow Places, is not only very troubleſome and inconvenient, but dangerous, by reaſon of venomous Creatures, which oft ſting, or bite them; I ſhall therefore give you an Invention to take them in great Abundance with Pleaſure, and free from Danger. Theſe enſuing Figures repreſent the Devices you are to uſe.





You muſt get four or five little Nets, about a Foot ſquare, tie them to ſome round Withy Hoop, or the like, as you ſee in the abovesaid Figure, mark'd *C, D, E*; then get as many Staves, as *A, B*, each five or ſix Foot long, with three Forks at the End, unto which faſten the Circle at three equal Diſtances, in ſuch manner, that when you lay your Net flat on the Ground, your Stick may ſtand upright on the three Forks. Alſo prepare a Dozen of Rods or Sticks, about five or ſix Foot long, cleft at the ſmall End, mark'd *I*, in which you may place ſome ſkinn'd Frogs, the Guts of Chickens, or the like. When the Sticks are all baited, go out, and where you find any likely Hole lay your Stick on the Ground, with the baited End juſt at the Hole in the Water, and there leave it; and ſo after this manner lay the reſt in the moſt likely Places, and walk in and out, viſiting your Sticks, and when you find any fix'd to the Baits, gently move your baited End towards the Middle of the Water, and doubt not but that the *Cray-fiſh* will keep their Hold, and ſo put your Net juſt under the Bait; then ſoftly lift up the Bait, and as ſoon as the *Cray-fiſh* feels the Air, they let go their Hold, and fall into the Net.

It is moſt certain, that above five and twenty have been thus taken out of one Hole, all hanging at the ſame time upon one Bait: Conſider then what may be done in a well-ſtored River, with about a Dozen Rods together. It is an excellent Diverſion, ſeeing that two or three Friends may diſcourſe walking, and yet mind the Work in hand.

CHAP. XXVIII.

Directions to take Pikes *as they lie ſleeping, and ſunning themſelves in fair clear Weather, the one with a Net, and the other with a Running-Knot of Horſe-hair.*

I Suppoſe moſt covet the *Pike*, as being an excellent Fiſh: They are often found ſleeping in fair open Weather, from *March* until *Auguſt*, on the Top of the Water, and near the Land; they are thus taken. You muſt be provided with a long Pole or Rod, that is light and ſtreight, on the ſmaller End thereof faſten a Running-Loop, made of well twiſted Horſe-hair and Silk, of a large Compaſs, which gently draw on him, and when you have it about five or ſix Inches over his Gills, then hoiſt him up: If it be a ſmall one, draw not the Collar ſo far on, leſt he ſlip through. Make no Noiſe in walking by the Bank-ſide, but go gently without ſpeaking; and in caſe you find one in ſuch a Poſture, as that you cannot conveniently draw your Loop on him, you may gently touch his Tail with the Rod, and he will turn himſelf as you would have him.

You may alſo take them by a Net, which is treated of in the latter End of the Ninth Chapter, touching the Landing of *Carps*, and other great Fiſh, to which I refer you as to the Deſcription thereof; and I ſhall here teach you how to uſe it in taking *Pikes*, as aforeſaid. When you perceive any one ſo ſleeping, put your Net into the Water as gently as poſſibly you can, and guide it juſt under the *Pike*, and ſo lift it up very ſoftly, until you are ready to touch him: Then give him a Lift with all the Dexterity you can, and you will ſeldom fail taking them.

CHAP. XXIX.

A Collection of ſeveral Artificial Baits, recommended by Authors of great Eſteem, that have been curious in ſtudying the Natures of Fiſh, *and the Art of* Fiſhing.

I Shall in this Chapter give you an Account of ſuch Baits, Paſtes, and compounded Attractions, as I have met with from divers Profeſſors of this Art; not that I will much recommend them, leſt they ſhould prove like thoſe Medicines for Agues, which may be a Cure to ſome, and fail in others.

Take *Coculus-Indicus* and *Aſſa-fœtida*, beaten and mix'd with a like Quantity of Honey, and diſſolve it in the Oil of Polipody, and keep it in a cloſe Glaſs; and if when you Angle you anoint your Bait, whether Natural or Artificial, it will draw the Fiſh to it in great Abundance.

Take ripe Cherries, and ſtone them; then beat the Pulp thereof with Crumbs of White Bread into a Paſte, and if you caſt Pellets of it into the Water, it will entice the Fiſh to the Place.

Take ſome Blood, ſome of the Fat, and ſome of the Dung that is in the ſmall Guts of a Sheep; ſome Thyme, Penny-Royal, Origan, Savory, Marjoram, Garlick, the Lees of ſtrong ſweet Wine, of each a like Quantity: Mix and chop them ſmall and well together, then make them into ſmall Pellets. Theſe Pellets, being caſt into the Water, will be ſure to draw Fiſh to them, if there be any ſtirring; and then with your Nets you may ſecure them.

If you take the Blood of a Goat, and the Lees of ſweet ſmelling Wine, and therewith make a Paſte, with Barley-Flowers, it will alſo attract Fiſh.

If you anoint any Lines or Nets with Salt, it will cauſe the Fiſh to avoid them.

Take of ſtrong ſtinking Sturgeon, and of the yellow Butter-flies, each an Ounce; of Anniſeeds, Hemp-ſeed and Cheeſe, of each four Drams; of Hogs Blood and Galbanum, of each the like Quantity, and of the Juice of Parſnip two Drams: Mix all theſe together, with a little Red Wine, and make them up into Pellets, drying them in the Shade, and this is ſaid to be a very bewitching Bait.

Take ſome of the Worms called *Glow-Worms*, and diſtil them in a Glaſs-Veſſel, or Vial, with four Ounces of Quick-Silver, ſtopping the Vial very cloſe, that nothing may get in or out; then put it into your Nets when you fiſh, and it will attract 'em.

Take Nettles, and five-leav'd Graſs, chop them ſmall; then mix ſome Juice of Houſe-leek with it, and rub your Hands therewith, throwing the reſt into the Water, and if you then hold your Hands in the Water, the Fiſh will not forbear to come to them, and ſo you may take them.

Take Heartwort, and Lime, mingle them together, and throw it into any ſtanding Water, it will draw them thither, and cauſe them to be intoxicated, ſo that you may take them floating on the Water.

It was the Saying of a Learned Man, that Baits ſhould have four Qualities; Firſt, that Baits ſhould be ſtrong ſmelling to draw them to you though at a great diſtance, ſuch as Oil of Anniſeeds, Juice of wild Parſnips, or the like. Secondly, That Baits muſt be well Taſted, to invite the Pallet to eat them, ſuch as Hogs-Blood, Cheeſe made of Goats-Milk, White-Bread. yellow Butter-flies, *&c.* Thirdly, it muſt have an operating Quality on the Head, ſuch as the Lees of Wine, Strong-Water, *&c.* And Fourthly, that Baits ſhould have a Fumiferous Quality, ſuch as is in Marigolds, which being eaten by them, will in a ſhort time Stupify them. But for this Buſineſs there is nothing ſo exquiſite as *Coculus Indicus.*

The Compoſition that *Cardan* hath highly commended, is this; Take a quarter of an Ounce of *Coculus Indicus*, the ſixth part of an Ounce of Coleworts, and as much Strong-Water, an Ounce of Cheeſe, and three Ounces of Wheaten Flour; beat all theſe together to a Paſte, and ſo uſe it.

Take Penny-Royal, Summer-Savory, wild and ſweet Marjoram, of each Three Ounces; of Frankincenſe and Mirrh, of each an Ounce; of dried Barley ſteeped in good Wine, half a Pound; of Hogs-Liver roaſted, Goats Fat, and Garlick, of each a Pound; mince each by it ſelf; then make it into a Lump, and after into ſmall Pellets, and if you throw theſe Pellets into any Place they will attract the Fiſh to them, and ſo take them with your Nets.

Take Mutton Suet, Garlick, Wild and Sweet Marjoram dried, Thyme, of each a like Quantity; ſtamp them together with Crums of White-Bread and Wine, and give thereof for a Bait; or you may make a Paſte of Wine, Lime, Old Cheeſe, and Rams Dung, which will exceedingly Intoxicate all manner of Fiſh.

If you take of that Medicinal Shell, called by *Drugſters*, *Unguis Odoratus*, Cummin, Old Cheeſe, Wheat-flour, of each a like Quantity; beat them well together with Wine, and make it up into Pellets as big as Peaſe; then caſt them into the Water, and ſuch Fiſh as eat thereof may be taken up with one's Hands.

If you make a Compoſition of *Ariſtolochia Rotunda*, Hogs Fat, and Lime, it will greatly attract Fiſh, which having taſted, will ſoon cauſe them to turn up their Bellies.

I might have inſerted divers other Receipts; but theſe ſhall ſuffice, being enough for the purpoſe.

CHAP. XXX.

Directions for preſerving Fiſh *both in Ponds and Rivers from devouring Creatures, ſuch as* Otters, Water-Rats, Herns, Coots, Moor-Hens, Sea-Pies, *&c.*

BUT whilſt we are endeavouring to teach you the Art of Killing Fiſh, I hold it not amiſs to give you ſome Directions how to preſerve them from the Deſtruction of ſuch Creatures as uſe to devour them.

Otters, and *Water-Rats* are great deſtroyers of Fiſh, eſpecially in Ponds and Freſh Rivers; the beſt way to kill them is by hunting them with Water-Dogs, and Otter-Hounds; you may alſo ſet dead Falls for your *Rats* in Holes which they frequent, and for your *Otters* you may poiſon them in this manner. Lay near his Retreat (which is eaſily found out) a Bait of an Eel, prepared with Arſenick, in this manner; Slit the Back of the Eel above the Navel, and dexterouſly put into the Slit Three or Four Crums of Arſenick; then place the Eel from the Navel upwards out of the Water, the reſt to be under the Water, having firſt ſowed up the Slit. Now it is the Property of the *Otter* to eat to the Navel, and ſeldom further; and you may be ſure it will deſtroy him. You may alſo deſtroy the *Otter* with a Wheel, which is ſo ordinary and well known, that the naming it is ſufficient. Yet I hold that the Wheel made with a double Tunnel is better than the ſingle one.

The *Herns*, *Sea-pies*, *Coots*, *Mews*, *Moor-hens*, and *King-Fiſhers*, are great Deſtroyers of Fiſh, eſpecially the Young Fry; you muſt therefore be provided with Hooks and Lines baited proper for them, alſo with Lime-Twigs, Springes, and with a Gun, for all which you will find ſufficient Directions in the Treatiſe of *Fowling*.

CHAP. XXXI.

Directions for making of Ponds, *and Storing them,* &c.

NOW concerning *Fiſh-Ponds*, and the making them, theſe Directions are neceſſary to be obſerved. Thoſe Grounds are beſt which are full of Springs, and apt to be Mooriſh, for the one will breed them well, and the other will preſerve them from ſtealing. You are likewiſe to conſider the Situation of the Pond, and the Nature of the Currents that fall into it; likewiſe that it be refreſh'd with a little Rill, or with the Rain-water that falls from the Hilly Grounds adjacent, which is a great refreſhing to Fiſh, cauſing them to breed the better; and it is obſerved that thoſe Ponds that receive the Piſs of *Horſes* and other Cattle, have the fatteſt and largeſt Fiſh. In making your Pond let the Head of it be at the loweſt Part of the Ground; and let the Trench of your Flood-gate have a good ſwift Fall, that it may not be too long in emptying when you have a deſire to draw or ſue it. The beſt way to build your Pond's-head, is by driving in a Row of Stakes about ſix Foot long, and ſix Inches ſquare, at four Foot Diſtance: Elm is better than Oak; drive them in the whole Length of the Pond-head, the firſt Row muſt be rammed in at leaſt four Foot deep, that they may ſtand ſtrong and ſure; then dig your Pond, and caſt your Earth amongſt the Piles and Stakes; when they are well covered over, drive in another Row over them, ramming in the Earth in the void Spaces, that it may lie cloſe, and keep in the Water. You muſt thus continue Stakes upon Stakes, and ramming in the Earth until your Pond-head be of the Height you deſign it. The Inſide of the ſaid Dam muſt be very ſmooth and ſtraight, that no Current may have power over it. If your Pond carry about ſix Foot of Water 'tis enough, but then it muſt be eight Foot deep to receive the Freſhes and Rains that ſhould fall into it. Some are of Opinion that 'tis good to Pave, or Floor the Bottom with large Turfs of Flot-graſs cloſe joined and ſtaked down, which is found excellent good Food for the Fiſh. Alſo ſtake down in the Bottom, and on the Sides of the Pond ſeveral Fagots made of light Wood, not

Oak; for that hath a bitter Taſte, and is offenſive to them. Theſe Fagots are very good to ſhelter the Fiſh, and receive them when they caſt their Spawn, as alſo to preſerve them from Vermin, and the young Fry from other Fiſh.

It is likewiſe neceſſary that Fiſh have ſome retiring Places, as hollow Banks, Shelves, Roots of Trees, or ſuch like Places, as well to keep them from Danger, as to cheriſh them in Heats and Colds.

You may ſtore *Carp*, *Bream* and *Tench* by themſelves; *Pike*, *Perch*, *Tench* and *Eels* by themſelves; and with either you may mix *Daice* and *Minnows*. But the *Roach* is a great Enemy in Breeding-Ponds for devouring the young Fry, ſo that great Care muſt be taken to prevent their being in your Pond, for they are exceeding great Increaſers.

The beſt Ponds to breed *Carps* are thoſe that have ſtrong and Sandy Bottoms, that are warm, and lie out of the Wind, being ſheltered with Willow, or Nut Trees hanging over the ſides of the Banks. It is obſerved that *Carps* breed better in new made Ponds, than in old ones that are full of Mud and Weeds; to that end you ſhould at leaſt every three Years ſue or cleanſe your Ponds from the ſaid Filth and Mud that lieth at the Bottom.

If your Ponds be one in the Rear of another, let your firſt be Stored with *Carps* and *Tench*, and the latter with *Pike*, *Perch*, &c. and ſo order them that the *Pikes* may not come amongſt the *Carps*.

If you would have a Breeding-pond become a Store-pond, when you Sue it put in all Milters, or all Spawners, which will hinder the encreaſe; and note that your Store-ponds afford the fatteſt and largeſt *Carps*.

If for a Breeding-pond, to every Milter you ſhould put in two or three Spawns.

Feed your *Carps*, *Pikes* and other Fiſh with Chippings of Bread, Grains, the Entrails of Chickens, or any of the forementioned Baits (except thoſe that are intoxicating) which will much improve them.

Some Ponds will naturally ſo produce *Pikes*, that you can hardly keep them free; and experience ſheweth that *Pikes* do not always proceed from Generation, but ſometimes from Corruption and Putrifaction of Graſs, Weeds, Slime and the like.

If you would have your *Carps* to grow large, obſerve theſe Directions. In and about the Month of *April* when your Ponds begin to grow low in Water, cleanſe all the ſides where the Water is fallen away with an Iron Rake, or ſome other thing, then ſow ſome Hay-ſeed round about, and rake it well in, and by the latter End of the Summer there will be a great Growth of Graſs, ſo that when the Water ariſeth in the Winter Seaſon, it will over-flow the ſaid Graſs, and then the *Carps* will feed thereon; and in a ſhort time will become exceeding fat, and of a delicate ſweet Taſte.

Thus far our Author, but Mr. *Mortimer* having ſome more Particulars on this Head, we ſhall add them here.

Watery and boggy Lands, which are of little Uſe otherwiſe, are much improved by making them into *Fiſh-Ponds*; neither is there leſs Advantage in making them in Bottoms between riſing Grounds, though they are dry Land, if the Uſefulneſs of them, both for watering Cattle and the keeping of Fiſh be conſider'd. Though few are ſenſible, as they ſhould be, of the Advantage for the Houſe and Market proceeding therefrom, the ſame being a Profit coming in without Charge. In like manner there is a Benefit in ſtopping the Floods that fall from the Up-lands, ſo as to cauſe the Waſtings of the Dung to ſettle at their Bottoms, there being nothing that more improves ſandy or gravelly Land than Mud, produced by the Waſhings of the upper Grounds.

The Head of a Pond ſhould be made at the loweſt Part of the Ground, and the Trench of the Flood-Gate, or Sluice, have a good Fall, to prevent its being long in emptying. The better to ſecure the Head, two or three Rows of Stakes, about ſix Foot long, ſhould be drove in, about a Foot Diſtance from each other, the whole Length of the Pond-Head; the firſt Row to be rammed at leaſt about four Foot deep, that they may ſtand ſtrong and ſure; or if you find the Bottom any thing falſe, eſpecially of a running Sand, the Foundation may be laid beſides with quick Lime, which, when ſlacken'd, will make it as hard as a Stone. Some put a Layer of Lime, and another of Earth, which is very good in the making of the Heads of Ponds, Mill-dams, *&c.* And then digging your Pond, carry the Earth, and caſt it among the Piles and Stakes, and when they are well cover'd over, drive in another Row or two as you find Occaſion over them, ramming in the Earth in the void Spaces, that it may lie cloſe, and keep in the Water; and ſo you muſt continue Stakes upon Stakes, and ramming, till the Pond-head be of the Height you deſign it: The Inſide of the ſaid Dam muſt be very Smooth and Streight; and if 'tis made very ſloaping on each ſide 'tis the better, leaving a waſte to carry off your waſte Water in times of Floods or Rains. The Depth of the Pond ſhould be about ſix Foot of Water at the deepeſt Part, and if on the ſides are ſome Shoals for the Fiſh to Sun themſelves in, and to lay their Spawn, it will be of advantage; as will likewiſe the having in other Places, Holes, hollow Banks, Roots of Trees and Iſlands, for retiring Places.

When the Pond is finiſh'd and the Water let in, you may ſtore it with *Carp* and *Tench*, which do the beſt together of any Fiſh, all other Fiſh being devourers of their Spawn. But if you have variety of Ponds, 'tis better to keep all ſorts of Fiſh by themſelves; except you ſtore a Pond with Fiſh of Prey, as *Jacks* or *Perch*, and then you muſt put in *Roach*, *Daice*, *Gudgeons*, or other very increaſing Fiſh for them to feed upon: But not a *Tench*, as moſt Authors propoſe. For a *Jack* or *Perch* will as ſoon, if not ſooner, ſeize on a *Tench*, than any other Fiſh.

Gravelly and ſandy Bottoms, eſpecially the latter, are the beſt breeding Ponds; and a fat Soil with a white fat Water, as the waſhings of Hills, Commons, Streets, Sinks, *&c.* the propereſt to fatten all ſorts of Fiſh. Only where ſuch Floods are too violent, it may be good to carry ſome part of them on one ſide of the Pond, that they may not carry away the Fiſh; *Carp* being very apt to float away with freſh Water.

For Storing of the Pond, *Carp* is to be preferr'd for their Goodneſs, quick Growth, and great Increaſe, they breeding five or ſix times in a Year. But as the Female is Eight or Nine Years Old before ſhe breeds, you muſt take care conſtantly to keep a good Stock of Females of that Age in your Ponds, if you deſire a breeding Pond; indeed the Females ſhould never be killed, becauſe they are often very apt to die after their Spawning. The *male Carps* muſt be three or four Years old, and to every Female you may, in a Pond that breeds well, put from three or four Males to a dozen or more.

A Pond of an Acre of Land if 'tis a feeding, and not a breeding Pond, will every Year feed well two hundred *Carps* of three Years old, three hundred of two Years old, and four hundred of a Year old. *Carps* delight in Marl-pits, or Pits that have clean Clay Bottoms, new Ponds or old Ponds, full of Weeds, that are warm and ſhelter'd from the Winds, and that have Graſs growing at the Bottom or Sides, whereon they feed in hot Months. *Carp* and *Tench* thrive alſo mightily in Ponds or Ditches near the Sea, where the Water is a little brackiſh: But they do not eat ſo well as in clear Water. If Grains, Blood, Chickens Guts, and the like (as our Author has already obſerved) be flung into a Pond, it will much help to fatten the Fiſh, and increaſe their Growth. If you cleanſe a Pond of Weeds, do it at the Fall of the Leaf and not in the Spring, becauſe it rather increaſes than diminiſhes them.

Your Pond ſhould every three or four Years be drain'd, and the Fiſh ſorted; if 'tis a breeding Pond, you muſt take out the ſmaller one's to ſtore other Ponds with, that you may not ſtarve the great one's, which a great Stock of ſmall Fiſh in a Pond is apt to do. And therefore in feeding Ponds 'tis beſt to keep them pretty near of a Size.

Ponds made at the Head of a Chalky Spring are very good for *Trouts*, which will might'ly thrive in them. *Flounders* will both thrive and breed in any Pond, and eſpecially Clay Ponds, and grow much larger than thoſe in Rivers.

All ſorts of Bitterns, Herons, Sea-Gulls, Kingsfiſhers, Water-Rats, Water-Mice, Otters, *&c.* are very great Enemies to Fiſh, and therefore ſhould be deſtroyed, as much as you can; but the greateſt Deſtruction of Fiſh in Ponds, is occaſion'd by Froſt, to prevent which, ſome propoſe to break the Ice, and to lay in Pipes, Straw, *&c.* to give Air to the Fiſh, but this will ſcarce do; but ſeeing the Foulneſs of the Ponds ſtencheth the Water, therefore (not only for the Preſervation of Fiſh, but becauſe it much helps their Breeding and Feeding, by affording of them Earth to feed and lay their Spawn on) Ponds ſhould be very often cleanſed; the Mud whereof doth commonly more than pay the Charge, where you have a good Bottom to caſt it out on; but as 'tis much more chargeable and troubleſome to get it out in Boggy and Springy Bottoms, where you cannot Cart it; all Ponds made in ſuch Places, ſhould be made like Moats, and not broad Ponds, that ſo when ever you have a mind to empty them, the Workmen may at one or two throws at the moſt be able to caſt the Mud out on the Banks.

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AGRI-

AGRICULTURE, OR HUSBANDRY.

To the Rt: Honourable Willm: Pierrepoint Earl of Kingston upon Hull, Vist Newarke upon Trent Baron of Holme=Pierrepont, Manvers and Horris &c:

This Plate is Humbly Dedicated by Richard Blome.

Agriculture or Husbandry, may be conſidered in theſe parts.
Improvement of Grounds as
Meadows, and Paſtures, by
Encloſures
Severall ſorts of French Graſses, as
Clover
Saine Foyne
Trefoyle, or Nonſuch
Lucerne
Good Manureing, & Feeding.
Draining
Overflowing
By Engines
Arable land Shewing how to order it, by
Plowing, Sowing, and the like, for
Wheat, Rye, Barly, Oates, Peaſe, Beanes, Tares, Lupines, Buck=Wheat, Hemp, Flax, Woad, Madder, Rape or Cole ſeed
Wherein ye Seaſon of ye year, the Weather, & ye Ground as to its fertility, & ſoule muſt be Conſidered
Munureing, & Dunging wth
Lime, Chalk, Raggs, Improſt, by folding of Sheep, & the like, according to ye nature of ye Ground
Herbs, Roots, & Plants for ye Kitchin, as
Potherbs, Sweet herbs, Saladeing, hops, Beanes, Peaſe Artichoaks, Colliflowers, Cabages, Carotts, Turnips, Parſnips, Aſparagus Mellons, Cucumbers, Onions, Leeks, Garlick, Shalott & c. Shewing
how to prepare ye Ground for them, how to Sow, & order them &c.
Severall sorts of Beaſts, Fowl & Inſexts kept, wth directions to raiſe, order, & keep them for profitt
Trees either
fruit trees ſhewing how to propogate & manage them, as to
ye raiſeing from ſeeds, Stones, Nutts, Kernells, &c as alſo by Layers, Slips, & Suckers
Planting, Grafting, Innoculateing or Budeing, Pruning, Trans planting, & the like
The benefitt from fruits, by makeing Wines, Syder, Perry, Mead &c. with directions to make ye Sd Liquors
Timber Trees both for
Timber, Utenſills, Fewell, Fenceing, ornament.
Shewing how to raiſe & order them, the like of Coppices.
of Gardening for delight, Shewing
ye Severall ſorts of Flowers, how to order, keep, & encreaſe them
how to order a Garden into Walks, Graſs=plotts & c.
Ever=Greens, & ſuch as beare flowers, fruits, or Beryes; with Rules to keep, & order them
Flower bearing trees, & Shrubs, that fall their Leaves in the Winter, and renew them in ye Spring.
A Kalender, or mounthly direction to ye Husbandman, ſhewing how to Govern his affaires all ye year to ye best advantage.
Externall Injuries amongst Cattle, and Fowl; wth Injuries Suſteyned by Vermine, wild Beaſts, Moles, & Inſects, wth Inſtructions to prevent the ſame, & deſtroy them.

AGRICULTURE,
OR
HUSBANDRY.

PART VI.

Treats of the Improvement of Grounds, *by* Encloſures, Draining *and* Overflowing *by* Engines: *By good* Manuring, Tillage, Feeding, *&c. With the Benefit ariſing by the* Trefoil, Sainfoin, *and* Clover-Graſs; *ſhewing their Nature, and for what* Ground *moſt fit. Of* Gardening *for Delight and Profit, as the* Raiſing, Sowing, *and* Setting *of* Seeds, Plants, *and* Flowers. *Of* Fruit-Trees, *and how to* Raiſe, Graft, *and* Inoculate *them; with the Benefit accruing thereby; as alſo by* Timber, *and other* Trees. *The ſeveral Sorts of* Beaſts, Fowl, *and* Inſects *neceſſary to be kept, and how to Breed and Order them: With a* Calender, *or* Monthly Directions, *neceſſary to be known by the* Husbandman.

CHAP. I.

The INTRODUCTION.

AGRICULTURE was of ſo high an Eſteem, and held ſo honourable in former Ages, that the Philoſophers, nay, Kings and Princes, were exceedingly delighted, not only in Rural or Country Habitation, but did alſo exerciſe themſelves in this Noble Art. Giving Rules and Precepts, (which by their Writings they left to Poſterity, to their Immortal Fame.) And the *Romans* had ſo high an Eſteem for *Agriculture*, that they gave Encouragement to the induſtrious Husbandman, and puniſh'd the Negligent: And when they gave Names to their Tribes, called the chiefeſt of the States the *Ruſtick Tribes*, and the meaner in Degree the *Urbane*.

As to its Antiquity, no Art ſtands in Competition with it; for all know that the Country Life was the moſt ancient; for in the Infancy of the World Men inhabited in Tents, Woods, and ſuch like Places, inſtead of Houſes, and lived on the Fruits of the Earth by their Labour.

Plato ſaith, That a Country Life is the Miſtreſs, and as it were the Pattern of Diligence, Juſtice and Frugality; and that he could find nothing more pleaſant and profitable, than a Country Life, where they live free from Pride, Malice, Covetouſneſs and Ambition. And *Cicero*, diſcourſing of the Utility of ſeveral Arts, concludes, That nothing is more advantagious and pleaſant, nor more worthy of an ingenious Spirit, than *Agriculture*.

Alſo *Attalus*, that rich *Aſian* King, left his Regal Dignity, and betook himſelf to a Country Life, and was very intent on *Agriculture*, forming and planting ſeveral *Gardens*.

Likewiſe *Diocleſian* the Emperor left his troubleſome Empire, and betook himſelf to a Country Life, and would not return to his Empire.

Many more Examples might be inſerted; but theſe, together with the Multitude of the like Preſidents which our Age and Country affords, may ſuffice to convince any one of the Pleaſure, Dignity, Peace, Content and Utility of a Country Life.

Agriculture is of a large Latitude, comprehending not only all things that are produced from the Earth, as all Sorts of Grains, Fruits, Herbs, Plants, Roots, Flowers, *&c.* but alſo ſuch Things that have their Nouriſhment from the Earth, as Cattle, Fowl, Inſects and Fiſh. Now the Huſbanman's great Skill and Induſtry is to be uſed for the Improvement of the Earth to bring forth her better Encreaſe, and how to breed and order Cattle, Fowl, *&c.* for the moſt Advantage. Therefore having ſo ſpacious a Field to walk in, I ſhall, with what Brevity I can, treat of the moſt eſſential Things, eſpecially thoſe that befit the Qualification of a Gentleman to be a

Proficient in, omitting the Ruſtick Part of Ploughing and Sowing of Ground; as alſo the Reaping, Mowing, Making and Houſing the Corn and Hay.

This Treatiſe, for Method's ſake, ſhall be divided into ſeveral Chapters, and firſt of Grounds, and the Improvements thereof.

CHAP. II.

Of Meadow *and* Paſture-Grounds, *and how to improve them by Encloſures, Draining, and Overflowing by Engines: As alſo by Manuring and Feeding them, with the great Benefit ariſing by the* Trefoil, Sainfoin, *and* Clover-Graſs, *ſhewing their Nature, and for what Ground moſt fit.*

Of Encloſures.

ENcloſing of Land brings a very great Benefit to the Huſbandman, and that in ſeveral Reſpects. Firſt, It aſcertains every Man's juſt Proportion of Land. Secondly, It prevents abundance of Treſpaſſes and Injuries between Neighbour and Neighbour. Thirdly, It gives great Advantage for ſeveral Sorts of Improvement, as planting the Hedge-rows with Timber and Fruit-Trees; by enriching it with Crops of Corn, if converted to Arable; or by ſowing it with ſome of the new *French* Graſſes, as *Sainfoin*, *Clover*, or *Lucern*; by feeding it with Cattle, or mowing it for Hay, which Improvements cannot be made in Champion Countries that are deſtitute of Encloſures. Fourthly, It is obſerv'd, that the Crops of Corn are better than in open Fields; for if the Hedge-rows are tall, they keep the Land warm, and ſhelter it from thoſe pinching Winds that deſtroy much Corn; and the Hedge-rows being well planted with Trees, give good Shelter and Shadow for Cattle, both in Winter and Summer. Fifthly, The Hedge-rows are very profitable, affording Firing and Wood for the making Ploughs, Carts, and the like Neceſſaries: And, Sixthly, The Hedge-rows are profitable for Maſt for Swine, and for Fruit for Sider and Perry. All which Reaſons being ſo demonſtrative, there needs no further Arguments to be laid down, or Perſwaſions uſed for *Encloſures*. One Thing more give me leave to add, that is, encloſed Grounds are far more pleaſant and delightful than the open Champion, and afford more Diverſion.

In the making of Hedge-rows, theſe Cautions are to be obſerv'd: Not to plant Trees not naturally agreeing with the Soil they were removed from; that is to ſay, not from a rich, moiſt and warm Soil into a cold, barren and dry; not to plant them too deep in the barreneſt Earth; to defend them from the external Injuries of Cold, Drought, or Prejudice of Cattle, which muſt be by fencing or encloſing them in by an artificial dry Hedge on both Sides.

For Hedges the beſt are Quickſet of White Thorn, becauſe 'tis the moſt common, and accounted the handſomeſt and beſt Fence, ſuiting any Soil where a new Bank or Ditch is made, nay, will even often grow upon the drieſt Sand and Gravel, if it prove a wet Year. The quickeſt Way of raiſing them is by Plants, and not Seeds, which will not ſpring till after they have lain two Years in the Ground. The Scarcity of Sets is ſupplied with ſowing Haws and Sloes in them, after the Felling of the Under-woods the Year before.

Next to the White is the Black Thorn and the Crab, which make a very good Fence, and is raiſed as the White Thorn; only if you ſow Apple or Crab-Kernels, ſow the Pummace with them, they will come up the firſt Year. Black Thorn is not reckon'd ſo good for Fences, as the White, becauſe it is apt to run more into the Ground, and is not ſo certain of growing; but then the Buſhes are much the beſt, and moſt laſting of any for dead Hedges, or to mend Gaps; nor are the Cattle ſo apt to crop them as the other. They will grow upon the ſame ſort of Soil with the White Thorn; but for marſhy and watery Meadows Quick-ſet Hedges are not ſo cuſtomary, yet they will grow well on the Banks, and are very ſerviceable and commodious to Cattle. The moſt uſeful Fences are Willows, Popler and Oſiers, being Aquaticks, and are very quick Growers, and by Conſequence greatly profitable; for 'tis obſerv'd, that a Willow and an Oak being ſet at one time, the Willow will buy a Horſe before the Oak will buy a Saddle.

A Popler is alſo a quick Grower, and affordeth a better Wood than Willow. The Oſiers are cut every Year, and are of great Uſe for divers Things about a Country Houſe, as for Baſkets, Hurdles, *&c.* Theſe, as alſo the Popler and the Willow, are cut from the Trees, ſharpen'd at the Points, and ſo thruſt deep into the Ground near the Sides of Ditches, to the End they may have the Benefit of the Moiſtneſs of the Water to nouriſh them. Let the Sets be buſh'd about, to keep them from the Injury of Cattle for three or four Years, and keep 'em clear from Suckers that will ſpring out in the Bodies, which hinder their Heading.

The beſt Way to ſet them is in Boughs, and at about five Foot aſunder; but the Oſiers are to be thruſt in the Banks cloſe to the Water-ſide, and at about nine Inches Diſtance.

Mr. *Mortimer* ſays, that the Holly is to be preferr'd before any other Fence, were it not of ſo ſlow Growth, and for the Difficulty of getting it to grow at firſt; but then it makes Amends by its Thickneſs, Strength and Height. 'Tis raiſed by Sets or Berries, like White Thorn, and lies the ſame time in the Ground before it comes up. It will grow upon the drieſt Gravel, or amongſt Stones or Rocks; and it delights moſt in light Grounds. If you raiſe it by Plants, let them be about the Thickneſs of your Thumb. Plant them in a moiſt Seaſon, in Autumn, or in Spring, and take particular Care to ſhade them well with Hawm or Straw, and water them till they begin to ſprout. If any of them ſeem to periſh, cut them cloſe to the Ground, and they will ſpring from the Roots. Keep Sheep from them, which are very deſirous of cropping the young Shoots; and dig about their Roots, which will very much help their Growth; but by no means lay any Dung near them. The beſt Way of planting of them is to mix them with the White Thorn, and to let every fourth or fifth Set be a Holly, by which means they thrive beſt, and afford a ſpeedy Fence. As the Holly grows you may pluck up the Quick, and, if need be, encreaſe the Thickneſs of the Holly, by laying of Layers from it. Some propoſe to take a well-rooted Set, of a Yard long, and ſtrip off the Leaves and Branches, which, covered with a competent Depth of Earth, will ſend forth innumerable Quantities of Suckers, and quickly make a Hedge. Holly may likewiſe be raiſed of the Berries. Its Timber bears a great Price with the Cabinet-makers, when large, for Inlaying, it being the whiteſt of all hard Woods.

Where you have any thing of a good Soil, you may take Elder-Sticks, or Truncheons, ten or twelve Foot long, and ſtick in your Bank ſlopewiſe each Way, ſo as to make a Chequer-Work; it will make the ſpeedieſt Fence, and the quickeſt Shelter for Gardens of any whatever. 'Tis a Wood very uſeful for Turners and Inſtrument-makers, vying even with the beſt Box, and for many Uſes excells it. This makes an extraordinary Fence againſt Rivers and Streams, and preſerves the Banks from being undermined by the Water, becauſe 'tis always ſending Suckers from the loweſt Roots, which makes it very uſeful where Streams wear away the Banks, and are widening of their Courſe.

Where there are old dry Banks, or ſuch a dry Sand or Gravel that nothing elſe will grow on't, the Furz is an extraordinary Fence. 'Tis raiſed by Sets or Seeds; but the firſt are the beſt for raiſing it, eſpecially the *French* Furz, that grows to the Height of fifteen or ſixteen Foot, and is not ſubject to run into the Ground, or to ſpread like the common Sort. It will make a Hedge in three Years time, if well weeded, and carefully kept from Cattle, eſpecially Sheep, who are great Devourers of it, till 'tis of ſome Bigneſs, and then nothing can hurt it. If 'tis clipp'd, it will do very well, and be very thick; but if let grow at large, it will be the better Shelter, and yield excellent Fuel.

Some are of Opinion, that Encloſures do occaſion Mill-dews and Blaſtings; but that is a vulgar Error. 'Tis true, Wheat is ſubject to it, both in Champion and other Countries, as well as in *Encloſures*, in moiſt Years, and on rich Grounds.

Directions for Planting the Quick.

FIrſt, You are to conſider the Nature of the ſeveral Sorts of Land you deſign to plant it in, as whether it be Clay, Sand, Gravel, *&c.* and what Sorts of Plants will beſt agree with each Sort of Soil, and likewiſe the Soil you have your Plants from, and whether they are raiſed upon worſe Land than you deſign to plant them in, or elſe it will be more difficult to get them to grow well, and likewiſe the Manner of Planting them: But generally as the ſame Method is uſed in planting of one Sort of Quick as is with all the reſt, we ſhall deſcribe only that of the White Thorn, as being the common Sort that is moſt uſed. Let the Sets be about the Bigneſs of your Thumb, and cut within four or five Inches of the Ground; and if you deſign your Quick only for a Hedge without a Bank or Ditch, let them be ſet almoſt perpendicular in two Rows, at about twelve Inches Diſtance from each other; but if you make a Ditch and Bank, mark your Ditch out a convenient Breadth with a Line, and on that Side you intend to make your Bank, lay Turf, with the Graſs-ſide downward, upon which lay ſome of your beſt Mould to bed your Quick in, and lay your Quick upon it, ſo as the End of it may be inclining upwards, laying them about twelve Inches aſunder; and be careful to procure thoſe that are freſh gather'd, ſtrait, ſmooth and well rooted, adding now and then, at equal Diſtances of about thirty Foot, a young Oak, Aſh, Elm, or Crab, to grow up with the Quick. The firſt Row of Quick being laid, cover it with more good Mould, laying a Turf as before, and ſome Mould upon the Turf, ſo as that when the Bank is about a Foot higher, you may againſt the Spaces of the lower Quick lay another Row of Sets, which cover as the former, and top the Bank with the Bottom of the Ditch, upon which ſet the dry or dead Hedge to defend and ſhade the Under-Plantation. The Stakes are drove into the looſe Earth at two Foot and a half Diſtance, ſo low as to reach the firm Ground. Oak-Stakes are reckon'd the beſt, and Black Thorn and Sallow next. Let the ſmall Buſhes be laid below, but not too thick, only a little to cover the Quick from the Biting of Cattle when it ſprings, and the long Buſhes at the Top to bind the Stakes in, by interweaving of them, and to add a farther Strength to the Hedge you may edder it, that is, bind the Top of the Stakes in with ſome ſmall long Poles or Sticks on each Side; and when the Eddering is done, let the Stakes be new drove, becauſe the Waving of the Hedge and the Eddering are apt to looſen the Stakes. The Quick muſt be conſtantly weeded, and carefully kept from Cattle, eſpecially Sheep; and if you do not find it ſhoot well, or that it ſhould happen to be cropped with Cattle, cut it in *February* within an Inch of the Ground. This will cauſe it to ſtrike freſh Root, and often help it much in its Growth.

But if Regard be to be had to the Laſtingneſs and Goodneſs of Bank-Fences, they are the cheapeſt, and are made by digging ſome Turf about a Spit deep, of the Breadth of the Spade, and four or five Inches thick, in a graſſy Place, which, with the Graſs outward, are to be laid even by a Line on the one Side, and another Row is to be laid on the Backſide of them, leaving a Foot Space of ſolid Ground on the Outſide, to prevent the Bank from ſlipping in, if the Ground ſhould be any way faulty. A Ditch may be made as deep and broad on the Outſide as you pleaſe, and the Ground be lower'd with a ſmall Slope two Foot deep on each Side. You are to fill the Middle of the Bank level with the Turf on each Side with the Earth that comes out of the Ditches, and to lay two more Rows of Turf upon the firſt, and fill it again as before. This muſt be done till the Bank is four Foot, or higher, if you pleaſe; only let the Foundation be ſomething broader, if you make it higher; and you muſt obſerve on each Side to give a ſmall Slope to the Bank, ſo as to make the Top about three Foot wide, upon which plant your Quick, making of the Top a little hollow, to keep as much of the Rain to the Quick as you can, and plant your Quick about a Foot or more in Depth. By this you will have a Fence ſix Foot high, beſides the Hedge on it, which will (except in a very dry time) be always green on both Sides like a green Wall, and make not only a pleaſant Fence, but what will keep all Sorts of Cattle within their Bounds, and the Quick that you plant upon it will grow much better, than if planted any other way; and if any die, you may renew it when you will, or fill the Spaces by Layers from thoſe that do grow, and the Roots of the Graſs will bind the Turf ſo together, that in one Year's Time it will entirely become ſolid, that you cannot ſee the Joints, nor get one of the Turf out; and it will be much ſtronger when the Roots of the Quick come to bind it together too; only you muſt take care, on or near the Top at the firſt making of it, on each Side you ſet a ſmall Hedge of about a Foot high, to prevent the Sheep from running up it; and that you do not make it when the Earth is too dry, becauſe, if a great deal of Wet ſhould ſuddenly follow, 'twill cauſe the Earth to ſwell too much, and by that means may ſomewhat indanger the Falling of ſome of the Outſide; but if it ſhould, 'tis eaſily repair'd. This Fence, in good digging Ground, where Men work for fourteen Pence a Day, may be made and planted with Quick for two Shillings a Pole; but if you deſign it a Fence to keep in Deer, at every eight or ten Foot Diſtance ſet a Poſt, with a Mortice in it, to ſtand a little ſloping over the Side of the Bank, about two Foot high; and into the Mortices put a Rail, which a Bough of a Tree or any thing will make; and no Deer will go over it, nor can they creep thro' it, as they do often when a Pale tumbles down. The Quick on this Bank you may keep clipp'd, which will make it a fine Fence, and 'tis one of the beſt Fences to afford Shelter for Cattle. *Mortimer.*

Of Meadow and Paſture-Grounds.

MEadow and Paſture-Grounds are of two Kinds, *viz.* Wet and Dry. The Wet are properly called *Marſh-Grounds*, being thoſe that are ſubject to Overflowings, as well Naturally as Artificially, by the Help of Engines. The Dry Meadows are ſuch as are Up-lands, and, by reaſon of their Encloſures, are ſubject to Improvements, by propagating of new Graſſes, or Hays, as the Clover, Trefoil, Sainfoin, *&c.* of which in Order.

Of Marſh, or wet Meadow-Grounds.

WET Meadows may be conſider'd under three diſtinct Heads: Firſt, Such as lie near the Banks of Rivers on a Flat, and have the Benefit of Overflowing by Land-Floods. Secondly, Such as lie near Rivulets, and may be overflown by ſtopping the Current, and turning it upon them: And, Thirdly, Such Grounds as lie above the Surface of the Water, and are overflown by the Help of Engines to raiſe up the Water, and caſt it upon them. All which Sorts of Ground are very improveable by Overflowing, eſpecially by the firſt, as leaving a more fattening Subſtance behind; ſo that the Charge and Trouble of Dunging ſuch Grounds may be ſpar'd. The great Inconveniency of theſe Lands is, their being ſubject to Summer-Floods, which high Hills near the Sides of the Rivers, and the long Courſe of 'em beſpeak to be frequent: And though the richeſt Land is commonly near ſuch Rivers, yet there is the moſt Danger of the Crop's being ſpoil'd, eſpecially where they are not incloſed, that they may be fed with Cattle, which is by much the ſafeſt Way of managing theſe uncertain Lands, eſpecially if feeding Cattle bears any thing of a Price. But for thoſe that cannot be overflown without the Help of Engines, the Manuring is very profitable; for upon ſuch the Water is made uſe of chiefly in a dry Seaſon; yet, were they overflown about a Month or five Weeks before Mowing-time, the Advantage would be ſufficiently found by the great Burthen of Graſs, eſpecially if it prove a dry Seaſon. Alſo to overflow them after Hay-Harveſt will produce a ſecond Crop, or make excellent good After-Paſture, recompencing the Labour in a Tenfold Manner. But by the way of Caution, let not the Water lie on the Grounds, if poſſible, above forty eight Hours; for if it lieth too long it chills the Ground, and doth far more Hurt than Good. Therefore your Grounds muſt be ſo order'd by Rillings, to carry off the Water into Diches, and thoſe Ditches to convey it into Rivers; and for the better performing the ſame, the Rills and Ditches muſt always be kept open, ſcour'd, and in good Order.

There are ſeveral Sorts of Engines to be uſed for the Overflowing of Grounds, as the *Perſian Wheel*, ſo called, as being there firſt uſed, and is now very common in *Italy*, *Spain*, and *France*, and draws up great Quantities of Water. This Engine is to be placed near the Banks of Rivers.

But although this Invention, as indeed the Wind-Mill Engine, and ſome others, are of good Uſe; yet of late Years there are others of far more Worth and Excellency for this Purpoſe, invented by that ingenious Gentleman Sir *Samuel Moreland*.

Rules to be obſerved in Overflowing of Grounds.

THE Water being raiſed to the deſigned Height, let the main Carriage be cut, allowing it a convenient Deſcent, to give the Water a fair Current all along: Alſo let the Mouth of the main Carriage be of Breadth rather than Depth, ſufficient to receive the whole Stream deſired; and when you uſe but a Part of the Water, let the main Carriage grow narrow by Degrees, unto the end the Water may preſs into the leſſer Carriages that comes from the Main.

At convenient Diſtances, and where the Ground riſeth, ſmall tapering Carriages ſhould be cut proportionable to the Diſtance and Quantity of Water, and Land; for although it ſeemeth to waſte Land by cutting ſo much Turf, yet it proves otherwiſe, for the more nimble the Water runs over, the Graſs is the better, which is occaſion'd by making many Carriages, and thoſe very ſhallow.

The Drains muſt be ſo made, as to carry off the Water the Carriage brings on; for as the leſſer Carriages convey the Water to every Part of the Land, ſo muſt the leſſer Drains be made amongſt the Carriages in the loweſt Places to convey away the Water, which muſt widen as they run, and the Carriages be leſſen'd; for if the Water be not well drain'd off, it proves very prejudicial to the Graſs; for in the Winter it killeth it, and in the Spring, or Summer, it obſtructs its Growth, and breeds Ruſhes and Weeds.

Mr. *Mortimer* ſays, The beſt and cheapeſt Engine for overflowing the Land is the *Perſian* Wheel, which may be made of what Bigneſs you pleaſe, according to what Height you would have the Water raiſed, and the Strength of the Stream that turns it. At *a a a*, *&c.* as in *Plate* 1. *Fig.* I. *p.* 256. are ſeveral Boxes ſet round the Wheel that turns it, and raiſes the Water: At *Fig.* II. is a particular Deſcription of the Boxes as open, the flat Side of which is turned againſt the Stream: *C* ſhews the Side that dips the Water, and at *D* is the Place where the Water runs out when the

Wheel comes to the Height of *E*, at which Place is a Trough at *F* to carry the Water off; and where Streams are not to be had, the Wind is made uſe of for the ſame Purpoſes to work Pumps, and other Engines: But as Lands near unto, or bordering upon Brooks, or ſmall Rivers, admit of greater Falls and Deſcents, than bigger Rivers do, which commonly run more ſlow and level; ſo they do often give Opportunity for theſe Improvements, whereas the other doth it very rarely; but when it can be effected, large Streams make the richeſt Lands, becauſe the large Rivers are uſually the fruitfulleſt.

Times of Overflowing.

SOme graze their Land till *Chriſtmas*, and ſome longer; but as ſoon as 'tis fed bare, from *Alhallowtide* to Spring, that the Graſs is not too high, is the beſt Time for Overflowing, except it prove a dry Time in *April*, or *May*. If it do, it will be of mighty Advantage; for in hot Weather the Graſs grows three times as faſt, if moiſten'd, as at other times. Land-Floods are beſt to overflow with in Winter, and warm fatning Springs in Summer; only you muſt obſerve to let the Water dry in before you water it again, and not to let Cattle poach it; and that you water it at Night, ſo as the Water may be gone before the Heat of the Day comes, which is apt to occaſion the Scorching of it, and to rot the Roots of the Graſs, by lying too long on the Land. The Waſhings of High-ways, of Towns, or Streets, eſpecially of Commons, where Sheep feed, is a very great Improvement of Land or Trees. But you are deſired to take notice, that there are Springs in ſome Places, whoſe Waters are injurious to Land, as ſuch uſually are that flow from Coal-Mines, or any ſulphureous Mineral, becauſe they are of ſuch a brachiſh harſh Quality, that they kill Vegetables, inſtead of nouriſhing them, as too much Salt, Urine or Dung will do, if not applied in due Quantity. Yet Mr. *Mortimer* is of Opinion, That even theſe Waters would make a great Improvement, if ſparingly uſed, and in wet Times, that a great Quantity of other Water might mix with them. Theſe Waters are commonly of a reddiſh Colour, and have a reddiſh Sediment where they run, and are much better when they have run ſome Diſtance, than at their firſt breaking out. He adds, That ſome Sorts of Lands will not be improved by Watering, except with Land-Floods, and in Summer, when it is a very dry Time, as cold Clay, and ſtrong Lands that lie very flat, partly becauſe of their cold Nature, and partly becauſe of their Flatneſs, and becauſe Water will not eaſily penetrate ſtiff Clay; and therefore light, dry, warm Grounds are the moſt improved by Watering.

Of Boggy and Fenny Lands, Sea-marſhes and Breaches.

OUR Author having no ways touched upon theſe Particular and Uſeful Heads, we are beholding to Mr. *Mortimer* and others, for ſome Account of them: Thoſe that lie between Hills, that commonly have a Deſcent enough to drain them are properly Boggy Lands, being fed by Springs, pent by a Weight of Earth, that dams in the Water, and makes it ſpread ſo far as the Earth is ſoft, in the Ground. You muſt therefore obſerve where your loweſt Place is, and what deſcent you have, that ſo you may cut through the Earth deep enough to take all the Water away from the Bottom of the Bog, a Spit below the Springs, or elſe your Work will be but of little Value. In ruſhy Grounds the Springs are moſt commonly found at the firſt or ſecond Spit, where any thing of ſmall Gravel or Stonineſs is to be found, and ſometimes lower in a hungry Gravel: But 'tis always lower in boggy Land than ruſhy, and is deep according to the Weight of Earth that penns it in. The beſt Way is to begin the Drain at the loweſt Place, and ſo to carry it into the Bog towards the Spring-head, where you muſt make ſuch Trenches, either round or croſs the Bog, as you ſhall find neceſſary to drain it throughly. If your Drains be deep, that you fear Cattle falling into them, fling in Stones and Brick-bats, and cover them with Wood, Flags, Turf, and the like, laying the Earth upon it again: But whatſoever Drains or Trenches you make that you leave open, never lay your Earth on Heaps by the Sides of them as moſt do; but let it be flung as far from it as you can, or ſpread in low Places that are near, if your Trenches are ſmall: But where large, and the Work is not too great, carry it away where the Ground will allow of it.

Fenny Lands are of two Sorts: Firſt, Thoſe that are only drowned by Up-land Floods and great Rains, and are very large, and upon great Levels, that the Water cannot run off from them: Secondly, Thoſe that are conſtantly wet, but in dry Times are ſhallower than in wet. In draining of either of theſe, you muſt conſider two things, Firſt, The laying of them perfectly dry, which can only be effected by the Way before propoſed for the draining of boggy Land; or Secondly, Only the taking off from them Land-floods, Rains, *&c.* that fall on them: The one makes a perfect Cure, and the other only makes the Land ſerviceable in dry Times, and leaves the leſs Water for the Sun to dry up. And therefore you muſt conſider the loweſt Part of the Land, and take care to carry off the Land-floods and Streams that way, before you attempt any thing of a through Draining, leſt your After-coſt and Labour prove unſucceſsful: Which Point if you can gain, make your main Drains wide and deep enough to carry off the Water from the whole Level, and as ſtraight as you can, carrying all your ſmall Drains into the middle Drain, which is the Main of the Work; always obſerving to keep your Drains largeſt at the Mouth, and to narrow 'em by degrees, as they run more up into the Lands: Theſe Drains ſhould always be kept cleanſed in Spring and Autumn from Mud, Weeds, *&c.* And though the Land-floods are a great Improvement of any Land where a Vent can be had for them; yet where you cannot have it, becauſe of the Waters meeting with a full Stop, ſo that it muſt be raiſed with artificial Engines; the beſt Way is to turn all the Water you can from it, and to meet the Land-floods upon the higher Grounds where they may be taken ſo as to be carried into Rivers and Channels that lie higher than the Level of the Fens, that ſo you may have the leſs Water to raiſe with Engines; the beſt Sort for this purpoſe, is the following Wheel, much uſed in *Lincolnſhire* to drain the Fens, which is turned with large Wind-mill Sails, and are made proportionable to the Strength that is to turn them. See *Plate* I. *Fig.* 2. *p.* 256. 'Tis a vaſt Quantity of Water that their Turning will row along upon a flat, where the Water is not to be raiſed any Height, the Spokes being made broad, and ſet a little ſloping the better to row the Water, as you may ſee in the Figure, which Spoaks are exactly fitted to move between two Boards; but when they are to raiſe the Water any ſmall Height above the Level, the Spoaks are made hollow like Scoops, and ſet ſo as to deliver the Water at that height; but if the Place requires the caſting of it over a Bank that is of any great height, the End of the Spoaks are made like Boxes; which as the Wheel riſes lets the Water run into the Circle at *a*, which is made hollow to receive it: And a Chanel being made on the Back of the Spoaks delivers the Water at *b*, as the Wheel deſcends. If any Dryneſs appear on the Surface of the Levels, and that there are Springs left, ſearch for them; and when you have found them, order them after the ſame manner, as you were to order the boggy Land: But if any ſmall Hollowneſſes remain that do not dry, you need not trouble your ſelf about them, if there be no Springs in them that may cauſe their over-flowing in Winter.

They have a very good Way in *Eſſex* of draining of Lands that lie below the High-water, and that are ſomething above the Low-water-mark; that have Land floods or Fleets running through them, which make a kind of ſmall Creek. They firſt incloſe theſe Lands from the Sea, with a Bank which they make from one Side of the Land they deſign to take in, to the other, except a Space that they leave, where the Creek or Land-floods run into the Sea: This when they begin to ſtop, they do at once with a ſtrong firm Head; only according to the Quantity of the Water that they have to vent, they lay in it ſeveral ſquare Troughs which are compoſed of four large Planks of the ſame Length that they deſign the Thickneſs of the Head to be, and towards the Sea is fitted a ſmall Door which opens when the freſh Water bears upon it, and ſhuts when the ſalt Water riſes, as may be ſeen in *Plate* 1. *Fig.* 3. that End where the Door is being put next the ſalt Water.

Sea Marſhes are commonly very rich Land: But as they lie uſually very flat, 'tis neceſſary to keep all the Water you can from coming upon them; eſpecially that of the Sea, which is many times done at great Charges, according to the Length, Breadth, and Heighth of the Walls, which muſt be proportionable to their being expoſed to the Waves of the main Sea, or of a broad or narrow Creek or River, and of the Riſe of the Tide. Two main things that are commonly wanting in theſe Lands, are good Water and good Shelter; which may be helped in many Places by making of good Ponds to hold the Rain-water, and by planting of Trees and Hedges, which in moſt Places would be of great Advantage to the Graſs to ſhelter it from the Sea-breezes; which often in theſe Lands, in the Spring, will cut off the Tops of the Graſs, as if mow'd, eſpecially in the Northern-parts. Theſe Lands fat Cattle the ſooneſt of any, and preſerve Sheep from the Rot: But they would be much better for all Sorts of Cattle than they are, if they were better ſheltred with Incloſures; or for want of being able to do that, with Banks made croſs-wiſe, or in the Form of two half Circles.

As for Lands over-flowed by Sea-breaches, ſeeing too much of Salt kills all ſorts of Vegetables, make Trenches as ſoon as the Breaches are ſtopped, and as ſoon as you can draw off the ſalt Water into ſome low Place, where you may caſt it into the Sea over the Bank with an Engine, or otherwiſe, or elſe into ſome waſte Ground; except it be ſo little in Quantity as that the Sun will dry it up, and lay as much Earth or Mould upon it as you can, to abate the Saltneſs of the Earth, ploughing it Three or Four Years, to let the Rains ſoak into the Land to freſhen it.

Of Dry Meadows, *or* Paſtures, *and the Improvements to be made thereon.*

MAny good Meadows are ſpoiled by being peſtered with Ant-Hills, Shrubs, Fern, Broom or Goſs; inſomuch that good Part thereby is loſt, and cannot be mowed, and that which remains is not ſo beneficial as if mown, or fed together. For the clearing the Ground of ſuch Annoyances, Mr. *Prat* hath invented an ingenious Inſtrument, which ſomething reſembleth a three Toothed Dung-Fork, but much larger and ſtronger, the Stalk thereof being like a large and ſtrong Leaver; which Inſtrument ſet about half a Foot diſtance from the Root of the Shrub, then with an Hedging-Beetle drive it in a good Depth, and ſo force it up by the Roots.

For deſtroying Ant-Hills, being provided with a ſharp Paring-Shovel, divide the Turf on the Top into four Parts or Quarters, laying them open ſeveral ways; then take out the Core, which ſpread on the Land, and lay the Turf again neatly in its Place, but a little hollowing or ſinking in, that is, lower than the Surface of the Earth, ſo that at the Beginning of the Winter, the Water ſtanding therein will deſtroy the Remainder of the Ants, and by the Spring ſettle the Turf.

In Cold, Moiſt, Claiy, Spewy, Moſſy, or Ruſhy Ground, where the Paſture, or Hay is ſowr and ſhort, about *July*, or *Auguſt*, cauſe the Turf to be pared off and burnt, as hereafter ſhall be directed, and plough it up; and in the Spring let it be ſown with Hay-Duſt, or with Corn and Hay-ſeed mixt together, which will cauſe a great Fertility, and alter the Nature of the Ground.

The beſt Seaſon for Dunging of Meadows is in *December*, *January* and *February*; for in theſe pluvial Months, the Fatneſs of the Soil will be waſhed to the Roots of the Graſs, before the Sun drieth it away; and for the breaking the Clods uſe a large Wad of Buſhes, to draw over the Ground with a Horſe in the nature of an Harrow; and what Stones are in the Dung cauſe to be gathered off the Ground, for they do not only hinder the Growing of the Graſs, but endanger the ſpoiling the Scyth in the Mowing it.

For ſuch Grounds that are Sandy, Hot, and Dry, the beſt Manuring is Marl, Chalk, Lime, or the like Cold Soils; and for Cold, Ruſhy, Spewy, and Moſſy Land, uſe Aſhes of Wood, Turf, or Sea-Coal; alſo Pidgeons Dung, and all Hot and Sandy Soils; and betwixt theſe two Extreams, *viz.* Hot and Cold, the common Dung made by Horſes and Cattle may be beſtowed upon the Grounds betwixt both.

Of the ſeveral Kinds of Graſs and Hay.

Clover Graſs.

THere are ſeveral ſorts of Clover, but the beſt, ſays our Author, is that which is brought from *Flanders*; but Mr. *Mortimer* will have the *Engliſh* Seed to be the beſt, and the choiceſt is that of a greeniſh Yellow, ſome of it a little Reddiſh, and bears the great Red Honey-Suckle, having a ſmall Seed about the bigneſs of Muſtard-ſeed, and the beſt is of the greeneſt Yellow Colour.

The beſt Way to Sow this Seed, is to mix it with Aſhes, Sand, fine Duſt, or the like, that will help to fill the Hand, the Seed being ſo ſmall, and therefore not ſo well to be ſowed of an exact thickneſs in all Places of it ſelf; yet good Seedſmen will do it well alone, and then it is beſt: Alſo obſerve in ſowing it, to chuſe good Calm Weather.

The Seaſon to ſow it is in the Beginning of *April*, or latter End of *March*, if it be likely to prove a Dry Seaſon; and you muſt allow to an Acre about a Gallon, or Nine or Ten Pound; ſome ſay leſs, but you had better over than under ſeed it. The Land muſt be brought to a good Tillage, then ſow firſt your Corn, cauſing the Ground to be well Harrowed, and then the Clover-Seed, harrowing it with a Buſh to cover it over with Earth; for if you ſhould do it with Harrows, the Corn would be raiſed up, and ſo ſpoil the Crop. Be ſure to be provided with good New Seed, otherwiſe your Crop will be but indifferent, and there is great Deceit uſed in it by many Seedſmen.

This Graſs is ſaid to be ſo profitable, that it will produce three or four Crops in a Year, that is, three to mow, and one to feed; the firſt Crop may be cut in Mid *May*, which ſhould be cut Green, and before the Stalk begins to grow too big, as alſo too dry and withered, unleſs it be kept for Seed, and then it muſt be quite ripe, otherwiſe the Seed will be hard to threſh out. Mr. *Mortimer* ſays, the exact time for cutting Clover, is when it begins to Knot; that ſome after two Crops, mow two more before Winter, but that having ſeldom good Weather enough to make the laſt well, 'twill be beſt to be content with one more. Now for your Directions to know when the Seed is ripe, the Stalks will die, and turn of a Yellowiſh Colour; but if you intend any for Seed, the beſt is the ſecond Crop, about *July*: When the Seed is Threſhed out, the Straw is good for little except the Fire.

Some are of Opinion, that the Clover will grow on any Barren Ground; but by Experimental Knowledge it is found otherwiſe, and that the richer and better the Ground is, the better will be the Clover; therefore ſow it not upon Heathy Barren Ground.

As to the Profit made of Clover-graſs, an Acre of Ground (after the firſt Year, if it be well Huſbanded, and good kindly thick Clover) may be worth Fifteen, or Twenty Pounds *per Annum*; for the two next Years, and as it degenerates and becomes weaker, it is leſs Worth, nor will it laſt above five Years. An Acre of Ground (if fed) will keep four Cows all the Year at Paſturage, which is a great Advantage. After the Strength of the Clover is gone, which will be after four or five Years, the Ground will be very fit and good for Corn for two or three Years, and then it may be applied for Clover again. It is not fit to let Cattle that are not uſed to this Food eat too liberal of it at firſt; for it being ſo ſweet and luſcious, will ſurfeit them; ſo that the beſt way is to cut it, and give it them in Racks, as they do in *Flanders*.

But Mr. *Mortimer* ſays, That to prevent the Cattle's Burſting, ſome give them Straw with it, and ſome ſtint them as to Quantity; but the beſt way is only to turn them into it the firſt Day about Noon, when the Dew is off, and in a dry Day, for about half an Hour; the next Day for an Hour; the third Day for Two; and then for Three or Four Days put them in as ſoon as the Dew is off the Ground, and let them ſtay in till Four or Five a Clock in the Afternoon, and after that there will be no danger, eſpecially if 'tis not too wet Weather: If 'tis, be the longer before you let them ſtay in all Night. But ſome Sow Trefoil or Ray-graſs with their Clover, which very much prevents its doing of Injury to Cattle; and as 'tis a Graſs that grows very upright, it ſhoots through the Branches of the ſpreading Clover, and makes the Crop much better. Clover in like manner is good for Hogs and will fatten them.

Your Clover being preſerved dry, about the midſt of *March*, Thraſh it, and cleanſe it from the Straw as much as you can, and beat the Husk again; being very well dried in the Sun after the firſt Thraſhing, get what Seed you can out of it, and after you have Thraſhed it, and chaved it with a fine Rake, and dried it well in the Sun again, if you rub it you may get out a great deal more: Some get above two Buſhels out of an Acre, a good Thraſher can Thraſh out but about ſix Gallons in a Day. Some ſay that the beſt way of Sowing it is in the Husk; but 'tis ſomething difficult to Sow that way. The Seed of Clover will grow as well at two Years old, as at the firſt. If one could get an Account from *Flanders* how they Thraſh their Clover there, it would be of great Advantage for the Propagation of it.

An Acre of Clover may produce three or four Buſhels of Seed, and about three Pecks is a good Day's Work to Threſh.

Sain-Foin.

THE Soils proper for this Graſs are Barren, Dry, Stony Grounds, hardly fit for Corn, or Graſs; but all Clays, and other Cold, Wet Grounds, bear it not. There is ſuch great Improvement made by this Seed, that Grounds not worth 2 *s*, an Acre, may be made worth 30 or 40 *s*.

The Seaſons for Sowing it are in *Autumn*, from the Beginning of *Auguſt* until the End of *September*; and in *Spring*, from the Beginning of *February* until the End of *March*: And the Earlier it is Sown in either Seaſon, the better it is. 'Tis a large and light Seed, and there muſt be Sowed four Buſhels to an Acre.

In *Autumn* the Tillage muſt be as if for Wheat fine Ploughed, and alſo as well Harrowed; and then Sow it, and harrow it again to cover the Seed. In *Autumn* it muſt be always Sowed alone without Grain; but in *Spring* with Oats, or Barley, Sowing the Corn but thin. In *Spring* the Huſbandry muſt be the ſame in all reſpects as for Summer Corn, and it muſt be Sown as before directed.

New Broken Ground can't be Sown with it; but if the Ground be preſently turned up after the Crop is off, and well Harrowed, it may be fit to Sow the Spring following.

The Ground ſown with this Seed, muſt be well fenced in, and ſecured from Cattle the firſt Year; the ſecond Year it may be Mown, and fed about *Alhallontide*; but when the Weather is wet, the Cattle ſhould be taken out for fear of ſpoiling the Roots until they be ſtrong, which will be the third Year; and if it be not of a ſufficient growth to Mow the ſecond Year, (as ſometimes it will not) then feed it, obſerving the former Caution not to let the Cattle too much trample it, until the third Year. But always after (as long as it laſts which may be Thirty Years) it may be either Mown or Fed at Pleaſure, without any Emendation of Dung. But it is beſt to be ſometimes Mown, and ſometimes Fed; when it is deſigned to be Mown, it muſt be laid in about our *Lady Day*; and it will be fit to Mow in the middle of *May*, when it begins to Flower: It is made in all reſpects as other Hay, and is very good for all Cattle (except Sheep) as being too groſs for them, breeding ſtore of Milk; and in the Winter Seaſon 'tis good for Sheep, fatning them very ſpeedily.

Trefoil, or Nonſuch.

THis Graſs is of the Nature to grow upon the pooreſt Land that is; and although quite worn out by frequent Tillage, yet will produce good and profitable Crops of Graſs, and all Land naturally kind for Corn, and unkind for Graſs, is kind for Trefoil.

The Paſture is very good for Cattle, eſpecially for Cows, cauſing great Increaſe of Milk; and the Hay is as Nouriſhing and Fatning, provided it be Mowed and made in good Seaſon, whilſt it is full of yellow Bloſſoms, and not over-dried, being ſoon made; and then it will not loſe its Colour, nor ſhrink in making as the Clover-graſs doth, being much finer and greener. It is alſo exceeding good for Ews and Lambs, it being a ſound Feeding, and free from Rottenneſs; nor is it ſubject to ſurfeit the Cattle as the Clover; and therefore it is very good, for preventing this Miſchief, to mix in the Sowing one Moity of this Seed with another of Clover, which thrive very well together, and afford both good Hay, as well as Paſturage.

The Trefoil will endure much longer if it ſtand not for Seed, for that is Deſtructive to the Root, and the Sap is gone that ſhould nouriſh it; becauſe it muſt be cut late, and in the Heat of Summer, always provided the Ground be Sown with clean Seed, ſeparated from the Husk wherein it grows, otherwiſe your Expectation will fail in every Point; for if it be not, it is impoſſible to cleanſe it from the courſe and ſour Graſs which mixes with it; and is ſo deſtructive to the Trefoil, that it will not laſt half ſo long; for as the courſe Graſs encreaſeth every Year, ſo the other decreaſeth. The next Year after the Corn, it may be either Fed or Mown.

The beſt Seaſon for Sowing this Seed, either with Oats or Barley, is from Mid-*March* to the End of *April*; and it muſt be Sown after the Corn, as before directed for the other Seeds, and afterwards finely Harrowed, and Rowled. About a dozen Pound of Seed is ſufficient for an Acre.

Whereas Land that is brought out of Heart by frequent Tillage, produceth Couch-Graſs, Twitch, and the like Weeds, that are great Enemies to the Corn, and impoveriſh the Land; this Trefoil doth enrich the Ground, and prepares it for Corn, deſtroying the Couch-graſs, and the like Weeds if it be kept Mowed, and Ploughed again before the Trefoil be decayed, and other Graſs grow up in the Room; and will likewiſe bear far better Corn than before: And when it is again worn out, will bear good Trefoil as before.

Ray-Graſs.

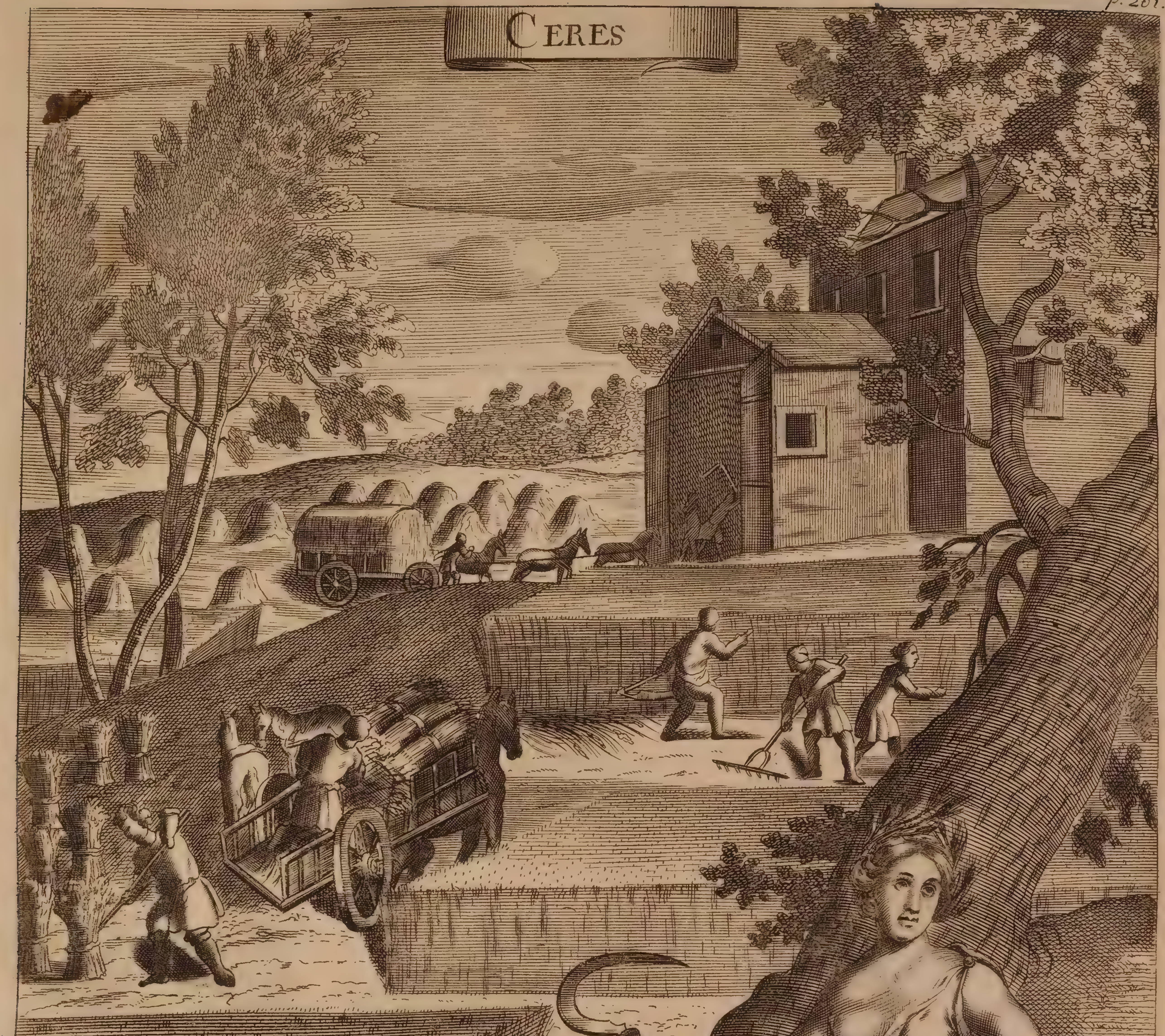
THis is reckon'd to grow on any Land, but chiefly in Cold, Sowr, Caiey and Weeping Grounds. It endures the Summer-droughts, and the Winter-froſts, being the beſt of Winter-foods, and ſprings the earlieſt of any. The ſhorter it is fed, the better. There can be no danger of over-ſtocking of it, becauſe if left to grow too rank, the Stalk is apt to grow Hard and ſticky. 'Tis beſt for Horſes and Sheep, and very much prevents the Rotting of the Latter. Some Sow two Buſhels on an Acre; but the beſt Quantity is three Buſhels, where they Sow it with Clover, which is the beſt way of Sowing it. Where Land is proper for it, they Sow eight Pounds of Clover, and one Buſhel of Ray-graſs upon an Acre. It will laſt upon ſome Lands ſeven or eight Years. Some Mow it for Hay, and Thraſh out the Seed, which commonly yields, about *London*, from two Shillings Six-pence, to three Shillings Six-pence *per* Buſhel. Some tell you of five Quarters being got off of an Acre. If Ray-graſs ſeed be cut ſomething green, it makes the beſt Hay, and the Seed will grow, but not ſo well as if ripe; but you muſt take care, if the Seed is newly Thraſhed, that it do not lie thick, becauſe it will Heat.

La Lucerne.

FOR Sowing this Seed, obſerve the ſame Method in ordering the Ground as for the other Seeds. It muſt be ſown about the Middle of *April*, and ſome Oats may be ſown with it, but not ſo great a Proportion as with other Seeds. The Land muſt be well Dreſs'd, and at leaſt three times Fallow'd. It may be Mown twice every Year, and Fed all the Winter; The Hay if well made and ordered, is very good for all kind of Cattle, eſpecially for Horſes; and is good to fat Store Cattle. It muſt be given with Caution at the firſt, as directed for the Clover, for fear of Surfeiting, ſo that it is beſt to be mixed with Straw or Hay. An Acre will ſerve three Horſes all the Year at Paſturage; and will ſoon raiſe them to Fleſh, and make them Fat.

If it be Mown but once a Year, it will hold Ten or Twelve Years, but if twice a Year not ſo long.

There are ſeveral ſorts of other Graſſes, but theſe being the chief, I ſhall omit the reſt, only to ſay that Hop-clover, Trefoil, or Three Leav'd Graſs, are both finer and ſweeter than the great Clover-graſs, and will grow in any Ground. They may be Sown with Corn as before directed, or without, or being Sprinkled in Meadows will much mend the Hay, both in Burthen and Goodneſs.



To the Worſhipfull Thomas Fawkes
of Farnley in the Weſt riding
of Yorkſhire Eſquire
This Plate is humbly Dedicated by. Richard Blome.

Of the Making of Hay.

WHat Up-lands you deſign for Mowing, ſhut up the Beginning of *February*; but your low Meadows and Marſh-lands you need not lay up till *April*, except the Spring be very wet, and your Marſhes very poachy. Many feed them till the firſt of *May*, eſpecially thoſe that are in danger of over-flowing. In the Spring let all the Sticks, Stones, and other Trumpery, be picked up, and the Mole-caſts ſpread, becauſe they will elſe hinder the Mowers: And if your Meadows lie any thing un-even, or have been poached in Winter, rowl them with a large wooden Roller; then the Mowers will be able to cut much the cloſer, and the Quantity of Hay will anſwer the Trouble.

For the time of Mowing of Graſs, it muſt be according to the Growth or Ripeneſs of it: Nothing is more prejudicial to your Crop than Mowing of it too ſoon, becauſe the Sap is not fully come out of the Root; and when 'tis dry, it ſhrinks away to nothing: Nor yet to let it ſtand too long, 'till it have ſhed its Seed, and that all the Sap is dried up, which only is the nouriſhing Part of it for Cattle; and therefore to know when Graſs is fit to cut, look carefully upon it, and when you ſee the Top thereof look brown, and begin to bend the Heads, and that the Red Honey-ſuckle Flower begins to wither, which will commonly be about the Middle or latter End of *June*, you may conclude it ripe.

As ſoon as your Graſs is mown, if there is ſuch plenty of it, that it lies thick in the Swath, ſo as that neither the Air nor Sun paſs freely through it, cauſe your *Hay-makers* to follow the Mowers, and to caſt it abroad (except you fear Wet; in which Caſe, let it lie upon the Swath) this is call'd Tedding of it. At Night make it into Graſs-cocks, the next Day as ſoon as the Dew is off the Ground, ſpread it again, and turn it, that it may wither on the other Side; then handle it, and if you find it dry, make it up into Cocks. Next Day ſpread it again, and draw it into long Rows, call'd Win-rows, which is a convenient way to dry the Hay, and makes it eaſie to get together again, in caſe of Rain, to make up into large Cocks which will ſecure it from wet, though you let them ſtand a Day or two. Be ſure, before you carry your large Cocks in, to open them once, and ſpread them in the Sun, becauſe 'tis apt to give in the Cock; and if any Rain happen to fall on your Hay, do not turn it till the upper-ſide be dry: For to turn the wet Graſs to the moiſt Earth is the readieſt way to rot it; neither open any of the Cocks, till the out-ſide of them is dry. Where thick leav'd Weeds are amongſt the Graſs, they will need more Drying than ordinary Graſs doth; and when you have good Weather, put in all the Hands you can, that you may obſerve the old ſaying, *of making Hay when the Sun ſhines*.

Mowing of Land too often and too long is a very great prejudice to it, except it be Land that is conſtantly mended with Water-floods: And therefore when you have not that Conveniency once in three Years, or every other Year, feed your Mowing Lands if you cannot get Manure conſtantly to keep them in heart. For feeding is as neceſſary for Hay-ground, as fallowing is for Corn-grounds. I ſhall not ſay any thing of After-crops, becauſe I think them neither good for the Land, nor yet the Hay good for Cattle. *Mortimer.*

CHAP. III.

Of Arable Land, with a particular Deſcription of ſeveral Sorts of Lands, and the Way of Ordering them, as Ploughing, Ridging, Sowing, Steeping of Corn; and an Account of the ſeveral Grains uſually ſown.

THE great and chiefeſt Knowledge of the *Huſbandman* conſiſts in the Underſtanding the true Nature of the Ground; for every ſort of Land almoſt requires a different ſort of *Huſbandry*; ſome Grounds yielding Plenty of that which on another will not grow. The ſtiff and ſtrong Ground receiveth the greateſt Improvement from the Plough, and the light, warm and mellow Land is moſt fit for Plantations and Gardenings; not but that the light and mellow Ground is good for Corn, but the ſtiff is not ſo good for Plantations. Alſo Moſſy, and ſuch like Grounds, are much improved by Ploughing.

All ſtiff, clayey, moiſt and cold Grounds are generally thrice plough'd for Wheat, and four times for Barley; for the ſeveral Ploughings are very advantageous to the Ground in divers Reſpects, as killing the Couch, Twitch, and the like Weeds that the Ground is ſubject unto. It alſo makes it light, mellow, and finer for the Seed; and by giving it a Fallowing in the Summer, is as good as a ſorry Dunging to it.

Land that hath lain long for Paſture will be ſubject to Moſs and Weeds, ſo that ploughing of ſuch Land for two or three Crops will be advantagious, not only in the Crops, but alſo to the Ground, eſpecially if when it is laid down it is ſoil'd, or ſown with ſome of the aforeſaid *French* Graſſes.

There is much waſte Ground in divers Parts of this Kingdom, as Heaths, Moors, and Commons, ſubject to Broom, Ruſhes, Fern, Heath, and the like which if encloſed, and good Huſbandry uſed on them, would become good Grounds; Experience of which hath been made in many Parts of *England*, on Ground that would ſcarce bear Graſs, to produce good Crops of Corn; and the Way to effect this, is to burn or denſhire them, as hereafter ſhall be treated of; which is ſo exceeding advantagious, that two or three Years Crops have been worth the Inheritance of the Land; and after two or three Crops of Corn, being lain down for Paſture, and ſown with ſome of the aforeſaid *French* Graſſes, do become good Paſture-Grounds, eſpecially to what they were before. Thus far our Author.

General Rules to know Fruitful and Unfruitful Soils.

ALL Land that moulders the Duſt with a Froſt, with all Sorts of warm Lands, black Mould, yellow Clays, if not too ſpewy and wet, and that turns black after Rain, are good for Corn: For, as *Tuſſer* well obſerves,

> *The Soil and the Seed, with the Sheaf and the Purſe,*
> *The lighter in Subſtance, for Profit the worſe.*

Land that produces large Trees, Black Thorn, large Weeds, Thiſtles, rank Graſs, *&c.* and that lies in Bottoms open to the Eaſt or South, being well ſhelter'd from other Winds, is a Sign of fruitful Lands. Thyme, Strawberries, Bettony, *&c.* direct to Woad, and Chamomile, to a Mould diſpoſed to Corn. All Land that binds after Froſt and Rain, that turns white, and is full of Worms, that is extreamly moiſt or cold, or too hot or dry, that lies on the North-Sides of Hills, expoſed to cold Winds and Froſt in Winter, and ſcorching Heat in Summer, that bears Holly, Yew, Box, Juniper, Ivy, Brakes, Furz, Broom, Heath, Ling, *&c.* and Lands that bear Moſs, Ruſhes, Yarrow, wild Tanſie, Flags, *&c.* are a Sign of cold Land; and Plants appearing withered or blaſted, ſhrubby and curled, are the Effects of immoderate Wet or Heat, and Cold interchangeably. Black, dun, or yellow Sand, and very hot ſtony Gravel are generally very unfruitful. *Mortimer.*

A particular Deſcription of ſeveral Sorts of Land, and the Way of Ordering them.

Clay-Lands are either black, yellow, or white; of which the black and the yellow are the beſt for the Corn, and the white and blue the worſt; ſome of which is of ſuch a ſtiff Temper, that nothing will ſubdue it; and ſo greedy and voracious, that nothing will ſatiate it, without very great Induſtry. It turns every thing that is laid upon it to its own Subſtance, and though ſome Clays are more pinguid, and others more ſlippery, yet all of them are very tenacious of Water on the Surface, where it ſtagnates, and chills the Plant without penetrating; and in dry Seaſons is coſtive, hardening with the Sun and Wind, till they are unlock'd by Induſtry, and rendred more kind, ſo as to admit of the Air and Influences of the Heavenly Bodies. The chief Produce of theſe Lands for Corn, are Wheat, Barley, Gray-peaſe, Beans, *&c.* The natural weedy Produce is Gooſe-Graſs, or wild Tanſie, large Daiſies, Thiſtles, Docks, May-weed, Poppies, *&c.* Some of theſe Clays will bear good Clover and Ray-graſs, if well dunged. The beſt Manure for them is Dung, eſpecially Horſe-dung, Aſhes, Chalk, Lime, Soot, (if they are moſſy) ſome Sorts of Marle, Folding of Sheep, Pigeons-dung, Malt-duſt, *&c.* Clays hold Manure the beſt of any Lands, and yield the beſt Grain, if there is a Mixture of Lime-ſtone with it. They commonly ſow theſe Lands at firſt Breaking-up with black Oats: Fallow 'em next Summer, and, as the Nature of the Lands are, ſow them with either Wheat or Barley, and the Etch Crop with either Oats, Peaſe, or Beans, *&c.*

Chalky Lands: Their beſt Produce is Barley and Wheat. Oats will do well on them. Their natural Produce for Weeds is Tine, Poppies, May-weed, *&c.* For Graſs-ſeed, Sainfoin, Trefoil, and if rich, Clover. The beſt Manure for theſe is Rags, Dung, Folding of Sheep, *&c.* If Rain happen to fall on them juſt after Sowing, before the Corn gets up, it will cauſe the Earth to bind ſo hard, that the Corn cannot get through it. They order theſe Lands for Corn in *Hertfordſhire* the ſame with the Clays above-mention'd. In *Oxfordſhire* they commonly manure them with half rotten Dung, which, they ſay, prevents the Binding of it; and ſome mix it with Sand, which cauſes it to work ſhort, eſpecially if any thing dry: They commonly ſow them there with Wheat, Miſlen and Barley; only after Wheat they ſow Peaſe or Vetches, in the ſowing of which they are forced to take particular Care to have fair Weather, becauſe of the Land's Binding; but if they have but two Nights dry Weather, they will do well enough.

Sandy and Gravelly Grounds eaſily admit of Heat and Moiſture, or retain it too long, which renders 'em good for little or nothing: But if, as ſometimes it happens, that Sand have a Surface of a more genial better Mould than ordinary, and a Bottom of Gravel, or looſe Stone, though it do not hold the Water, it may produce a forward ſweet Graſs, though it is ſubject to burn: But it quickly recovers it ſelf with the leaſt Rain.

Of pure ſheer Sand, there is White, Black, Bluiſh, red, Yellow, Harſher and Milder, and ſome that is but meer Duſt, that is very light; and the Gray, black and Aſh-colour'd, that is often found in heathy Commons, which is the moſt inſipid of any. Gravels are much of the ſame Nature and Kind; only the moſt ſtony, or they that are mix'd with harſh Sand, are the hotteſt and the moſt barren.

The beſt Produce in Corn is Rye, white Oats, Brank-Turneps, *&c.* The natural Produce in Weeds, Quitch-graſs, Sorrel, Broom, Furz, Brakes, Ling, Heath, *&c.* Their beſt Manure is Marle, or any ſort of Clay that will diſſolve with the Froſt, Cow-dung, Chalk, Mud, and half-rotten Straw from the Dunghill, to prevent their Binding. Theſe are commonly uſed for Corn as the Clays; but if any of them be over-run with Broom, Furz, *&c.* in *Staffordſhire*, they uſually marle them, only the firſt Sowing is with Buck-Wheat, for which they make three Fallowings in Winter, and ſtir them in *May* following; at which Time they ſow them, allowing one Buſhel to an Acre, which generally yields there Sixty again: And ſo by once ploughing up of theſe Lands, after the Crop is off, 'tis fit for to ſow Rye on. In *Oxfordſhire* they ſeldom give theſe Lands above two Fallowings for Wheat, unleſs much over-run with Weeds, of which ſort of Grain they reckon the White and Lammas Wheat the moſt agreeable; and after a Fallow, Rath-ripe Barley, they generally fallow them every other Year, and reckon them unfit for Beans or Peaſe, though they ſometimes ſow them with Winter Vetches: If with Peaſe, they account the Rath-ripe Pea the beſt. They muſt be conſtantly fallow'd. They make in *Hertfordſhire* a very great Improvement of ſandy Lands much given to Moſs, by burning the Moſs, mixing the Aſhes with Lime, and ploughing of them up. They ſow them with Rye, which yields a mighty Increaſe, and brings a very good ſort of Graſs upon them, when laid down after a Crop or two.

Stony Lands are full of Flints and large Pebbles, or have a Mixture of Free-ſtone, Marble, or Lime-ſtones. The Produce is much according to the Nature of the Earth they are mix'd with. Where the Stones are of a cold Nature, 'tis good to pick them out; but in light dry Soils they are to be left. In

Oxfordſhire, where they have a lean Earth, and a ſmall rubble Stone, or a ſoure ſort of Land mixed with it, they manage it according to its being full of Graſs and Weeds, or its being clean. The weedy they fallow late, but not ſo late as ſoure Grounds. The Scary, that is, if they have no Sward upon them, either they fold in Winter, and add to the Sheeps-dung ſome Hay-ſeed to make it Graſs; or elſe lay old Thatch or Straw, and Dung upon it. In *September*, *November*, and *December*, they fallow as the Sward directs them. If in either of the two laſt Months, 'tis called a Winter Fallowing, which they never ſtir again till they plough it up, and ſow it with Barley; and theſe Lands are reckon'd to do better than if finely tilled. They will bear Wheat and Wheat and Meſlin in a kindly Year, and good Barley, if kept in Heart. They fallow theſe Lands every other Year, except they ſow Peaſe on them. Sometimes they are ſown with Dills or Lentils. When they are quite worn, they lay them down with Ray-graſs and Trefoil; but the common ſtony Lands they order much as the Clays.

Red Hazely Brick-Earth, (more properly a kind of Loam) being like red Clay, only differs from Clay in its binding Quality, and in that it lets whatever Rain falls on it to ſink through immediately, and hath no Stones in it: Whereas all Clays hold the Water that falls on them, till the Sun and Air dries it up, and after Rain with a Froſt moulders to Duſt, and have Stones mix'd with them. Theſe Loams are an excellent Mixture with other Sorts of Earth, being a good Mean between other Extreams, uniting what is too looſe, cooling what is too hot, and gently entertaining the Moiſture. The beſt Produce of them in Corn is Rye, if well dung'd, Barley, white Oats, Buck-Wheat, Turneps, Wheat and Peaſe, if well chalk'd, marled, or mix'd with Clay. The natural Produce of Weeds, is Broom, Fern, Quitch, ſoure Graſs, and almoſt all ſorts of pernicious Weeds. Of Graſs-ſeeds, Clover, if well dung'd, and Ray-graſs; but the Clover quickly wears out of it. The beſt Manure for them is Chalk and Sea-coal Aſhes. Marle makes a mighty Improvement of them, and a ſtiff yellow Clay that moulders with the Froſt, that in many Places lies under it, being full of ſmall Chalk-ſtones, Lime, Horſe-dung.

Theſe Lands bind very much after Rain, and turn very white: No Froſt will diſſolve the Clod; and if new plough'd up, and never ſo much Rain falls on them, you may walk or ride on them as firm almoſt as on a Gravel. Theſe Lands are very ſubject to Worms, which deſtroy both the Corn and the Graſs very much, eſpecially the Winter-corn, if they are not often plough'd. They run much to Graſs and Weeds, and the Corn very much to Straw, yielding little in wet Years. They graze well the next Year after Ploughing, becauſe it makes them ſolid, and ſweetens them ſo, that inſtead of a ſoure rank Graſs, they'll bear a ſweet Honey-ſuckle. Theſe Lands are order'd for Corn as the Clays; only as they are rank, and run much to Straw, 'tis beſt to dung them upon the Etch-Crop, and ſow them with Barley, and never to dung the Fallows. But where you have not a mind to plough theſe Lands up, and find the Graſs on them ſoure, and full of Weeds, let them be mow'd one Year, and kept ſhort fed with Sheep, which improves and ſweetens them very much.

They have a ſort of red Land in *Oxfordſhire*, which they begin Fallowing as ſoon in the Year as they can, before the Sun is too high. If it is moiſt when fallow'd, and if not too wet, they eſteem it the better. They ſeldom give it a ſecond Stirring, and reckon that if it is too fine and light, it occaſions its running to May-weed, and other Trumpery: A Mixture of Cow and Horſe-dung, and Folding of Sheep, they reckon the beſt Manure for it. They ſow Wheat, Meſlin, Barley and Peaſe on it, and fallow it every other Year.

The Heath of the heathy Land in *Kent* they cut up in *May*, and when dry burn it, and ſpread the Aſhes, and then plough up the Turf with a broad finned Plough, which they burn likewiſe, and mixing the Aſhes with Lime and Sea-ſand, where to be got, ſpread it, and upon all lay a good Quantity of Dung. About the latter End of *September* they ſow it with Wheat for three Years, the fourth with Barley, being folded with Sheep; the fifth, ſixth, and ſeventh with Oats, and the eighth with Peaſe; and after that it will bear very good Graſs. They ſtack up the Heath in *Staffordſhire* in Summer, and burn it, mixing the Aſhes with Lime, allowing four Load to an Acre, each containing four Quarters, which they plough under Furrow about the Middle, or the latter End of *September*, or Beginning of *October*. They ſow it with Rye, allowing two Buſhels to an Acre, the Increaſe of which is commonly twenty five. After Rye they ſow Barley, in order to which they make three Fallowings, *viz.* in *October*, about *Candlemas*, and in *April*, which yields much the ſame Quantity as of Rye. Next to Barley they ſow white Peaſe, for which they plough but once in *March*, allowing three Buſhels to an Acre: After which they ſow Oats, either white or red, if the Land is in Heart; if not, black; for either of which they allow but one Ploughing in *March*, and then they lay it down for Graſs.

The gouty, mooriſh, peaty, cold, black Land in *Staffordſhire*, they order much the ſame Way with the heathy, only they burn it deeper; but it bears little but Oats, white Oats upon the gouty, and black upon the black cold Lands. The Turf of theſe burnt, and carried upon Rye or Barley-lands, they reckon a better Improvement than Dung.

Black Mould, that is ſomewhat fat, yet porous, light, and ſufficiently tenacious, without any Mixture of Gravel or Sand, riſing in groſs Clods at the firſt Breaking-up of the Plough, and ſheldring with the Froſt, is good Land both for Corn and Graſs.

As theſe Sorts are moſtly in Bottoms, the Wetneſs of them often ſpoils them for Corn. Where they are dry, they are extraordinary fruitful, eſpecially for Barley; they will bear alſo good Wheat upon the Etch-Crop: But if they are very rich, that you fear lodging of the Corn, you may, if a deep Mould, plant them with Liquoriſh, or ſow them with Hemp, Woad, Cole, Rape-ſeed, Madder, or ſome other rich Commodity, that beſt agrees with them; and afterwards with Corn, when ſome of the Fertility is abated. The natural Produce is commonly Thiſtles, Docks, and all Sorts of rank Weeds and Graſs. It will bear excellent Clover. The beſt Manure is Chalk, Lime, Dung, &c.

Where Lands are ſoure, ſweeten them with Chalk well, where 'tis to be had, while they are Graſs; letting them lie for one Year, or more; then ploughing of them up, give them a good Fallowing, eſpecially in a dry Time in Summer, which will kill the Quitch, Sorrel, Moſs, and other Trumpery that theſe Lands are ſubject to, and mellow them the beſt of any thing: Alſo Soot, Aſhes, Dung, and Marle will ſweeten ſome ſorts of Lands. *Mortimer.*

Of Ploughing of Lands.

THE Ploughing of Lays, which is the firſt Ploughing of Graſs-Ground for Corn, and a Work uſually done in *January* is the firſt Thing to be conſider'd in this Matter. It ſhould be done when the Land is wet; the Turf, by reaſon of its then Toughneſs, will hold to turn without breaking; and, if artfully done, will lie ſo flat and true, that it can ſcarce be diſcern'd where the Plough went.

The Ploughing of Fallows, which is a very great Benefit to Land, as appears by the common Practice of it, and in the great Care that Landlords every where take to oblige their Tenants to a ſtrict Obſervance of it once in three Years, few Lands being able to bear more than two Crops without it; and I cannot believe, that any will find a Year's Fallowing to be a Loſs to them, let their Land be what it will; nor yet the true Ploughing of it, a Charge that will not pay for their Labour.

The Advantages of Fallowing conſiſts in,

1. Its laying of the Land in Ridges, and ſo expoſing it to the Froſt, Wind, Sun and Dews, which ſweeten and mellow the Land very much; the often ſtirring it, and breaking of the Clods, diſpoſing it for the bearing of good Crops. 2. It kills the Weeds by turning up of the Roots to the Sun and Air, and not only them that grow with the laſt Corn; but wild Oats, Darnel, and other Weeds, that ſow themſelves, and that as ſoon as they begin to peep out of the Ground, ſo that they have no time to ſuck out any of the Heart of the Land.

The Way of ordering Fallows is, after the Crop is off, to let the Land lie all Winter, and what Graſs and Weeds grow on it they eat off with Sheep in *April*, or the Beginning of *May*. As ſoon as they have done ſowing Corn, they begin to plough up their Fallows. This firſt Fallowing in moſt Places ſhould be very ſhallow, well turn'd, and clapp'd cloſe together, becauſe the thinner the Turf, the eaſier it will dry through, and kill the Weeds, eſpecially if the Weather be dry: At which time one Ploughing is worth three others. But in ſome Places, where there is a very cold Clay, that will not bear Corn well without being expoſed to the Heat of the Sun, they plough their firſt Ploughing the Depth they deſign to go. About *June* is the Second, call'd *Twy-Fallowing*, at which Ploughing you muſt go your full Depth: This being commonly perform'd by a Team early in a Morning, before the Dew is off the Graſs, that ſo they may have time to feed their Horſes before they go to carry off Hay in the Afternoon. About the latter End of *July*, or Beginning of *Auguſt*, is the Time of *Twy-Fallowing*, or laſt Ploughing, before they ſow their Rye or Wheat, (though ſome do plough up their Land oftner.) If the Land riſe full of Clods, and if 'tis a binding Land, you muſt make it fine by Harrowing it when Rain comes; but then you muſt not let it lie long before you ſtrick, ſize, or plough it up into ſmall Ridges, eſpecially if it is wet Land: And, as near as may be, leave no Weeds or Turfs of Graſs unkill'd or unbroke with your Harrows: But if the Land will diſſolve well with the Froſt, 'tis beſt to let it lie a little rougher, eſpecially if you deſign to ſow it with Barley, then the rougher it lies for a Winter-Fallow the better, becauſe it lies the drier, and the Spring-Showers will afford Moiſture enough to make it fine for ſowing: But if the Winter doth not diſſolve the Clods, as in binding Lands, and ſuch as the red Loams are in *Eſſex*, which Lands they are often forced to wait for Rain for the Fallowing of, becauſe they plough only with the Dray-Plough, the Point of which is always *flying* out of the Ground in dry Weather, they are often forced to plough their Fallows ſix or eight times, which doth but ſeldom kill the Weeds, becauſe Ploughing in wet Weather doth but remove them out of their Places, and turn moiſt Earth upon their Roots, which makes them quickly grow again. Where Land is cloddy, and a Shower of Rain comes that ſoaks thro' 'em, you may make uſe of a Roll to break them. Theſe in *Oxfordſhire* they make octangular, the Edges whereof they reckon break the Clods better than the round ones; and for the churliſh blue Clay of the Hundreds of *Eſſex*, they uſe large round Rollers, which are ſtuck with ſtrong Oaken-Pins about three Inches long, and four Inches diſtant one from another in the Rows, and each Row twelve Inches aſunder. But in *Hertfordſhire* they always, if they can, plough in dry Weather, and harrow in wet, which makes the beſt Fallows; and always in Fallowing of Land they plough one Ploughing croſs the Way that they intend to lay the Ridges when they ſow them.

Where Land is but indifferent, and Manure is not to be got, Fallowing every other Year is found a great Improvement; and in ſome Places they take a Crop of Wheat and a Crop of Peaſe, and ſo fallow their Land again. In *Staffordſhire* they often give their Land a Winter-Fallowing, beſides the three Summer-Fallowings, and lay their Land up in Ridges, when they ſow Barley, which ſeems the Way of the Ancients, by *Virgil*,

The greedy Villager likes beſt that Mould,
Which twice hath felt the Sun, and twice the Cold.

Pliny likewiſe mightily commends the Ploughing of Land four times, but you muſt obſerve in Winter to harrow no more down than what you can quickly rear up again upon an Edge, becauſe if much Rain falls upon it while it lies flat, it will grow ſo poachy, eſpecially a wet Clay, that you cannot plough it, and cauſe it to breed Weeds; and therefore the beſt way then is to plough up in a Morning, and to harrow down in the Afternoon what you deſign to plough or ſtrick the next Day; or you may harrow it in the Morning juſt before you plough it. And if Land be weedy, by reaſon of the Wetneſs of the preceding Summer, plough it up as ſoon as you can in Winter, to kill the Weeds and mellow it. Some there are who ſprinkle four or five Pounds of Clover to an Acre, upon Lands deſigned for a Fallow the next Year; with the laſt Crop of Corn, this will ſerve for Feeding till *Michaelmas*, and the following Spring, till about Mid-ſummer, the proper Time for their firſt Fallowing; which they plough up into ſmall Ridges in *Auguſt*, letting it ſo lie for a Winter Fallow, and the next Spring order it for Barley.

Of

Of Ridging and Sowing Land.

SOme lay four Ridges together: In the Hundreds of *Eſſex* ſix or eight: In *Huntingtonſhire*, and divers other Places, where are very ſtiff moiſt Clays, they ſow all upon broad Lands, raiſing the middle of the Ridges in ſome Places near a Yard higher than the ſide Furrows, which certainly muſt drain thoſe poachy Clays the beſt of any way; for the chief Deſign of laying Land in Ridges being Draining it, and making the Corn to grow dry. But this way of laying can only be done in a deep Soil. Where the Deſcent of the Ground doth not require the Ridges for the Draining of the Land to be laid otherways, they chooſe to have the Ridges to run *Eaſt* and *Weſt*, becauſe the Sun comes between them the better.

The Furrows you leave, ſhould be laid open and clean ſcoured, ſo as to carry away all the ſtanding Water and Moiſture; and at all the loweſt Places Drains ſhould be made that may lead well into one another. And if the Plough cannot make them deep enough, let it be done with the Spade: And obſerve in making of your Drains both for Corn-land and Paſture, not to lay the Earth you dig out of them in Heaps or otherways near to them; but either let it be carried out at a diſtance from them by the Spade, or in Carts or Wheel-barrows, if 'tis Graſs or Fallow: By which means you will conſtantly be lowering of your Land next the Drains, which otherways will be treading in again, and always ſtopping of them.

If the Spring is dry, and your Land ſhould riſe full of Lumps, the lying in the Air will ſometimes cauſe them to grow ſo hard that you cannot break them, without a deal of Rain, and therefore harrow as you plough it up, but then, except it be very dry Land, you muſt ſpeedily plough it up an Edge again.

Some ſow their Lands under Furrow, that is, ſow the Corn in the Furrow, and then plough a Ridge upon it to cover it; and ſome harrow their Ground over, and ſow Wheat or Rye on it, with a broad Caſt: Others only with a ſingle Caſt, and ſome with a double, and then plough it upon an Edge in broad Lands where the Land is dry; and ſome plough their Land up an Edge for broad Furrows, and ſow their Wheat or Rye on it, and then harrow it over: Either of theſe Ways will do, but the laſt is judged to be better than the common Way of ſowing of Wheat and Rye under Furrow in binding Lands, and in ſhallow or very wet Soils, becauſe it does not bury the Corn ſo deep as the other way; for your Furrows ſhould be deep or ſhallow, according to the Depth of the Soil.

In cold Lands ſow Wheat or Rye earlier, and in hot later; but for Summer Corn, plough your poor Land firſt; but ſow your cold laſt. In *Hertfordſhire* they ſow all their Barley with a broad Caſt upon broad Ridges, and in *Eſſex* on ſmall Ridges like Wheat, where they have two ſmall Harrows that clap on each ſide of the Ridge, and ſo they harrow it right up and down, and roll it with a belly Roll that goes between the Ridges, when they have ſown it: But Mr. *Mortimer* and others are of Opinion, the large ſquare Harrow is beſt; and if every Farmer had two or three Sorts, one a Degree finer than the other, it might be a great help to them; The well covering of the Seed being of great Advantage.

Of Steeping of Corn.

WHeat they commonly ſteep in Brine twelve Hours; and drawing the Brine from it, they mix it with unſlacked Lime beat to Powder, and ſo ſow it when dry, which is reckoned of great Advantage, and prevents the Smuttineſs of it. Some others propoſe to drain Dunghils, or to diſſolve Sheeps Dung in Water, and to add to it as much Salt as will make it a ſtrong Brine, and in this Liquor to ſteep yourCorn; Wheat eighteen Hours, Barley thirty ſix Hours, and Peaſe twelve, and to dry it with unſlacked Lime powdered; and that if you put Wormwood into the Brine you ſoak your Corn in, it will prevent the Birds eating of it.

Of Sowing of Corn.

LET the Seed be had from a worſe Soil than your own if you can; if not, 'tis better to have it from good Land, than not to have Change: For all Seed doth degenerate if long ſown upon any Land, but moſt upon bad.

In the South part of *Staffordſhire* they go to the North for Seed-corn; and ſo *vice verſa*; except in the Moorlands, where they always chooſe to get the biggeſt Seed they can, becauſe their Corn is apt to come to nothing, if not renewed from other Parts. But the having of Seed from the Northern Countries to the South is much the greateſt Improvement, and the farther northward the better and more advantageous. The ſmalleſt Seed of Wheat, Rye, or Barley, if it be clean from Soil is deemed the beſt: Variety of Seed is likewiſe an Advantage to Land, becauſe every Sort of Grain draws and attracts from the Earth only its proper Juice ſuitable to the Nouriſhment of its own Body: So that the ſowing of the ſame Grain often exhauſts and weakens the Ground by ſtill attracting the ſame Sort of Juice, one Crop after another.

Great regard ought to be had to the Weather in Sowing, and to the Temper of the Land you deſign to ſow, with the Sort of Seed you intend to uſe. Dry Land may be ſowed in wetter Weather than Moiſt; eſpecially if the Seed be what will bear Wet, or that the dry time happens againſt Winter, when you may be ſure of Rain coming; as if you deſign to ſow Rye or Wheat, the firſt of which Seeds cannot be ſowed too dry, nor the other too wet, except 'tis ſo Miry that the Plough cannot go, for which Reaſon the Rye ſhould be ſown in dry Land and in dry Weather, and the Wheat in moiſt: But 'tis certain all Summer Corn grows beſt in a dry Time, except black Oats, which require more Moiſture.

The ſeveral ſorts of Grains uſually Sown in England.

THE Huſbandman's great Care is to underſtand the Nature and Temper of his Land, and what Grain is beſt agreeable thereunto, otherwiſe he can expect but indifferent Crops.

There is no Grain ſo uſeful, and Univerſal as Wheat, of which there are ſeveral ſorts, as the *Poland* Wheat both white and red, great and ſmall, the Straw Wheat, Rivet Wheat, both white and red; The Turkey Wheat, the Gray Wheat, the Flaxen Wheat, which in ſome Places is ſuppoſed to be called Lammas Wheat, Chiltern-Ograve Wheat, Saraſins Wheat, with other Names which 'tis probably may be the ſame Sorts: Of theſe Sorts ſome prove good for cold and ſtiff Land; and others for that which is Hot and Dry. The Great *Paland* and the Ograve delights in ſtiff Ground, the Flaxen and Lammas on indifferent Lands; and the Saraſins on any. The Bearded Wheat is not ſubject to Mildews.

As for Mr *Mortimer*, he reckons the white Egg-ſhell-wheat is beſt for light Lands, and to ſow with Rye for Meſlin; becauſe 'tis earlieſt ripe of any, and ſhould be forwardeſt ſown. That 'tis much ſown in *Eſſex* upon their hazely Brick-earths or Loams, as the Red-wheat and the Pole-rivet or Bearded-wheat is there, and in *Hertford-ſhire* upon ſtiff yellow Clays. That in *Oxfordſhire* they have a Sort of Wheat they call long Cone-wheat, reckon'd beſt for rank Clays, and its Straw not being hollow makes it not ſubject to lodge or to be mill-dew'd, and is not ſo liable to be eaten by the Birds, only the Flour of it is ſomewhat coarſe. That their white, red-eared-Wheat, hath a white Ear and a red Grain, and is a very good Sort of Wheat for Clays; it bearing a very good Crop, and ſeldom ſmuts. That in *Staffordſhire* they reckon the red Lammas or bearded Wheat the beſt for cold Lands or ſtiff Clays. That there is in *Berkſhire* a Wheat called pendulum Wheat, from its hanging of its Ear much like the Cone-wheat.

That Wheat is commonly ſown after a Summer's Fallow, though in *Berkſhire* often upon a Lay, Harrowing it in as they do Oats, and they ſay it prevents its being full of Weeds; that ſometimes in *Hertfordſhire* they ſow it upon an Etch Crop after Barley, Ploughing of the Barley-ſtubble in as ſoon as the Corn is off the Land. But that this is ſeldom done, and only on Land that is very rich. That 'tis beſt ſowing of it about the Beginning of *September* if there is any Rain; otherwiſe to ſtay till you have: For it will ſcarce come up till Wet comes, and therefore if the Land be any thing dry, it will do well enough, ſown in *November*. All the Hazard of late ſowing being a wet Winter. That they commonly ſow two Buſhels of Wheat upon an Acre: But if new-broke-up Ground, two Buſhels and a Peck. If the Soil be deep, ſow it under Furrow: But if ſleet, with a broad, ſome with a ſingle Caſt, and ſome with a double Bout, that is twice in a Place, harrowing once between, after which they harrow it ſo many times in a Place as is neceſſary to cover the Seed well.

It's proper to feed Wheat or Rye either, when Rank, in *January* or *February* with Sheep; but the Rye not after the Firſt, nor the Wheat after the Middle of *March*: Let it be weeded, if weedy, about the latter End of *May* at fartheſt, and cut the Thiſtles with a Hook: An Acre of Wheat commonly produces twenty or thirty Buſhels, and 'tis a Sign of its being ripe when the Ear hangs, the Straw is yellow, and the Grain hard: The Huſbandmen of *Oxfordſhire*, and ſeveral other Counties, inſtead of letting Wheat, after 'tis cut, lie long on the Ground, if weedy, bind it up in Sheaves, tho' full of Weeds, and ſetting three againſt three, cover the Top by opening two Sheaves, with which they cover the ſix nether ones, hanging the Ears downwards; and ſo let it continue three Weeks or a Month in the Field, before 'tis carried in, without receiving any Injury.

Rye is a Grain uſed next to Wheat for Bread, and both mixt together in the Sowing (which is called Meſline) makes an excellent ſort of fine moiſt and Palatable Bread. This Grain may be ſown ſomething later than Wheat, *viz.* about the Beginning of Lent, if of it ſelf, and will grow on a lighter and poorer Land; it requireth a dry Seed-time, according to the old ſaying, *Rye in the Duſt, and Wheat in the Dirt*, and doth well on any dry ſort of Land; two Buſhels of Seed being commonly allow'd to an Acre, but a Peck more to new-broke-up Ground, or Land ſubject to Worms: An Acre commonly produces about twenty Buſhels: When the Straw grows yellow, the Ear hangs down, and the Grain hard, it's a Sign of Ripeneſs: The Ear not being apt to ſhed, let it lie on the Ground, if Weedy, for ſeveral Days, till the Weeds are dry, or elſe they will damage the Corn in the Barn; but if Rain falls upon it, you muſt be careful to turn it once in two or three Days at moſt, and to lay the Ears upon the Stubble, as high above the Ground as you can: But it may be Houſed as ſoon as cut, when without Weeds: If Rye or Wheat either be lodged, cut it tho' it be not quite Ripe; for it will afford no more nouriſhment to the Grain, if the Straw is broke.

Barley is a profitable Grain, but the Ground muſt be good and brought to a fine Tilt; but for Rank Land, according to Mr. *Mortimer*, *Sprat* or *Fulham* Barley is the beſt, becauſe it doth not run ſo much to Straw, as the common Sort, and yields much better. That there is in *Oxfordſhire* a Sort that they call Rath-ripe Barley, which has ſome Years been ſown, and returned into the Barn in two Months time; that ſome call it *Patney* Barley, becauſe they commonly have it from *Patney* in *Wiltſhire*. That it may be ſown the latter End of *May*, and yet be ripe early enough. That *Scotch* Barley which they ſow in *Lincolnſhire* hath a ſquare Ear; It is but a lank Grain, but a hardier Sort than the others, will grow upon a meaner Soil, and is earlier ripe. That in *Staffordſhire* there is *Tritico-Speltum*, or a Sort of naked Barley, or Wheat-barley, ſhaped like Barley, but the Grain is like Wheat; that 'tis much ſown at *Rowley*, *Hamſtal* and *Redmore*, where they call it *French* Barley: Of which they make good Bread, and good Malt, and it yields a good Increaſe.

Barley is ſown either after a Fallow, or on an Etch, or ſecond Crop. If after a Fallow, the Land muſt be thrice ploughed in Summer, as for Wheat, only the third time it muſt be laid up in ſmall Ridges to lie all Winter: In *March* they ſplit the Ridges and harrow them well over, making the Land as fine as they can, and then they plough it up to ſow.

Some at the Time of Twy-fallowing in *June* make the Land very fine, and ſow it with Turneps, which they feed with Sheep in Winter, and then plough it up in *March*, ordering of it as before; or you may plough it up but once juſt before you ſow your Barley.

If the Barley be ſown upon an Etch after Wheat, as ſoon as the Time of ſowing Wheat is over, which is commonly about the Beginning of *October*, plough up the Wheat-ſtubble in as dry a Time as may be, and lay three Ridges to one, if you have Dung to lay on it; if not, plough it in ſmall Ridges as before, becauſe the Land will lie the drier, and the Froſt will mellow it the better: Then plough it up again in *March*, ordering it as before. If 'tis ſown after Oats, you may only plough it once in *March*; but if you plough it in *October* too 'tis the better: Or if you have an early Harveſt and dry Weather, and that your Time will allow of it, it will be a greater Improvement of your Land, if you plough it up before you ſow your Wheat juſt as Harveſt is in; this will make it half as good as a Summers-fallow. But all Years will not allow the doing it this way.

Some ſow Barley in ſmall Ridges like Wheat, others on broad Lands, which the rounder they are laid the better: But all Sorts of Ridges they rowl with a Roller upon the firſt Shower of Rain after the Barley is ſown, for to break what Clods were unbroken before, to ſettle the Earth to the Roots of the Corn, and to make it even to mow. The Seed-time is *March*, *April* or *May*. In Land ſubject to Weeds, 'tis beſt ſowing late; but lay hold of the firſt dry Seaſon, dry Weather being beſt for moſt Summer-Corn. But if you do ſow late, ſoak your Barley twenty four Hours in Water, in which Sheeps-dung hath been infuſed, and it will come up preſently; 'Tis beſt to ſow light Lands firſt, the beſt Lands to ſow late, being the Clays.

Barley is ſown with a broad Caſt at two Bouts or Sowings, the firſt Sowing being harrowed in once, and the ſecond as often as neceſſary to cover it well, and to make the Earth fine, which commonly requires ſix or ſeven Harrowings. The common Allowance of Seed is four Buſhels to an Acre, though they ſay that three of Sprat Barley will do.

Barley delights in a light dry Ground, as is the black rich Mould, and in moſt Sorts of Clays that lie dry, if enrich'd with Dung, Aſhes, Chalk, or Lime; on ſome Lands Pidgeons-dung, Malt-duſt or Soot do well firſt. Sir *Hugh Plat* commends Soap-aſhes as an extraordinary Improver of Barley, even upon Barren Lands. This Corn is ripe, when the red Roan, (that is a reddiſh kind of Colour that is on the Ear) is off, when it hangs its Ear, and that the Straw hath loſt its Verdure. If it is full of Weeds, it muſt lie on the Swath till the Weeds are dead; every fair Day after Rain it ſhould be ſhook up and turned; and as ſoon as it is any thing dry, be made up into Cocks. Its common Produce is two or three Quarters upon an Acre.

Oats is a Grain much uſed in the Northern Parts of this Kingdom for their Bread, as alſo for their Malt, making good Beer. This Grain groweth almoſt on any Ground, nor is there that Fineneſs of Tillage required as for Barley, for this may be ſown upon a Laye. There are two Sorts, the White or Poliſh Oat, which is a fine weighty Grain, and the Black Oat much ſown in Fenny Grounds, which ſort of Corn is light, lank, long tayl'd, and not ſo good as the White.

They ſow White Oats commonly after Wheat, Rye or Barley, upon an Etch, giving the Land no more than one Ploughing: It's ſown with a broad Caſt at twice, harrowing it well, and the ſame way the Furrows lie of a Lay, or but very little croſs for fear of raiſing the Turf, but upon an Edge-crop, as ſoon as the Land is ploughed on Edge, they ſow and harrow it at once, and ſow it again a ſecond time the full Quantity, and then harrow it five or ſix times over, and once or twice a-croſs: But if the Land is ſubject to Weeds, let the Wheat or Rye-Stubble be plough'd up in *November*, which will make it rot the better, and be a kind of Winter-fallowing: The time of ſowing this kind of Grain is *April*, in as dry time as can be: It's a Lover of dry Land, but will alſo thrive on Gravel and Sand, and is the beſt Corn to be ſowed in Ground ſubject to Quitch-graſs, or other Weeds; becauſe they may be plough'd later: You will know when 'tis ripe, by the Yellowneſs of the Straw, Hardneſs of the Kernel, Opening of the Chaff, and ſmall Appearance of the Seed. When theſe Oats are cut; they let them lie for a Day or two for the Dew and Rain to plump them, to make them thraſh well, and if Weedy to kill the Weeds: But you muſt get them in as ſoon as you can, and that they are any thing dry; if they are much wet with Rain they will ſhed; and this ſort of Oats is apt to ſhed moſt when they lie. As for Black Oats they are commonly ſown on an Edge-crop or a Lay, which they plough up in *January*, when the Earth is moiſt, and take care to turn the Turf well, and to lay it even and flat; they are ſowed and harrowed after the ſame manner as the White Ones. They commonly ſow them on a broad Ridge, which they give the Land but one Ploughing for

The uſual Time of ſowing of Black Oats is the latter End of *February*, or the Beginning of *March*, they being a hardy Grain that will bear any thing of wet or cold: Four Buſhels of Seed being the uſual Allowance for an Acre. They will grow on any Land, but delight more in a moiſt cold Land than in a dry. An Acre produces about 20 Buſhels as well as the White Oats; the Signs of Ripening and the Mowing and Ordering them at Harveſt are the ſame.

Peaſe are of great Uſe and very Profitable; there are ſeveral ſorts, as the Green, the Gray, or Hogs-peaſe, the large Rouncivals, and the White which are of ſeveral ſorts, as the Hotſpur, Reading, Haſting, Sandwich, *&c.* And for the ſowing them, ſeveral Seaſons are to be obſerved, that is, ſooner or later as you would have your Crop to be ripe; for the Hotſpur about *Chriſtmas* is a good time, but if the Seaſon prove Froſty ſomewhat later. Peaſe, *&c.* being conſidered here in reſpect to Field Tillage, the common ſort of White Pea doth beſt in a light Land that is ſomewhat rich: If the Land is any thing binding, they do beſt ſown with a broad Caſt, and only harrow'd in: The propereſt Time for ſowing of them, is about the Middle or latter End of *April*; they commonly allow three Buſhels to an Acre; and they are uſually reaped with a Hook at the End of a long Stick: They let them lie in ſmall Heaps as they are reaped, 'till they find the Hawm and the Cod dry. They ought to be turned and raiſed from the Earth as much as may be, that they may lie hollow for the Wind to dry them, eſpecially when any Rain comes to wet, and beat them down.

Gray-peaſe are commonly ſown under Furrow, and delight moſt in a cold moiſt Clay: The common Allowance for Seed is two Buſhels to an Acre, and the uſual Time of ſowing them is in *February*: In ſome Places they ſow them ſooner, they being a hardy Grain. They are reaped, and ordered much as the White-pea.

In *Staffordſhire* they ſow Garden-Rouncivals in the Fields, and find them to kernel well, and to yield a good Increaſe, though they run upon the Ground unſupported with Sticks.

In *Oxfordſhire* they reckon the *Henly* gray and the Red-ſhank Peaſe are the beſt for new-broke-up Ground, the Vale-gray for ſtrong Land, the *Hampſhire* Kids for new chalked Lands, the ſmall Rath-ripe Pea for poor gravelly Ground, and the *Cats-would* Pea for ſoure Land. In general Peaſe do much mellow Land, making it fit for a Crop of Winter-Corn.

Beans delight in a ſtrong deep Land, and are of chief uſe for fatning Hogs; and being ground and mixt with Oats, are a good ſtrengthning Food for Horſes. There are ſeveral Sorts of them; the ſmall Horſe-bean is only propagated by the Plough: They are commonly ſown in *February*, or ſooner; three Buſhels will ſow an Acre, and the Produce of an Acre is uſually about twenty Buſhels: They are for the moſt part reaped with a Hook, like Peaſe, and let them lie out a great while to dry: They bind them in ſmall Bundles in the *North*, making little Ricks of them in the Field, where they let them ſtand a long time.

Tares are not of ſuch great uſe, but Pidgeons much delight in them. It is good Fodder for Horſes if cut green. It requires indifferent good deep Ground, the Seaſon is about *February* or *March* to ſow them. They need but one Ploughing, and want no other Manure but ploughing in of the laſt Stubble, becauſe they enrich the Land themſelves: Care muſt be had that no more be ſow'd than can be cover'd the ſame Day, becauſe the Dew is apt to ſpoil them.

Lentills, or Tills, are very good Fodder, eſpecially for young Cattle; they grow on any Ground, yet afford a great Encreaſe: They are the cheapeſt Food for Pidgeons.

Lupins, are a Pulſe of a very great Profit, growing on any Sandy, Gravelly or Ruſhy Ground; being ſodden in Water they are good Food for Swine and Oxen.

Vetch, or Chich are of divers ſorts: But the Summer and Winter Vetch are beſt known: The one ſowed before Winter, which bears the Extremity of it, and the other in the Spring. They are propagated like Peaſe, and whether given in Straw or without, yield a good, ſtrong and nouriſhing Food for Cattle.

Buck-wheat doth much help barren Land; it yields a great Encreaſe, is excellent good for Swine, and Poultry, it is ſown about *April*, or the Beginning of *May*. One Buſhel will ſow an Acre. After 'tis mown it muſt lie ſeveral Days till the Stalk be withered before it is houſed. 'Tis in no danger of the Seeds falling, nor doth it ſuffer much by Wet; but 'tis ripe pretty late. It yields a good Increaſe upon Land any thing good, often fifty or ſixty Buſhels upon an Acre, and is excellent Food for Hogs, Poultry, *&c.* The Flour of it is very white, and makes a very good ſort of Pancake mixed with a little Wheat-flour. Buck-wheat makes a very good Lay for Wheat or Rye, eſpecially if not mow'd, but plough'd in; but the beſt way is when 'tis in Graſs, juſt before it Bloſſoms, to let Cattle, eſpecially Milch-cows feed upon it; they'll yield a deal of Milk, and make the Butter and Cheeſe very good; in the drieſt time of Summer, when other Graſs is parched up, it's Food for Cattle, and proves a very great Improvement of Land.

Of Hemp.

Hemp is a Commodity that would be very advantagious to the Nation, were the Planting encouraged, and the Manufacture of Cloth Eſtaliſhed by publick Work-houſes, for the Poor of every Pariſh to be imployed therein; however it is very convenient for every Family to have ſome Ground ſet apart for Hemp, as alſo for Flax, were it no more than for Linnen for their own Family.

Hemp delights in Ground that is warm and ſandy, or a little gravelly, provided it be Rich, and of a deep Soil; as for cold Clay, wet and mooriſh Ground it is not good. Mr. *Mortimer* ſays, he has known extraordinary Crops of Hemp on Lands where Hay and Woodſtacks have ſtood. The beſt Seed is the brighteſt, and that which will retain its Colour and Subſtance in rubbing; about three Buſhels is enough for an Acre, but the richer the Ground is, the more Seed may be ſown thereon.

The beſt Seaſon to ſow it is in *April*, and earlier or later, according as the Spring falls out: It muſt be carefully preſerved from Birds, who will elſe deſtroy much of the Seed.

The Time to gather it firſt is about *Lammas*, at which time a good Part will be ripe; that is the lighter Summer-Hemp that bears no Seed, and is called the Fimble-Hemp, whoſe Stalk grows White; and then it is to be pulled forth, dried and laid up for uſe. The reſt let grow until the Seed be Ripe, which will be ſomething before *Michaelmas*; and this is uſually called the *Karle-Hemp*. When you have gathered it up, and bound it in Bundles, let it be Houſed until it be Thraſhed, the Seed being very good to give Pidgeons, and Fowl. An Acre of Hemp may be worth, unwrought, ſeven or eight Pounds, and if wrought, ten or twelve Pounds.

Of Flax.

Flax is alſo a very good Commodity, and employeth many Poor People in the dreſſing, ordering, and making it into Cloth.

The Land fit for Flax is any ſound rich Ground, the beſt yielding the beſt Flax. The Land muſt have the ſame Tillage as if for Corn; and the Seaſon for ſowing it, is in the latter End of *March*, or Beginning of *April*. The beſt Seed comes from the *Eaſt Country*, and will laſt indifferent good for two or three Crops; and then change it. About two Buſhels is ſufficient for an Acre of the Eaſt Country Seed, but of our Seed half a Buſhel more; permit it not to grow till it be over ripe, neither gather it until it be ripe; the Ripeneſs is known by the Seed, and when it is ripe, have your Pluckers in readineſs to gather it; and tie it up in Handfuls, which muſt be ſet up one againſt another, until it be perfectly dried, and then houſe it.

An Acre of good Flax may be worth eight, nine, ten, eleven, or twelve Pounds, but if wrought up fit for Sale, at leaſt fifteen or twenty Pounds.

As to the Watering, Drying, Breaking and Tewtawning of Flax, as alſo of Hemp; I ſhall leave you to ſuch as are expert therein. Only note, that in *Nottingham* and *Derbyſhire*, where a great deal of Linnen is made, they have a good way to ſave the laborious Work of Beating of Hemp; by making the Axle-tree of their main Wheel of their Corn-mills longer than ordinary, and placing of Pins in them to raiſe large Hammers, like thoſe uſed for Paper and Fullings-Mills, with which they beat moſt of their Hemp.

Of Woad, *or* Wade.

WOAD is a rich Commodity, and of great Uſe for Dyers: It requires a very rich, ſound, and warm Land; nevertheleſs it will grow well upon ordinary Ground, provided it be light, warm, and in good Heart, having long reſted, and newly broken up. The Land muſt be finely plough'd and harrow'd, and all Clods, Stones, Turfs, *&c.* taken away; about four Buſhels ſoweth an Acre. It muſt be kept well weeded, until the Leaves cover the Ground; and when they are grown fair and large, then ſet to Cutting, and ſo throughout the Summer, that you may have four or five Crops; and that which grows in the Summer may be eaten with Sheep. The two firſt Crops are the beſt, which are uſually mix'd together in the Seaſoning. The later Crops are much worſe, and if either are mix'd with the former, they ſpoil the whole.

When it is cut, it muſt be forthwith carried to the Mill, and ground, one Kilnful after another as faſt as may be. The Juice of the Leaf is to be preſerved in it, and when it is ground it muſt be made into round Balls, and ſo laid one by one upon the Fleaks to dry: Which done, they are to be taken down, and laid together, and ſo more put into their Places. But for the right ordering of Woad, and concerning all Things relating thereunto, it will be convenient to conſult an experienced Work-man.

The Time to ſow the Seed is about the Beginning or Middle of *February*, though our Author ſays in *March*. An Acre of good *Woad* may be worth twenty or thirty Pounds, if well ordered.

'Tis ripe when the Leaf comes to its full Growth, and retains its perfect Colour and lively Greenneſs, which is ſometimes ſooner, and ſometimes later, as the Year proves dry or moiſt. As ſoon as it is fit to be cut, let it ſpeedily be done, that it may not fade, nor wax pale.

Of Weld, *or* Dyers-Weed.

WEld, or *Woald*, is a rich Dyer's Commodity, and is of great Advantage, conſidering the eaſie Charge of raiſing it. It grows in many Places wild, and will upon the barreneſt ſort of Land, tho' the middling Sort is beſt for it. If it be dry and warm, it requires no Tillage. The Seed being ſow'd with Barley or Oats, and only harrow'd in with a Buſh, or roll'd with a Roller. The greateſt Difficulty is the ſowing of it even, it being a ſmall Seed; A Gallon of it will ſow an Acre. It grows not much the firſt Summer; but after the Corn is cut it muſt be preſerved, and the next Summer you will receive your Crop. You muſt be very cautious in the gathering of it, that the Seed be not over-ripe to fall out, and that neither the Stalk nor Seed be under-ripe, becauſe if it is, both will be ſpoil'd. 'Tis to be pull'd, and bound up in little Handfuls, and ſet to dry, as you do Flax; and then houſe it carefully, that you ſpill not the Seed, which may be beat out preſently, or kept till *March*; only you muſt take care to keep it as dry as you can. The Seed ſells for about ten Shillings a Buſhel, or more. The Dyers uſe it for Dying of bright Yellows and Limon-colours. 'Tis much ſown in *Kent*, eſpecially about *Canterbury*, and often yields from forty Shillings to ten or twelve Pounds an Acre.

Of Madder.

M*Adder* is a very rich Commodity, uſed by Dyers, as alſo Apothecaries, for ſeveral Phyſical Occaſions. It bears a Seed, but it comes not to Perfection; ſo that it is planted from the Sets taken from the *Madder* it ſelf. The Seaſon for it is in *March* and *April*: The Ground muſt be exceeding rich, of a deep Soil, and warm. It muſt be dug two or three Spits deep, finely raked, laid level, and made into long Beds, about a Foot and an half broad, which muſt be kept well weeded until the *Madder* hath got the upper Hand of the Weeds, which will be the firſt Year; for it comes not to Perfection until the Third Year; but the ſecond Year you may take up ſome Sets. In the taking up of every Root there will be one Runner, which hath little Buds on it, which may be cut into Pieces, and each planted with a Bud out of the Ground, ſet upright, which makes good Sets. One Runner will make many Sets, but theſe Sets can't be got up until the *Madder* be taken away; and having thus preſerved it, until it come to a good Crop, and curiouſly dried it, like unto Hops, to a perfect and juſt Gage of Drought.

You muſt pare off the Huſks of the Outſide, (in which there is an Art) which will be worth not above nine or ten Shillings a Hundred, which they call *Mull-Madder*; but the ſecond Sort, called *Number O*, which is the middle Rind, is much better, but not ſo good by a Sixth part as the third Sort, which is called the *Crop-Madder*, which is the Heart and Pith of it, inclining to a yellow Colour. Sometimes the beſt *Madder* is worth eight or nine Pounds a Hundred, and the *Number O* ſix Pounds ten Shillings, and ſometimes not above four or five Pounds a Hundred.

There is but one Kind of *Madder* that is manured, and fit for Uſe, though there are many Things like it, and that are reckoned a wild Sort of it, as Gooſe-graſs, Ladies Bed-ſtraw, Woodroof and Croſſwort. The right Sort hath long Stalks, and trailing Branches, rough and full of Joints, every Joint being ſet with green rough Leaves, in manner of a Star. The Flowers grow at the Top of the Branches, of a faint yellow Colour, after which comes the Seed, which is round and green. The Root creepeth upon the Ground, intangling of one Root into another; and when 'tis green and freſh, is of a reddiſh Colour. 'Tis ſmall and tender, and runs on the Earth like Ivy, along a Houſe or Tree; and though it bears a Seed, it comes to no Perfection, but is raiſed out of Sets.

Of Rape, *or* Cole-Seed.

THis Seed is very profitable to be ſow'd upon Marſh, or fenny Land, or indeed upon any moiſt Ground, that is of a fat and rich Soil. The beſt Seed is the biggeſt, and it muſt be dry, and of a clear Colour, like the beſt Onion-Seed.

The Seaſon for ſowing it is about Mid-ſummer, and the Land muſt be well plough'd, laid fine and even. About a Gallon will ſow an Acre, and for the ſowing it even, it ſhould be mix'd with fine Duſt or Aſhes, as before directed for the Clover.

The principal Uſe of this Seed is for making Oil, and a good Crop is about five Quarters, and commonly worth four Shillings a Buſhel. When it looks brown it is time to reap it, which muſt be done as Wheat, only it is not to be bound up, but muſt lie in Handfuls upon the Ground until it be dry, which will be about a Fortnight, and when it is dry it muſt be gather'd up on Sheets, or large Sail-Cloths, and ſo carried into the Barn to threſh, for fear of Shedding, to which it is much ſubject.

But in *Lincolnſhire* they commonly thraſh it in the Field upon a large Sheet, having under it levell'd a Piece of Ground for that Purpoſe. Its common Produce, where it is good, is five Quarters upon an Acre, which is uſually ſold for about five Pounds. 'Tis a very good Preparer of Land for Barley or Wheat.

Of Caraways *and* Coriander-Seed.

A Dry Mould, ſomething inclining to Clay, or rich Garden Mould, is the beſt for this Seed, which is ſown about the End of *February*, or Beginning of *March*. Eight Pounds will ſow an Acre, with which they commonly mix as much of Coriander-ſeed, and ſometimes about half a Peck of Teaſils, both which yield their Crop the firſt Year; whereas the Caraway-ſeed is the ſecond Year before 'tis fit to cut; but then it will laſt three or four, for which they order the Ground as for Teaſils, of which by and by; and keep the Land howed twice a Year, once in Spring, and in *Auguſt*, which coſts them ten or twelve Shillings an Acre to do.

Of Aniſeed.

A*Niſe* may be propagated in *England*, if ſown in *February*, for which the Ground ſhould be prepared about *Michaelmas*, and ſome new Horſe-dung ſtrew'd upon it, to preſerve it from the Froſt. They will be ripe about *Bartholomew-tide*, when they may be ſown again for the next Year. It is beſt to renew them every two Years. The Leaves hereof are uſed in Sallet, and have a very pleaſant Taſte; but they muſt not be too much, nor too frequently uſed with hot Food, but with Fiſh they may ſecurely, and the bad Qualities thereof may be allay'd, by mixing of Parſley, Bete, and Burrage or Lettice therewith. They alſo may be ſown for good Profit for Merchandize.

Of Teaſils.

IN ſome Parts of *Eſſex* they ſow their Lands with *Teaſils* to dreſs their Bays and Cloth with; which they do upon Lands already plough'd up for Corn: And about *December* they either double furrow it, that is, have one Plough to follow the other in the ſame Furrow, or dig it up; and the latter End of *February*, or the Beginning of *March*, they ſow the *Teaſil-ſeed*, which they keep well weeded in Spring. One Peck will ſow an Acre. They eſteem a Clay-Ground the beſt for them. They cut them about *Auguſt*, tying them up in Bundles or Staves, as they call it, and ſet them to dry in the Sun, if the Weather be fair; but if not, they ſet them in Rooms, and dry them there. The common Produce is about 160 Bundles or Staves upon an Acre, which they ſell for about one Shilling a Stave. But the moſt common Way of propagating them is, to ſow them, mix'd with Caraway and Coriander-ſeed, as they do very much about *Kilvedon*, *Coggeſhall*, and other Places in *Eſſex*

Of Carrots.

C*Arrots*, tho' Garden-Roots, yet do well in the Fields for Seed, though the Land for them ſhould rather be digged than plough'd; but if it is plough'd, it ſhould be very deep, becauſe they extend their Roots much downward. They delight in a deep, rich, warm, black Garden Mould, rather inclining to Sand than Clay. The Time of ſowing them is about the Beginning or Middle of *March*. They ſhould be well cover'd and hoed, till they get above the Weeds. The Roots are good for Hogs and Geeſe; but the beſt Profit of them is the Seed, which near great Cities ſells for a great Price. At *London* it commonly yields from five Pounds to ten or twelve Pounds *per* Hundred.

Of Turneps.

THE three Sorts is the *Round*, which are the moſt common; the *Long*, that grows much in *Suffolk*; and the *Yellow*; theſe are moſt commonly ſown in Gardens, but are of very great Advantage to be ſown in Fields, not only for the Uſe of the Kitchin, but for Food for Cattle in Winter, when other Food fails. They delight moſt in a warm, mellow, light Land, that is rather ſandy than otherwiſe. A Pound and a half, or two Pounds, will ſow an Acre. They are commonly ſown at two Seaſons of the Year; in Spring, for to run up to Seed that Summer; which is uſed to be ſown again, or to mix with Cole-ſeed, to make Oil of, where they have a Quantity; or at Mid-ſummer, the Land being firſt plough'd in *May*, and twy-fallow'd in *June*, and made very fine. The Seed being harrow'd in with a Buſh, they rowl the Land with a Wooden Roll to break the Clods; and with the *Turneps* ſow'd at this Time of the Year they feed Sheep, Milch-cows, or fatting Cattle, about *January*, *February*, and *March*: But for fatting Cattle they commonly in *Suffolk* give the *Turneps* to them in the Houſe, which they pull up and carry to them twice a Day, either in a Wheel-barrow, or in a Cart, according to the Number of Cattle they have. They uſed to cut them in ſmall Pieces, which now they find an Inconveniency in, becauſe the Cattle were apt to ſwallow them without chewing, which often choak'd them; and therefore they now give them whole. In feeding of Cattle with them in the Houſe, they propoſe two Advantages; one is to prevent the Cattle ſpoiling of them with their Feet; and the other, that they reckon the Cattle ſo kept up do fat much ſooner and better than thoſe that ramble about. Hogs alſo will eat them, if they are firſt boil'd; only you muſt obſerve, that what Cattle you fat with them, for about a Fortnight before you kill them, they muſt be fed with Hay, or other Provender, to prevent their Fleſh from taſting of the Turnep. They are a very great Help in dry barren Lands, and will grow almoſt in any Sort of Ground; only the Fly is ſometimes apt to eat them at their firſt coming up; but if they do, there is no great Loſs in ſowing of them again, the Seed being ſo cheap, and ſo ſmall a Quantity ſowing of an Acre. But to prevent the Fly, ſome propoſe to ſow Aſhes with the

Seed, and others to ſow Soot juſt at their firſt coming up. There is likewiſe a black Sort of Caterpillar that doth ſometimes eat them; which if you find, the beſt Way is to roll them with a Wooden Roller, which will cruſh them to Pieces, eſpecially if in a dry Time, and will do the *Turneps* no Hurt, but rather make them root the better. If your *Turneps* come up too thick, it will hinder the Growth of the Root, which is the chief Part to be taken Care of; and therefore, in that Caſe, they ſhould be thinn'd with a Hoe; for which Work, where a Man hath fourteen Pence a Day, they commonly give from four to nine Shillings an Acre, becauſe this Work they ſometimes do twice over, if the *Turneps* thrive and flouriſh much. If too much Wet, or the Richneſs of the Ground cauſe them to run too much to Leaves, which is a Fault in *Turneps*, the Feeding of them, and treading down ſome of the Leaves, will help their Rooting. Some ſow them upon their Stubble, as ſoon as the Corn is off, and only harrow them in, and reſerve them till late in the Spring for Food for Ewes and Lambs, or Fatting of Cattle, eſpecially if you ſow them on Land that you deſign to fallow, you may then reſerve them till *April*, which is the ſcarceſt Time for Food for Cattle of the whole Year, eſpecially for Sheep and Lambs; but then you muſt have a mild Winter: And if the Hardneſs of the Winter ſhould ſpoil them, neither the Loſs of Seed nor Labour will be much. Many ſow Coleſeed and Turnep-ſeed together, which do very well, becauſe the Profit of the one lies in the Tops, and of the other in the Roots.

Of Liquorice.

Liquorice delights in a warm, rich, black Earth, that is well dung'd and very deep, becauſe in the Length of the Root conſiſts the greateſt Advantage: And therefore 'tis much planted near *London*, and ſome other great Towns where is Plenty of Dung; though the moſt noted Places are *Pontefract* in *Yorkſhire*, and *Godliman* in *Surrey*, which is pretty much of a ſandy Soil; only it may be well improved near the Town by Dung, which may make it a rich Garden-Mould. The Land for *Liquorice* muſt be trenched very deep, at leaſt three Spits or more, and laid as light as poſſible. The beſt Way is to dig the Dung in the Beginning of Winter, and then to dig it again at Planting-time, which will lay it much the lighter, and mix the Dung the better. The oldeſt Dung, that is almoſt turned to Mould, being the beſt for this Purpoſe.

Procure the Sets from the beſt and largeſt *Liquorice*. The beſt are the *Crown-Sets*, or Heads, got from the very Tops of the Root: The next are the *Runners*, which ſpread from the Maſter-Roots, and have little Sprouts or Roots to them, which being cut four or five Inches long, make excellent Sets; the Branches alſo may be ſlipped and planted; and, if it prove a wet Year, they will many of them grow, and ſerve to thicken your Plants when they are thin. The uſual Time of planting 'em is in *February* and *March*, which they ſet in Rows by a Line, at about a Foot Diſtance, making Holes with a Setting-ſtick deep enough to contain the Plant; which you muſt earth up as ſoon as you can; and where the Sets are removed far, they ſhould be carried in Earth, and the Ground ſhould be made ready before-hand. If the Earth is dry, water them as ſoon as ſet, which continue to do ſeveral Days, till you find they have recovered their Witheredneſs. The firſt Year you may ſow the Ground between them with Onions, Lettice, and ſuch like Herbs.

The Time for digging up of the *Liquorice* is in *November* or *December*, after it hath ſtood three Summers; for then it weighs moſt, and will keep beſt for ſome time; but the ſooner it is diſpoſed of, the better; becauſe while it is green and new, it will not loſe of its Weight. Some that have had good *Liquorice* have gain'd much by it. The better the Land is, the more is the Advantage. There have been made from fifty to an hundred Pounds of an Acre of *Liquorice*, as ſome affirm.

Of Saffron.

Engliſh Saffron is eſteem'd the beſt in the World, and ſuits our Climate and Soil. It delights in a good, dry, ſound Land, brought into perfect Tillage, and made mellow by Manure and good Huſbandry. The lighter and richer the Land, the better Crop may be expected. The Time of planting is about Mid-ſummer, tho' ſome will have *March* to be the beſt. It is encreaſed by the Roots, which yearly multiply in the Ground like other bulbous Roots, or rather more. They are to be taken up, and new planted once in three Years, and then many of the Roots may be obtain'd, which they commonly ſell by the Buſhel. The Way of Setting them is in Ranges, which they make with a large Hoe, about two or three Inches deep, like a Furrow, in which Ranges they ſet the Roots two or three Inches aſunder; but the Ranges are four or five diſtant, for the more convenient Weeding and Hoeing of them: And after one Range is ſet, they begin another, and with the Earth of this ſecond Range they cover the firſt, and ſo continue their Work till finiſh'd, making each Range or Furrow as near as they can of a Depth. The Flower appears like a blue *Crocus* about *September*, and in the Middle of it come up two or three Chives, which grow upright, when the reſt of the Flowers ſpread abroad. Theſe Chives are the *Saffron*, which muſt be gather'd gently with your Finger and Thumb early in the Morning, or elſe it will return into the Body of the Flower again. This you may continue to do for about a Month's time; for which Work you muſt provide as many Hands as the Quantity of the Land will require. You may gather two or three Crops, and then remove it to freſh Ground. After it hath done Flowering, it remains green all the Winter; but the Tops, in the Beginning of Summer, die wholly away to all Appearance, which Time is one of the chief Seaſons for Hoeing it.

It muſt be carefully dry'd in a ſmall Kiln, that conſiſts of an Oaken Frame, lathed on every Side, twelve Inches ſquare in the Bottom, two Foot high, and as many ſquare at the Top; upon which is nailed a Hair-cloth, ſtrain'd hard by Wedges drove into the Sides with a ſquare Board, and a Weight of about a Quarter of a Hundred to preſs it down: The Inſide of the Kiln is cover'd all over with Potters Clay, very well wrought with a little Sand, a little above two Inches thick. The Bottom muſt be lined with Clay four or five Inches thick, which is the Hearth, wherein muſt be a Hole to put in the Fire. The Outſide may be plaiſter'd over with Lime and Hair. It muſt be dried with a very ſmall Fire, and will require conſtant Attendance. Three Pounds of it moſt uſually produces one Pound dry; and an Acre of Land may bear from ſeven to fifteen Pounds, and is commonly ſold from twenty Shillings to five Pounds a Pound, as the Markets happen. They commonly compute the Charges of it at four Pounds an Acre, which gives Room for a conſiderable Advantage.

In *Oxfordſhire*, about *Norton* and *Aſhton*, grows a Sort of Herb, that they call *Safflow*, or *Baſtard Saffron*, which the Dyers uſe for the Dying of Scarlet, they plant it in Rows about a Foot diſtant, for the Conveniency of Hoeing it. It grows upon a round Stalk three or four Foot high, and at the Top bears a great open ſtalky Head, out of which are thruſt forth many Gold-colour'd Threads, of a moſt ſhining Colour, which they gather every Day as they ripen, and dry them.

Of Cleanſing and Preſerving Corn.

OUR Author being wholly ſilent upon this Head, we are beholding to the ingenious Mr. *Mortimer* for the Account he gives us of it. He ſays, that a Wicker-Fan, or a Fan with Sails, which is commonly uſed, is the worſt Way of cleaning Corn; but he is ſatisfied, that one Man with a Caſting-Shovel, which is uſed but in few Places, will cleanſe as much Corn in a Day as four Men with either of the other.

The common Ways of keeping Corn are in the Straw unthraſh'd, or in the Granaries when it is thraſh'd. As for the firſt, they uſually make it up into Stacks, by which way they often have very great Loſs by the Dampneſs of the Ground, which commonly rots and ſpoils it, ſometimes near a Yard thick; and by Rats and Mice, and other Vermin that breed in the Stack, which eat and devour a great part thereof. To prevent both which Inconveniences, where Timber is plentiful, they ſet four, ſix, or more Poſts into the Ground, according to the Bigneſs that they deſign the Stack, Granary, or Barn that the Corn is to be laid in: On which they lay what is the Ground-plats of other Building, whereon they make a Floor, or lay Pieces croſs to ſupport the Stack; and if they make a Barn or Granary of it, they erect Sides and a Roof upon it; but if only a Stack, they cover it with Thatch, and the Poſts that ſupport it ſome do round with Tin near the Top, for about a Foot or ſo in Breadth, to prevent the Mice and Rats getting up. But as Tin is apt to ruſt, and ſo to loſe its Smoothneſs, it will not keep them down long; and therefore a better Way to prevent their getting up, is to do them with *Dutch* Tyle, ſuch as they ſet Chimneys with, which will always keep ſmooth. But in *Hampſhire*, and other Countries, where they have plenty of Stone, they make their Supporters of two Stones after this Form, *Plate* I. *Fig.* IV. *p.* 256. The lower Stone at *A* is about three Foot high, two Foot wide at the Bottom, and one at the Top. Over this they lay another Stone, as at *B*, of about a Yard ſquare: Some make it of a round Form, which is the beſt. This prevents not only the Mice and Rats from climbing up, but alſo the Dampneſs of the Ground: And this way you may keep Corn as long as you will, without much Inconvenience or Loſs, except what it loſeth in the firſt Year's ſhrinking, and Loſs of Weight: Only you muſt obſerve, that what Corn you ſtack muſt be bound up in Sheaves, that ſo the Ears of the Corn may be turn'd inward, and the Straw-Ends out, which will ſave the Corn from Pidgeons, Crows, and other Fowls, and likewiſe from the Rain that beats on the Sides. If your Stack be of Wheat, you may lay Oats, or other coarſe Grain, on the Top of it, under the Thatch, the greateſt Danger of Wet being from the Top, if any of the Thatch ſhould blow off. And if you ſuſpect any Rats or Mice got into a Stack, greaſe a Stick, and thruſt it into it, and if there be any, they will gnaw the Stick. The chief Inconvenience that attends this Way of keeping Corn, is its Bulkineſs, and the Farmer's wanting of his Straw to make Dung with, and the Chaff to give his Cattle, *&c.* which ſeveral Occaſions may compel him to thraſh out his Corn: And therefore he comes next to conſider the Ways of keeping it after it is thraſh'd and dreſs'd, in Granaries, which are made divers ways, according to the Nature of the Country, and the Materials it affords, and the Cuſtom of the People.

Some Granaries are made with Clay, mix'd with Hair, chopp'd Straw, Mulch, and the like: But theſe harbour Vermin, and ſooneſt corrupt Corn: For although they are warm, yet they yield Duſt, from which are bred Fleas, Mites, Weevels, *&c.* which ſpoil Corn, and make it eaſily rot.

Others are made of Stone and Lime; but againſt wet Weather being ſubject to give, and be moiſt, it is very bad for Corn, and will muſt it; ſo will thoſe made of Brick: And therefore ſome propoſe, as the beſt, either thoſe Buildings that are made with Stone only, and Plaiſter laid on the Inſide an Inch and a half thick, that ſo no Stone may come near the Corn; or elſe to be made of Brick, mix'd with Timber, to which Boards may be faſten'd to line the Walls with, and the Floors to be of Plaiſter, which is cool in Summer, and hot in Winter, and is a great Help in the Keeping of Corn; and that the Windows of the Granaries be to the Eaſt, or North-Eaſt, becauſe it keeps the Corn always dry, freſh and cool: And if likewiſe you have Holes to let the Air blow through, it will do well.

Mr. *Mortimer* farther adds, that the Granary in the City of *Shenibank* in the Vale of *Parinburg*, upon the River *Elbe*, which is a Store-houſe for the Wheat of which the Mum is made at *Brunſwick*, is made after this manner. The Granary is three hundred Foot long, eighteen Foot wide within, ſeven Stories high, each Story ſeven Foot, all built of Brick, with large Windows round to open and ſhut cloſe, which as the Wind blows, are opened, and then the Men turn the Corn, ſo as the Duſt may fly out: And when the Weather is fair, they open the Windows to let in the Air. At each End, and in the Middle, are Stoves to keep Fire in, in moiſt Weather, and at the going away of great Froſts and Snows, to prevent Moiſture. There are alſo in each Side of the Granaries three long Troughs or Spouts in the upper Lofts, and in fair Weather the Men throw the Corn out of the upper Loft, and ſo it falls into another Spout made about ten Foot wide at the Top, and eight or ten Inches at the Bottom, through which the Corn falls into the lower Rooms, and then is wound up by a Crane fixed in the upper Loft; and ſo the Corn falling down from one Story to another, is cleanſed by the Wind from all Duſt and Chaff, and receives the Benefit of the Air, *&c.* Theſe Troughs and Spouts are to be put on and taken off as occaſion requires, to any of the Windows, that when any

Veſſels come to lade Corn, they may by theſe Spouts convey the Corn into the Barges, without carrying it on Men's Backs, &c. The Wall of the firſt Stories is two Bricks and an half thick, two Bricks the three next Stories, and a Brick and an half to the Top. There may be kept in it Fourteen Thouſand Quarters of Corn, which is Two Thouſand in each Loft, or One Thouſand Buſhels in each Bay, there being ſixteen Bays, each eighteen Foot long, about ſeventeen wide, or three hundred ſquare Feet in each Bay, &c.

He does believe, if with the Troughs there were Holes in the Floor to let the Corn, like Sand in an Hour-glaſs, run from one Floor to another, it would ſave much Labour, and be of much more Advantage to the Corn.

In hot Countries, in dry ſandy Ground they make great Caves or Pits to keep their Corn in, the Inſides of which are very ſmooth; and put ſome of the Chaff in firſt, and then their thraſh'd Wheat, filling of it up within a little of the Top, upon which they lay Chaff again, till 'tis quite full, and cloſe the Top with a broad Stone, covering of it up cloſe with Earth; by which way they kept it good many Years. Some cut off the Ears, and put them up cloſe into a tight Cask, which will keep it very well, and is the only way of carrying any Sort of Corn over the Sea, that you deſire to ſow in a Foreign Country.

But now more particularly as to the keeping of Corn in *Britain*, the beſt way is to build a Barn of Brick or Stone, plaiſtered a good thickneſs within, about four Foot high above the Ground; upon which put a pretty broad Board ſloping, to prevent the Mice and Rats from going up: Upon this erect a Barn, and let the Door and Loop-holes, to put the Corn in at, be above the ſhelving Board, ſo as to go in and out of it with a Ladder, which you muſt be careful always to take down, and not leave ſtanding up when you come out, leſt the Mice get up it into the Barn. This is an effectual Way of keeping Vermin out. This Sort of Barn, as high as the Brick or Stone-work comes, muſt be lined with Boards, and the Floor raiſed at the leaſt a Foot above the Earth that is on the Outſide of the Barn, to prevent any Damage being done to the Corn by the Moiſture of the Earth, or Walls. It's proper this Floor ſhould be covered with Plaiſter made of Stone-lime, where 'tis to be had: Where not, let it be boarded throughout. In this Barn you may lay up your Corn in the Straw; and if you have occaſion to thraſh out your Corn, to make room to lay more, or for any other Reaſon, you may thraſh it out, and at one End of the Barn lay a Layer of Straw about a Foot thick, and upon that a Layer of Corn and Chaff mixed together, and upon that another Layer of Straw, which continue till your Corn is all laid up; or you may mingle your old thraſh'd Corn with the Straw of the new: Either of theſe Ways you may keep it as long as you will. They that have none of theſe Conveniencies, but are obliged to lay their Corn in a common Room, let them make a Hole in the Door to let the Mice and Rats in and out at, and ſtop all the other holes that the Mice or Rats make in the Room with Wooll dipped in Tarr, and to the Hole in the Door have a ſmall Scuttle to ſhut down when you go in to keep in what Mice or Rats are there; and round the Room, about four Foot high from the Ground, place a ſhelving Board that the Mice and Rats may not run up the Walls; and with Brooms, &c. you may kill a great many of them. But for Barns, thoſe boarded on the Sides are the beſt, being the leaſt ſubject to harbour the Mice of any.

Having proceeded thus far, he concludes with ſome particular Remarks, upon the keeping of ſeveral Kinds of Corn, beginning with Wheat, which is the moſt principal Grain, and of greateſt Uſe and Price, being the moſt tender and apteſt to take Hurt of any; and therefore ought not to be laid above a Foot thick on the Floor, and Care ſhould be had that the Corn you intend to keep, be had in dry; no Wheat that is thraſhed before *March* is fit to keep long. In moiſt Weather (if it be not kept in the Straw or Chaff) ſee you turn your Wheat once in four or five Days.

Rye is much of the ſame Nature with Wheat, and is to be treated after the ſame manner. And for the keeping of Meal, there is no better way than firſt to bolt it, and ſearce it from the Bran, which is very apt to corrode, putrifie, and make it muſty. You may put it into clean dry Casks, that are tight and well bound, treading it in as hard as poſſible, and then head it up cloſe.

Beans are a groſſer ſort of Grain than Wheat, and more ſubject to be moiſt and to give in the Mow; and therefore thoſe that are to be kept are not to be thraſhed till *March*, that they have had a thorough ſweat in the Mow, which they are very apt to; becauſe Beans and Peaſe are not all ripe together, and ſo the green do often heat the ripe, and the ripe ſo heated give fire to the green, till both be either rotted or conſumed; to which alſo the Bigneſs of their Leaves, and Hardneſs of their Stalks, which continue moiſt and ſappy a long time, doth much contribute; for which reaſon they commonly chuſe rather to ſtack them without Doors, than to houſe them, that ſo the Sun and Air may dry them. But the beſt way is to Kiln-dry them, or to dry them well in the Sun, and then they will keep many Years, though they are laid never ſo thick, and are not turned, or any care taken of them: For Beans never give again if they are once thorough dry.

Peaſe are eſteemed, of all Grain whatſoever, the moſt ſubject to Rottenneſs and Imperfection; becauſe they are very apt to breed Worms, Weevels, and Mites, by reaſon of the Luſciouſneſs and Sweetneſs of the Grain. They are to be ordered much after the ſame manner as Beans; the drying of them either in the Kiln or Sun, being the beſt way to preſerve them, and likewiſe to make them fit for the feeding of Cattle; becauſe the drier they are, the more thirſty they make them, it being a general obſervation, that if Cattle drink well, they will feed well; but what you keep for Food muſt not be too much dried, becauſe it will make them take up double the time in boiling. In Granaries, 'tis beſt to lay them in thick Heaps, or in Bins; which will preſerve them moiſt the longer; for the ſpreading of them thin on a Floor dries them too ſoon, and takes from them much of their Sweetneſs and Goodneſs. But the beſt way to keep thoſe that you deſign for your own ſpending, is to thraſh them as you uſe them, or to put them into cloſe Casks, and head them up.

Oats are the leaſt ſubject to the breeding of Vermin of any Grain, and are defended with a double Husk, and the beſt way to keep them after they are thraſhed, is to dry them well either on a Kiln, or with the Sun, and to put them in Hutches, or cloſe Casks, obſerving that they muſt not be thraſhed before *Chriſtmas*, becauſe they are not fit for keeping before that time.

Barley, if it lie in the Mow unthraſhed, will keep well for one Year, but when it is made into Malt, which muſt be done before the heat of Summer comes on, it muſt not be kept above a Year and a half, or two Years at moſt; if you do, it will be filled with Weevels; but if the Weevels do get into it, Wormwood laid in the Malt is a good thing to kill them, and likewiſe Oak-aſhes. Bins are the beſt things to keep it in; But as to the way to make Malt, that may be treated of by it ſelf in another Place: Some pretend that muſty Corn ſpread thin on a Cloth, and laid out all Night in the Dew, and dry'd next Day in the Sun, will be ſweet.

CHAP. IV.

Of Manuring, Dunging, and Soiling of Lands.

Soils and Manures taken from the Earth.

LIming of Land is very good, much improving barren Ground: About 15 or 20 Quarters of Lime is ſufficient for an Acre; alſo a Mixture of Lime and Dung is a very good Compoſt for Land, and the beſt way of ordering it for that which is ſandy or gravelly: But where there is not the Conveniency of a Kiln to burn the Chalk into Lime, ſimple Chalk may be uſed, which by Froſts and Rains will be diſſolv'd, and prove a good Enrichment to the Ground, and will alſo be very good to mix with Dung.

Lime is commonly made of Chalk or of any Sort of Stone that is not ſandy or very cold, eſpecially of a grey dirty coloured Stone, that if you break it will yield a white Powder; and all Sorts of Marble, Alabaſter, Slate, Oyſter and all Sorts of Sea-ſhells, and all Sorts of Flints, will make an extraordinary Lime (but they are hard to burn, except in a reverberatory Kiln, becauſe they are apt to run to Glaſs), for the harder the Chalk or the Stones are, the better is the Lime; only they require the more Fire to burn them: Both Sorts may be burnt with Wood, Coals, Turf, or Fern which makes a very hot Fire. The Kilns uſed for Chalk or Stone they commonly make in a great Pit that is either round or ſquare, according to Conveniency, and big according to the Quantity they burn, which they make wide at the Top, and narrow by degrees, as they come nearer to the Bottom: The In-ſide of this Pit they line round about with a Wall built of Lime-ſtone; at the Outſide near the Bottom, they have a Hole or Door by which they take out the Aſhes, and above that ſome have an Iron-grate, which comes cloſe to the Wall round about; but others arch it over with Stone or large Pieces of Chalk; and upo[illegible] this they put a Layer of Stone, or of what elſe [illegible]y burn in the Kiln, and upon that a Lay of W[illegible]r Coals, *&c.* which they repeat till the Kiln i[illegible]; only they obſerve, that the outmoſt Lay be [illegible]ys of Wood or Coals, or what they burn their L[illegible]e with, and not of what they make their Lime, to which they give fire at the Hole underneath. Chalk is commonly burnt in twenty four Hours, but Stone often takes up ſixty Hours: Ten Buſhels of Sea-coal, or a Hundred of Faggots three Foot long will burn forty Buſhels of Chalk, and forty Buſhels of Chalk will yield thirty Buſhels of unſlacked Lime.

Where Chalk is ſcarce, you may take the Chalk-rubbiſh and mix it with Water, working of it together as you do Clay for Bricks, which put into Brick-moulds, and after drying, burn it, and it will make as good Lime as other Chalk. But the Stone-lime is much the beſt for Land. The hard, dry and ſtrong Chalk is beſt for Lime, and the ſoft and unctuous for Lands, moſt of which it very much improves and alters their Nature, eſpecially of ſuch as have not been chalk'd before: But being apt to cauſe Land to exert it ſelf too much, except it be ſome particular Sort of Land, it will receive but little Benefit from a ſecond Chalking, if it be not well dung'd and kept in Heart, and unleſs it lies a great many Years to recover it ſelf: And therefore the beſt Improvement is to mix one Load of Chalk with two or three Loads of Dung, Mud or freſh Earth: It's beſt for cold, ſoure Lands, and generally for thoſe that lie fartheſt from it: Twelve or Fourteen Loads of Chalk is the uſual allowance for an Acre, where 'tis laid ſingle: To carry the Chalk upon a Lay, a Year or two before you plough it up is beſt, ſince it will ſweeten the Surface of the Earth, and work not ſo much downwards, as it will if plough'd up at firſt: It makes Corn to yield well, and will not ſo much increaſe the Quantity of Graſs Ground when laid upon it, as ſweeten the Graſs; ſo as to fatten Cattle ſpeedily, and make Cows give thick Milk.

Mr. *Mortimer* informs us they have a pretty way of ſaving Labour in digging of Chalk in the County of *Kent*, by undermining the Bottom of the Chalk, ſo far as they would have it fall: And they dig a ſmall Trench which is filled with Water, on the Top, ſo far as they undermine the Bottom which will ſoak down to it in about a Night's time, and cauſe a Flake from the Top to the Bottom, to fall the Breadth of the Place undermined: But as Chalk lies commonly deep, they then uſually dig for it in the ſame manner as Miner's carry on their Shafts, and draw it up with Buckets.

Marle is very good for the enriching of Land, inſomuch that it is commended by all Authors; there are ſeveral Kinds of it, as ſome Stony, and ſome of divers Colours, as White, Yellow, Gray, Black, Blew, Ruſſet, and Red; nay ſome Counties have various Sorts of it.

It is of a cold Nature, and very much ſaddens Land; but tho' ſome Marle is fat and ſomething more opening than other Sorts of it, yet the Generality of it is of a cold Nature, and will be bound down by the Weight of the Clay; and therefore commonly ſuits beſt with warm hot Lands. But as there are no general Rules without ſome exceptions; ſo where Marle is not laid too thick, nor is of a too tough binding cold Quality, it will often mend Clays; eſpecially Grazing-ground: For in the ſuiting of the Land and Marle together lies the chief Advantage; and therefore the beſt and ſureſt Rules to know the Richneſs and Profit of Marle by, is to try a Load or two upon each particular Sort of Soil that you have, and in different Proportions.

Cow-ſhut or Stone-marle is commonly found under Clay, or low black Land ſeven or eight Foot deep. Clay and Steel-marle ſometimes under ſandy Land. 'Tis rare in Clays that it lies above a Yard deep, tho' under Sand 'tis much deeper: But the

Suſſex Marle commonly ſhews it ſelf at the bottom, or on the middle of the ſides of hanging Grounds.

For the digging of Marle they commonly uſe Pick-axes, Spades, Shovels, and Wheel-barrows; and where the Pit is broad, that they can make an eaſie Aſcent, ſmall Carts which are about four Foot and ten Inches long, two Foot three Inches wide, and fourteen Inches deep, made ſo as a Load may eaſily be ſhot out of them. They commonly have three, four, five, or ſix Hewers or Diggers to four Fillers, always at work: Beſides, to each Cart muſt be a Driver and a Setter, whoſe Office is to ſhew where 'tis to be laid, and to aſſiſt in the unlading of it: Some ſort of Marle requires a Carrier of Water to ſoften it for the Workmen's Shovels; and if there be Springs, as there often are in the Slate-marle, there muſt be help to lade or pump it out, which often occaſions a great Increaſe of the Charge: For the eaſing of which Mr. *Mortimer* propoſes one of the cheapeſt and beſt Pumps, that is, take four Deals or other Boards, which joint and nail well together; and if ſome Plates of Iron be nailed over the Edges of 'em, it will ſtrengthen them much; theſe Pumps for which ſee *Plate* 1. *Fig.* 5. *p.* 256. may be made ſingle a common Pump-handle to them, for one Man to work them; or double for two Men, as in the Figure: *a a* ſhews the Cylinder of the Pump which is all of a ſize quite through; at the lower End at *B* is a Valve in the Bottom of it, which opens and ſhuts as the Bucket is moved up or down to the Valve at *B*, it may raiſe the whole Column of Water in the Cylinder, and cauſe it to run out at *D D*; the prick'd Line at *E*, ſhews how deep the Pump ſhould ſtand in Water, which is to the Top of the higheſt Riſe of the Bucket: Theſe Boards may be of what length and breadth you pleaſe, according to the height you have occaſion to raiſe the Water; only you muſt note, that the longer the Pump is, the leſs the Cylinder ſhould be, becauſe of the Weight of Water. One Man may work one of theſe Pumps that is twelve Foot long, and twelve Inches ſquare, which will void a vaſt Quantity of Water in an Hour, with a great deal of eaſe; becauſe the Motion is in Water without any ſucking, which requires a much greater Strength than the Weight of the Water, which ſhews the Fault of the common Pumps in making of them of two different Bores, and letting the Bucket to work above the Water; the ill Contrivance of which, he ſays, he has experienced in ſeveral Pumps, and particularly in one of ſixty Foot deep, which he cauſed to be bored quite thro', four Inches and half Bore; the Bucket he let down to the Bottom with Poles, which he grooved together and bound with ſmall Iron-bands: The Poles he made almoſt the Bigneſs of the Bore of the Pump, to eaſe the Weight of the Water in the Cylinder, and it raiſed three times the Water with half the Strength, when it was ſo altered, as it did before; and the ſame does not want thoſe continual Repairs and Mendings, that the leaſt Defects in Sucking-Pumps are conſtantly requiring.

Marle is ſuppoſed to be fruitful from its Salt and Oily Quality. Some when they cover their Land with Marle, will not plough above an Inch into the Soil, that they may not bury it, it being apt to work downward. But Mr. *Markham*, and others, are for having it plough'd in deep as ſoon as ſpread, becauſe he ſays the Sun waſts the Fatneſs of it. Mr. *Mortimer* thinks him in the right, as to the ordering of the *Suſſex* Marle, and the other in the right about the *North* Country Marle; becauſe the *Suſſex* Marle is much the fatteſt, and the way of ordering Marle muſt be according to the Nature of it; for the finding out of which Experience is the beſt Maſter.

Some propoſe to know good Marle by putting of it in a Glaſs of Water, and if 'tis ſo tender that as ſoon as it comes to the Bottom the Lumps break and diſſolve, they eſteem it good, elſe not; if it ſparkle in the Water, and feel Fat between the Fingers, 'tis reckoned a good Sign; but the ſureſt is its diſſolving with Wet or Froſt.

'Tis very neceſſary in marling of Land to find out the true Proportion that the Land requires, 'tis better to err by laying on too little than too much, becauſe you may add more at Pleaſure. Marle doth not make ſo great an Improvement on Land the firſt Year as afterwards.

'Tis beſt ſowing of Marled-land under Furrow; becauſe if they are well huſbanded, they will be mellow and hollow, which will occaſion the Land's ſinking from the Roots of the Corn if it ſtand too high; and the rougher theſe Lands are laid, the better, becauſe the Lumps will diſſolve with the Froſt, and moulder to Pieces, and by their breaking help to cover the Roots of the Corn. If Marle ſadden Land, or make it ſtiff or binding, you muſt dung it well, and lay it down for Graſs.

Where Lands lie upon the Sides of Hills, the Water iſſuing out of them, is apt to carry the Fat of the Marle away, except you can marle the upper Part, ſo as to have it waſh down upon the lower; and therefore flat Lands are beſt for Marle.

Theſe ſhould not be plough'd when too wet, becauſe 'tis apt to make them poach and breed Weeds, and 'tis good to plough them three or four Years, and then to lay them down three or four more for Graſs; for after the Land is marled and laid down for Graſs, if 'tis in heart, it may be improved by Marle again, after it hath been ſome Years fed; but otherwiſe it will never be improved by Marle again; and you muſt always obſerve, that when you deſign to lay down marled Land, to dung it well the laſt Crop; becauſe it opens the Land, and makes it much more fruitful, eſpecially in natural Graſs, or Graſs-ſeeds; and by this means Marle will laſt good thirty Years upon many Sorts of Land.

It is an excellent Improvement, ſays our Author, to high, dry, ſandy, gravelly, or mix'd Lands, tho' never ſo Barren, keeping them in good heart fifteen or twenty Years, and on ſome Grounds a longer time.

Strong Clay Ground is not proper for Marle.

In the Spring lay the Marle on Light, Dry, Sandy, and Gravelly Grounds, as aforeſaid; and in the Beginning of Winter on hard and binding Grounds, and ſpread it abroad, that the Froſt may moulder it in Pieces. Yet ſome are of Opinion, that the Winter Seaſon is the beſt to lay it on, for any ſort of Ground. There are four Sorts of Land in the Weald of *Kent* and *Suſſex*, mention'd by Mr. *Markham* to be improved by Marle. 1. A hazel Mould, which he adviſes to be plough'd up as deep as may be, even to the dead Earth, and to lay five Hundred of the ſmall Cart Loads of Marle upon an Acre: They ſow this Land upon a Laye with Oats to kill the Graſs; or marle it in *May* and ſow it with Wheat, giving it firſt a Summer Fallowing, and next Year ſow it with Peaſe early; then with Wheat again, if it is a moiſt Summer, but if dry then fallow it again firſt, allowing two Buſhels of Wheat upon an Acre, and no more; becauſe if you ſow it thick, it will be ſmall, and the Straw ſlender, which the Wind will be apt to beat down: He would have the Wheat fed by Sheep in *February*, which will trample the Earth the cloſer to the Roots of the Corn; after which if you roll it, he reckons it will be of Advantage to it; and after the taking of two Crops of Wheat, his Advice is to lay it down for Graſs five or ſix Years: And if it grow moſſy or broomy, then break it up again, and order it as you did before, laying it down again from the Wheat-ſtubble: And thus being interchangeably ſowed and reſted, it will laſt good thirty Years: Whereas if the productive Fat of the Marle be ſpent by often ſowing of it, and expoſing of it to the Sun and Air, it will remain a dead Clod that is not capable of being mended with new Marle.

2. Marle Cope-ground, which is commonly a cold, ſtiff, wet Clay, and not ſo proper to be marled for Corn (except black Oats) unleſs in ſome Places where 'tis very fleet for Paſture. Thoſe Lands muſt be plough'd fleet, leſt the Marle be drowned with the Wet. Where you have good Drains, and that the Clay lies any thing dry, it may be ſowed with Wheat. Three hundred Loads of Marle upon an Acre of this Land he reckons ſufficient, and that two Buſhels and an half of Wheat will ſow it, which muſt be ſowed above Furrow fourteen or twenty Days before *Michaelmas*, and ſhould be laid up in round high warm Ridges. Theſe Lands muſt be well mended with Dung and dry Earth; the Charge of which however will ſcarce anſwer, eſpecially if marled with *Suſſex* Marle; and their beſt Improvement is for Graſs, which Marle will make very ſweet for eight or ten Years, till the Marle is ſunk ſo low, that another Cruſt of Earth is grown over it; and then it may be plough'd up: But it muſt be done but fleet, and but a Crop or two of Corn taken from it, and then be laid down for Graſs again. Theſe Lands when fallow'd, muſt be fallow'd very dry.

3. Sandy and gravelly Grounds, which are to be ordered much as the Hazely, ſave only in that more Marle may be laid on them, and that they muſt not be ſo often plough'd. 'Tis beſt to plough theſe Lands pretty deep, and the more Marle may be laid on them. They commonly allow five or ſix hundred Loads to an Acre of theſe Lands, which they ſow always under Furrow about *Michaelmas*, allowing two Buſhels and an half of Wheat to an Acre, and leave it as cloddy as they can; and after they have taken a Crop from them, they fallow them, and ſow them with Wheat again, for they do not reckon them rich enough as yet to bear good Peaſe. This done they let them reſt four or five Years. If they are over-run with Broom, they cut or pull it up, and after that ſow it with Oats; the next Year they fallow it, and lay three or four hundred Loads of Marle upon it, and order it as the hazely Ground, and it will mend them for thirty Years. Where either the ſandy or gravelly Lands are ſpringy or wet, he adviſes rather to marle them for Graſs than Corn, and to lay five hundred Loads of Marle upon an Acre. Some propoſe to burn Marle, and then to lay it on the Land; and that where they do ſo, ſixty Loads will go as far as three hundred Loads not burnt; but they do not mention the Sort of Land 'tis to be laid on, nor of what Sort the Marle is.

Fullers-Earth is likewiſe a good Soil, being of a very fat Nature, and full of that Vegetative Salt, that helps the Growth of Plants, which appears by its cleanſing, ſcouring Qualities: But 'tis not ſo much uſed for the Improvement of Land, becauſe of the Profit it otherwiſe yields.

Clay is a very good Improvement to dry, light, and ſandy Ground, being ſpread thereon like Marle, or other Soils. It allays their Heat, makes them more ſolid and tenacious, and more conſtant in the Produce of their Crops, preventing their being ſpoiled with every uncertainty of the Seaſon, and altering and changing the very Nature thereof: The Clays that lie deepeſt are the beſt for this Uſe.

By the ſame Rule that Clay is good for Light and Sandy Ground, Sand is good for Strong, Cold, and Stiff Land, a ſufficient Quantity thereof being laid thereon; but as to the Quantity, it is good to try the Nature of the Ground, and accordingly add a greater or leſſer Proportion. The beſt and fertileſt Sand is that which is waſhed from the Hills, or other Sandy Places, by the violence of Rain.

Sand is alſo very good to mix with other Compoſt, and for raiſing a good Quantity thereof, in the Winter, houſe your Sheep and other Cattle, but not altogether, for fear of ſpoiling one another; and there fodder them, having Racks placed up and down in the ſaid Houſes. Let there be firſt ſpread on the Floor a good thick Coat of Sand, and ſhort Muſty Straw, good for little elſe, upon which they will Piſs and Dung; and when it is well covered therewith, then lay on another Coat of Sand and Straw; and this courſe uſing will make a conſiderable Quantity of Soil, for the enriching of any ſort of Ground. As for Sands found on the Earth, the beſt is that which is waſhed out of High-ways, or from Hills and Sandy Places, by the violence of the Rains, on that which lies in Rivers: The common Sand that is dug out of the Earth, having but little Fertility in it; only they may effect much by way of Contraction to Clay-Grounds.

The Dirt, or Soil of Towns, is a very good Improvement; ſo are particular ſorts of Earths, as all ſorts of a ſaltiſh Nature; the black Moulds that lie in low Meadows, and Mud of Ponds and Rivers, eſpecially if mixed with Dung, are a great Improvement of gravelly, and ſandy Grounds, or any dry Uplands, and ſo is Earth covered with Hovels, or Houſes, eſpecially ſuch as have any Salt-petre in them: Or if they have been uſed for the folding of Sheep, as is commonly practis'd in *Flanders*; or if mixed with Lime, or any fat Subſtance, or the Dung of Beaſts, Fowls, *&c.* eſpecially if they are caſt up to ferment together ſometime, or be thrown into low Places, that the Moiſture of Dung waſhes into; which will not only improve the Earth, but moderate the Heat of the Dung, and make it a greater Improvement of hot Grounds, eſpecially for Paſture; and increaſe both Dung and Earth in Quantity.

Soils taken from the Sea-Shore.

THE Sands of the Sea-Coaſt, and Creeks, being of a Saltiſh Nature, are very good for the Improving of Barren Land, and are much uſed in the Weſtern Parts of *England*. Some reckon the main Vertue of the Sea-ſand to conſiſt in its Saltneſs, and others in the Fat and Filth that the Sea gathers from the Land-floods, the Shores, the Fiſh, and things that putrifie in the Sea. Perhaps it proceeds from both, and that there is a third thing that contributes to its Vertue as much as any thing, and that is the Fiſh-ſhells that are commonly mixed with it, which the working of the Sea breaks as ſmall as the Sand it ſelf; for the fuller the Sand is of theſe broken Shells, they reckon it the better: Sea-ſhells of any Sort being very great Improvers of Land; eſpecially ſuch as is ſoure or cold, but where they are not broke to Pieces by the working of the Sea, 'tis good to break them with an Iron-ſtamper, or rather with ſuch a Mill as they break Apples with; or elſe, to calcine them, ſo as not to make Lime of them, but to give them ſuch a Heat as may cauſe them to moulder, and fall to Pieces with the Rain and Froſt, becauſe they are a long time elſe before they will diſſolve, eſpecially if they are of a hard ſtrong Sort, ſuch as Oyſter-ſhells, and the like.

The Sand uſed for Land is of three Colours. That about *Plymouth* and the Southern Coaſts is of a blue or grey Colour, like Aſhes, which ſome reckon to proceed from the breaking of the Muſcles and Oyſter-ſhells mix'd with it. Weſtward, near the Land's-End, it's very white, and in *Scilly* gliſtering, which may be occaſion'd from the Mouldering of Moor-ſtones, or a kind of Free-ſtone, mingled with white Scallop Shells. On the North-Sea, from about *Padſtow*, and Eaſtward to *Lundy*, the Sand is of a brown, reddiſh, yellowiſh Colour, and is compoſed moſtly of broken Cockle-ſhells. In *Falmouth*, near St. *Maw*'s Caſtle, there is a ſort of Sand, or rather Coralline, that lies under the Owze, which they are forced to remove before they can come to the Bed of Sand. That Sand is eſteem'd the beſt that is of a red Colour, the blue next, and the white worſt. The Sand taken up by Dredges from under the ſalt Water, or that is left open by the Ebbing of the Tide, and the Sand that is of the largeſt Grain, is the beſt, though the ſmall grain'd Sand is eſteem'd beſt for the Tenant, who only takes three or four Crops; and the large for the Land-lord and the Land, becauſe it abides longer in the Ground, and makes the Paſture afterwards the better. If the Sand be well drain'd of ſalt Water, ſo as it may conveniently be carried, they reckon it better than if it lie too long in the Wind and Sun. Where the Sand is near, they lay about ſixteen Tuns upon an Acre; where they can go three times a Day, they lay but ten; where twice, five Tuns; and where about once, two or three; and in ſome Places but one Tun, where the Diſtance is great.

As ſoon as 'tis brought home, they ſpread it on the Ground, from which they commonly take four Crops of Corn, and then lay the Land down for Paſture for ſix or ſeven Years before they plough it up again; the Graſs will be ſo good, that they commonly mow it the firſt Year. It runs moſt to white Honey-ſuckle, or Clover; and though in ſome Lands the Graſs is but ſhort, yet it yields great Plenty of Milk and Cream, fats Cattle exceedingly, and mends Garden Herbs and Fruits, making the Corn to have a large Ear, and a ſhort Straw; ſo that ſometimes the Ear of Barley is very near as long as the Stalk: But where little Sand is uſed, there is much Straw, and not ſo much Grain. In well ſanded Lands little or no Snow lies, but there is a continual Spring even in the Midſt of Winter, and the Harveſt is commonly a Month or ſix Weeks ſooner than in other Places, and 'tis reckon'd to agree with any ſort of Land whatſoever.

They improve their Barley-Ground in *Cornwall* with a Weed, called *Ore-Weed*, which grows upon Rocks under the High-water Mark, and ſome is broken from the Bottom of the Sea by rough Weather, and caſt upon the Shore by the Winds and Floods.

Snail-cod, or *Snag-gret*, lieth frequently in deep Rivers, and is full of little Shells, one Load of which is reckon'd as good as three Loads of Dung. All manner of Sea-Ouze, or Ouzy Mud, and the Mud of Rivers, Lakes, or the Bottom of Ditches, the Waſh of Paſtures, Fields, Commons, Roads, Streets, or Back-ſides, in any Place where the Water meets with Reſt, or that Rain-water hath a long time ſettled, or that Sinks run into, are of very great Advantage to all ſorts of Land, eſpecially dry Gravels or Sand, and are mix'd with Dung.

In ſome Places, when the Glut of the Seaſon of Fiſhing is, and that they are very cheap and plentiful, caſt a good Quantity upon the Land, which will cauſe an exceeding great Fertility, though never ſo barren before. And without doubt there is nothing that proceeds from the Sea or Rivers, whether Fiſh, Garbiſh of Fiſh, Shells, Sand, or Mud, but is very profitable to the Enrichment of the Ground, if judiciouſly apply'd.

Of Dungs, and other Sorts of Soils and Manures.

SHeeps Dung is the beſt and richeſt, ſo that the Folding them on the Land (which is but a thin Sprinkling), cauſeth as great a Fertility as an indifferent Dunging. 'Tis beſt for cold Clays, and when mix'd with Earth and Sand. Mr. *Mortimer* ſays, He had known vaſt Crops of Rye upon barren Lands, that had been old Warrens, and well dung'd with Rabbets.

Horſe-Dung, which is the moſt common, by reaſon of their keeping in Stables, and their Soil preſerv'd and caſt up in Dung-hills to rot with the Litter, is alſo a very good Manuring to Land, being of a hot Nature, and therefore excellent for Gardens, as alſo for cold Grounds.

Cow-Dung is of a colder Quality than that of Horſe or Sheep, and therefore more fit for hot and ſandy Grounds.

They make a very good Manure on any ſort of Land, according to Mr. *Mortimer*, by mixing them together; and your Dung in Winter-time, when any Rains fall, ought to be turn'd up in Heaps, and laid as thick as may be, to prevent the Sun's exhaling the Vertue of it, and the waſhing away of its Fatneſs and nitrous Quality by the Rains: This will alſo make it ferment the better. He adds, That the beſt Time to carry Dung upon Lands is in Winter-time, that the Showers may waſh it into the Ground, and be alſo then the leſs expoſed to the Sun: That if the Land deſign'd to be dung'd lies in ſmall Ridges, let them be ſplit by caſting two Ridges into the Furrow to fill it up, and ſo lay on your Dung, or other Manure; or rather plough three Furrows into one, that ſo you may lay your Manure on the Top, and not bury it too deep: But where Dung is to be laid on a Summer's Fallow, 'tis beſt to be done at *Twy-Fallowing*, obſerving not to ſpread the Heaps till you are juſt ready to plough the Dung in, that ſo caſting it under Furrow, you may turn the Ridge over it, ſo as to cover it from the Heat and Drought of the Summer-Sun and Wind, till you twy-fallow it; when you may raiſe it again, and ſo turn the Dung up that was buried before. But many find fault with the Dunging of Corn-Land, and ſay it cauſes Weeds; and therefore in ſome Places, to prevent that Inconveniency, they let their Dung lie till it is turn'd to Mould, whereby half its Vertue is loſt; for one Load of new Dung for Corn-Land is worth two of old: Whereas the Occaſion of their Land's being ſubject to Weeds is either from the natural Quality of it, or from laying too great a Quantity of Dung on them at once, many often laying forty or fifty Loads upon an Acre; whereas the greateſt Quantity that ſhould be laid upon Clay-Lands, if ſown with Corn, (which are the beſt Lands to bear Dung) ought not to be above twenty Loads upon an Acre; and for the red hazely Brick-Earth, or light Sands, that are ſubject to Weeds, and that ſpend themſelves in producing of Straw rather than Grain, ten or fifteen Loads upon an Acre is enough at a time, becauſe by that means you may be often dunging them, and renewing their Surface with freſh Dung: For in two or three Crops they will eat out the Vertue of any Quantify of Dung that is laid on them, and too much Dung doth but increaſe their Rankneſs: But the beſt Corn that you can dung theſe Lands for is Barley, which delights in a well dung'd Soil: But then it doth beſt upon an Etch-Crop, becauſe the Fallowing next Year will mix the Dung and Earth together, abate ſomething of the Strength of the Dung, and prepare the Land the beſt for Wheat of any Way. Indeed upon gravelly or ſandy Land thirty or forty Loads may be laid upon an Acre, or more, if 'tis a ſleet Soil, and mix'd with a great Quantity of Earth, Marle, Mud, or Clay, *&c.* For by that means you not only qualifie the Dung, and mend the Land, but you increaſe the Depth of the Soil, which is the beſt way of improving of theſe Sorts of Lands, or any Sort of Graſs-Grounds; but clean Dung is beſt for Barley; and if Dung be laid upon Land ſometime before 'tis ſow'd, 'tis much better than to lay it on juſt at the Time of Sowing.

Swines Dung is very good, and eſteem'd better than Cow-Dung; and great Quantities may be made from about a Score of Hogs, if well order'd, which is to keep them up in a Yard of an indifferent Largeneſs, well paved, with a little Falling one way, to the End their Piſs may fall to one Part, where the Dung ſhould be ſhovell'd up to rot. Let their Sheds, or Sties, be made along the Side of the Pales, at the upper Part. The Hog-Troughs ſhould be fix'd in the Ground, with ſome part without the Yard, for the better Conveniency of giving them Meat therein without coming into the Yard; and for the making the greater Quantity of Dung, caſt into the Yard (beſides their other Food, as Roots, Offal, Wind-falls of Fruit in the Time of the Year, Coleworts and Cabbage-Leaves) great ſtore of Fern, or muſty Straw, to make Dung of, which they will ſoon do by their trampling, lying and dunging upon it, inſomuch that there may be made yearly of good Soil out of ſuch a Hog-yard about forty or fifty Loads. 'Tis the beſt of all Dungs for Trees. Mr. *Mortimer* is of Opinion, the propereſt Way of ordering it is to mix it with Horſe-Dung; and therefore the Hog-Cote ſhould be placed as near the Horſe Dung-hill as can be with Conveniency.

The Dung of Fowls, as Pigeons, Hens, Ducks, Geeſe and Turkeys, is excellent, one Load being worth a Dozen of ordinary Dung; ſo that, inſtead of laying it on the Land in the ordinary Huſband-like Way, it ſhould be ſown on the Ground. Forty Buſhels of Pigeons Dung will manure an Acre of Land: 'Tis beſt for Barley or Wheat, and on cold Lands. Hens Dung is beſt mix'd with other Dung, or with Aſh-heap, Earth, or Sand. Gooſe-Dung is ſtill eſteem'd by ſome noxious to Cattle, though without any Grounds; and it is as good both for Corn and Graſs as any other Fowl's whatſoever.

Urine, by *Glauber*, is reckon'd to be of a deſtructive mortifying Nature to Vegetables, becauſe of the Sal-Armoniacal Quality that is in it; but 'tis an indiſcreet Uſe of it by the Application of too great a Quantity that makes it ſo; and even Dung it ſelf will have the ſame Effect for a time where it is laid too thick. There is nothing that will improve Land, or increaſe the Strength of Manure, nor help the Fermentation of Dung, more than Urine will do; for which Reaſon in *Holland* they are as careful to preſerve the Urine of their Beaſts, as their Dung.

Humane Ordure is of all ſorts of Dung the greateſt Improver of Land, eſpecially if mix'd with other Dung, Straw, or Earth, to give it a Fermentation, and to render it convenient for Carriage, and ſells in Foreign Parts at a much greater Rate than any other ſort of Manure.

Aſhes of all ſorts contain in them a very rich fertile Salt, and are the beſt Manure of any to lay upon cold or wet Lands, eſpecially if kept dry, that the Rain doth not waſh away their Salt. One Load of dry Aſhes will go as far as two Loads not kept ſo. But as Rain-Water diminiſhes their Salt, ſo the moiſtning of them with Chamber-Lye or Soap-Suds will add mightily to their Strength. Two Loads of theſe Aſhes will manure an Acre of Land better than ſix Loads of thoſe that are expoſed to the Rain, and that are not ordered ſo, which is the common Allowance for an Acre, though ſome Lands do require more, and ſome leſs. That the Aſhes of any ſort of Vegetables are very advantagious to Land, is what is experienced in moſt Places of *England*, by the Improvement that is made by burning of Fern, Stubble, Straw, Heath, Furz, Sedge, Bean-ſtalks, *&c.* But of all ſorts of Aſhes I eſteem Sea-coal Aſhes the beſt for cold Lands, and the moſt laſting. If you ſow your Aſhes upon Graſs-Ground, do it in *April*, but upon Corn juſt after you have ſow'd your Seed.

Soap-Aſhes are eſteem'd a very good Soil, both for Arable and Paſture-Ground; that is, the Stuff that comes from the Soap-Lees, when the Soap-boilers have done with it. The beſt Seaſon to lay it on the Ground is in the Beginning of Winter, that the Rain may waſh it into the Earth. The Aſhes, after the Pot-aſh-men have done with them, are good for moſt Sorts of Lands, only as they have been wet, and ſo the Soap hath drawn out moſt of the Salt, it will be neceſſary to lay them much thicker than other Aſhes.

Rags are exellent Soil for Land, one Load going as far as a Dozen of ordinary Dung. They chop them very ſmall, and ſow them juſt after the Sowing of Corn, allowing four Sacks, each containing ſix Buſhels, to an Acre.

Malt-duſt is a very great Enricher of barren Ground. The Way to uſe it is thus: After your Corn is ſown and harrow'd in, take the Malt-duſt, and ſow it over the Ground, as you do Corn. About four Quarters is ſufficient for an Acre; and, as near as you can, let the Duſt be ſown in a wet Seaſon, that the Rain may waſh it into the Earth. This is as good an Enrichment to Ground, (eſpecially for one Crop) as an ordinary Dunging. This Malt-duſt is to be bought of Maltſters, or great Brewers, and for about three Shillings the Quarter.

Hair, *Horn-ſhavings*, *Shreds* and Pieces of *Leather* are found to enrich Ground very much, being thinly ſtrew'd thereon.

Soot is very good, eſpecially that which is made of Wood. It is moſt beneficial to Trees or Plants, that either grow in the Shade, or in cold and moiſt Grounds. *Sea-cool Soot* is the beſt by much: Forty Buſhels is uſually allow'd to an Acre, though ſome Lands require more. It produces a mighty ſweet Graſs, and deſtroys Weeds: Alſo Wood-Chippings and tarr'd Hempen-Ropes, cut ſmall and untwiſted, are beneficial to Land.

Salt, if uſed with Moderation, is ſaid to be a good Improver of barren Ground; and doubtleſs it is true; for by Experience it is found, that Corn, being ſteep'd ſome time in Brine, doth not only cauſe Fertility, but alſo prevents Soot in the Ears, and, ſome ſay, Bliting alſo; but that I ſhall not aver.

Some commend Deer's Dung as a Manure very good for all ſorts of Land, two Loads being ſufficient for an Acre. All ſorts of Fern, Straw, Stubble, Ruſhes, Leaves of Trees, or any manner of Vegetable whatſoever, caſt into the Dung-yard, before they are near ſeeding (elſe they are apt to breed Weeds in the Dung) are of great Advantage to increaſe the Bulk of the Dung. In like manner the Barks of Trees have a very rich Salt in them, eſpecially that of Oak, and ſo hath rotten Saw-duſt, or any other rotten Wood, which, mix'd with Earth, makes Land light, enriches it very much, and even alters and changes the very Nature of it, turning it into a rich black Mould.

In the Coal-Mines they uſually dig a kind of blue or black Clay, that lies near the Coal, commonly called *Urry*, and is as it were an unripe Coal, which is very proper for hot Lands, eſpecially for Paſture-Grounds.

They improve their Lands in *Cheſhire* by letting out the Water of the ſalt Springs on them, which they do always after Rain; and there are no Lands richer, and that fatten Cattle ſooner than thoſe Lands that are but ſometimes overflow'd with the ſalt Water, as only at ſome extraordinary Spring-tides, eſpecially where they have any freſh Water to go to in ſome near adjoining Lands.

Any ſoft Stone, as Free-ſtone, Lime-ſtone, *&c.* if broke ſmall, and laid on cold Lands, muſt be of Advantage to them, as is practiſed at *Hornetton* in *Oxfordſhire*, where they dung their Lands with the Chippings of a ſort of ſoft Stone that they have there. In fine, whatſoever is apt to rot and conſume in any competent Time, and that is either ſalt, unctuous, or fattiſh, is good for the Improvement of Land.

All the Dungs and Soils before-mention'd are improved by mixing them together, and giving them a good Fermentation. The common Way is by laying of the Dung on Heaps till it rots; but the Way that would be moſt profitable to the Huſbandman is to make near his Houſe or Barns a large Pit, in Length and Breadth according to the Quantity of the Soil he hath, and to pave it with Stone or Chalk, that it may detain the Moiſture of the Dung, becauſe the moiſter the Dung lies, the ſooner it will ferment and rot; but if you can have a Covering over it, ſo as to keep all the Rain-water out of it, or if you can moiſten it with the Urine of your Stables, Sink of your Houſe, *&c.* it will much improve it: For the Rain-water that runs from it carries away the Salt of the Dung with it, which is the chief Cauſe of its Fertility. But if you cannot have ſuch a Conveniency, lay it as thick on Heaps as you can, and in the moiſteſt loweſt Places that you have, covering the Top of it with Turf, or other Earth, to prevent the Sun and Wind from exhaling and drying up the Vertue of it: For the well preparing of your Dung, and the Increaſe of its Quantity, is a Piece of Huſbandry that great Care ought to be taken of; for the better and greater the Quantity of your Dung is, the better will be your Crop; and the Increaſe of the Crop will make an Increaſe of the Dung: And ſo on the contrary, a Decay in your Dung makes a Decay in your Crop, *&c.* and therefore the whole of your Profit and the Value of your Farm depends upon theſe two Points.

The Ways and Means of Improvement of Grounds by Dunging and Soiling, as aforeſaid, is very good and effectual; but in many Places very chargeable and troubleſome, by reaſon that it cannot be obtain'd but at dear Rates by Carriage, or otherwiſe; ſo that the Profit accruing thereby will not anſwer the Expence and Trouble. In this caſe your Art muſt be uſed to the Seed deſigned to be ſown on ſuch Land; and for that there are ſeveral Ways to be uſed, ſome of which are as followeth.

Let your Corn be ſteep'd in Dung-water for ſome time, wherein put ſome Salt-Petre; then lay it to dry on ſome Floor, and ſo ſow it. It is alſo good to ſteep the Corn in new Ale or Wort; but more effectual to ſteep it in Nitre, or *Sal Terræ*, which is ſo highly extoll'd by *Glauber*, being that fixed Salt extracted out of any Aſhes, either of Vegetables, Animals, or Minerals, that are thoroughly calcined.

Sheeps or *Pigeons Dung*, diſſolv'd in Water, with Salt caſt therein, is very good to ſteep Corn in: But above all, take ten or twenty Gallons of Train-Oil, or ſuch a Quantity as you ſhall have Occaſion for; put it into a large Veſſel, and caſt therein your Corn, that is ſuch a Quantity as the Oil will well cover, and let it lie and ſteep till it be ſupple, and as it were glutted therewith; then take it out, drain it, and ſpread it on a Floor, and with a Sieve ſprinkle it over with ſlack'd Lime; then with your Corn-Shovel let it be turn'd, that the Lime may encruſt the Corns, or Grains, all over, and ſo ſow it. This Way is recommended for an excellent Improvement, exceeding all the others; for the Oil is fatning, and the Lime doth preſerve it from Vermin, as alſo from Smut.

There is another compound Liquor, which is ſaid to ſurpaſs the former; that is, Take a Quantity of unſlack'd Lime, put thereto as much Water as will make the Water ſwim about four Inches above it; and unto the Water that is poured off mix one Tenth part of *Aqua vitæ*, and in that Liquor ſteep your Corn about 24 Hours, then take it forth, and dry it; which done, put it in the ſaid Water again, and let it ſteep 24 Hours more, then take it forth, and dry it; which done, put it in the ſaid Water again, and let it ſteep 24 Hours more; then take it forth, and dry it, and obſerve the like way a third time; then ſow it, but ſo thin, that every Corn or Grain may be about nine Inches apart, if poſſible; and 'tis ſaid, that one Grain will produce thirty or forty Ears, very large, with a large and tall Stalk; but this I leave to Trial, not averring it for Truth.

Of Burning Land.

THE Burning of Land, or indeed any other Operation on it by Fire, is a very great Improvement to barren and poor Ground, be it wet or dry; and this is the only Improvement the *Americans* uſe; for the Burning of any combuſtible thing on the Land doth much heat the Ground, and waſtes that acid ſterile Juice that hinders its Fertility.

This Art of Burning of Land, commonly called *Denſhiring*, is not to be practiſed on Ground of a good, rich and looſe Soil, that produceth flouriſhing Crops; but only upon barren, ſoure, hide-bound and ruſhy Ground, be it either dry or wet, hot or cold.

The uſual Method of Ploughing it is with the Breaſt-plough, which a Man ſhoves before him, made after the following Manner. [See *Plate* I. *Fig.* 6. *p.* 256.] At *P* is a little Edge turn'd up, that cuts the Turf off from the reſt of the green Sward, by means of which, when the Turf is cut about a Foot and half long, they turn it over the Cutting-Iron, being about eight or nine Inches long. With this Plough they pare the Turf about half an Inch thick, except the Land is very full of Strings, Roots, and combuſtible Matter; then, if it is pared thick, 'tis the better; which they turn over as they cut it, that it may dry the better. If it proves a dry Seaſon, and the Weather hot, it will need no more turning; but if wet, they raiſe the Turfs, and ſet them a little hollow. Some rear them on Edge, and to make them ſtand, ſet them winding like the Motion of a Serpent's going, which gives Opportunity to the Wind and Sun, to dry both Sides. When they are dry, they commonly lay about two Wheel-barrows full to an Heap; but the leſſer the Hills are the better, provided there be enough to make ſuch a Fire as will thoroughly conſume the Heaps to Aſhes. If the Turf be full of Roots, or have a good Head on it, or if it be in a deep Soil, that you may cut it pretty deep, it will burn without the Addition of any other Fuel: If not, they raiſe their Heaps on a ſmall Bundle of Ling, Furz, Brakes, or ſuch like Fuel, to ſet it on Fire. Theſe Hills, when burnt, they let lie till they are a little ſadned with the Rain before they ſpread them; which they commonly do in a calm time, or after Rain, that the Wind may not carry away the Aſhes, nor hinder the equal ſpreading of them; and they pare the Ground under the Hills ſomewhat lower than the Surface of the Earth, to abate its over-great Fertility, occaſion'd by the Fire's burning of it. This Land muſt be but ſhallow, or half plough'd, not above an Inch below the Depth of the Aſhes, and not much above half the Quantity of Corn you ſow on other Lands ſown on it, which they reckon beſt ſow'd late. If with Wheat, about the latter End of *October* is beſt, becauſe of preventing the Over-rankneſs of it.

In theſe Lands they commonly cut the Turf off in *May*, or any time in the Beginning of Summer; but the ſooner the better, becauſe of having Time to bring the Land into Order. The Turf muſt not be over-burnt, but only ſo as may make it break and ſpread well; for the Over-burning of it to white Aſhes, waſtes the nitrous Salt: And though the middle part of the Hills will be more burnt than the Outſide, yet by keeping of the Fire from breaking out, and by laying of combuſtible Matter on the Outſide, you may fix the Salts in all Parts of it, which is beſt done by a ſlow Fire.

Some ſtub up Furz, Broom, Heath, *&c.* and lay on Heaps, and when dry cover them with the Parings of the Earth, and burn them. Others burn their Stubble on the Land, and others gather either Stubble, or any other Traſh they can get, into Heaps, and burn them; and to every Heap or Hill of Aſhes ſome put a Peck of unſlack'd Lime, which they cover with the Aſhes, and let it ſtand till Rain comes to ſlack the Lime, and then they ſpread the Aſhes and Lime together. 'Tis obſervable of this Sort of Improvement, that it tends moſt to the Increaſe of the Product, whereas other Manure increaſes rather the Subſtance of the Straw, and breeds Weeds, than the Quantity of the Grain or Fruit.

Of ſeveral Sorts of Ploughs.

HAving given an Account of the *Breaſt-Plough*, and there being many other Sorts uſed in Huſbandry, ſome of which are more convenient in ſome Particulars than others, and ſuit ſome Sort of Lands better than others, I ſhall endeavonr to give a Deſcription of the moſt uſual Sorts of them, with an Account of the Advantage and Diſadvantage of each Sort; what Sort of Ploughs are reckon'd beſt for each Sort of Land; deſcribe ſeveral Sorts of Ploughs uſed in ſeveral Places; and, laſtly, give ſuch general Rules as may ſerve to direct you how to judge what Sort of Ploughs are beſt.

1. The Plough reckon'd the moſt proper for ſtiff black Clays is one that is long, large, and broad, with a deep Head, and a ſquare Earth-board, ſo as to turn up a great Furrow; the Coulter long, and very little bending, with a very large Wing; and the Foot long and broad, ſo as to make a deep Furrow.

2. The Plough for the white, blue, or gray Clay need not to be ſo large as the former, only ſomewhat broader at the Breech, the Coulter to be long and bending, and the Share narrow, with a Wing coming up to arm and defend the Earth-board from wearing.

3. The Plough for the red and white Sands or Gravel, or any light Moulds, may be lighter and nimbler than the former, the Coulter more circular and thinner, and the Wing not ſo large

As to the particular Sorts of Ploughs uſed in ſeveral Countries, it would be endleſs to give a Deſcription of them all, and would be of little Advantage, becauſe the different Forms uſed proceed more from the Cuſtom of the Country, than any Uſefulneſs that belongs to them, and therefore we will confine our ſelves only to the moſt common Sort, or to thoſe that have ſome particular Uſefulneſs belonging to them; amongſt the Number of which, the Preference ſhall be given to the *Hertfordſhire* Wheel-Plough, as one of the beſt and ſtrongeſt for moſt Uſes, and of the eaſieſt Draught, and what ſuits beſt with all Sorts of Lands, except miry Clays in Winter, which are apt to clog the Wheels at that time times of the Year; but even for thoſe Sort of Lands they are the beſt Ploughs to plough up Layes or Summer-Fallows with, becauſe they turn the Turf beſt of any of the common Sorts, and plough up Mole-hills, or uneven Ground, without levelling, and fallow Land in Summer in the drieſt Weather. The chief Fault that attends them is their Handles ſtanding ſloping on one Side, which makes them very troubleſome to hold and to follow, eſpecially to thoſe that are not uſed to them: But that might eaſily be remedied in the Make of them, were the Makers and Holders of them not wedded to their particular Way, the Form of which Sort of Plough you have repreſented, as well as the reſt, in *Plate* 1. *Fig.* 7. *p. ib.* &c. The Names of the particular Parts of the Plough are; as *A* is the Plough-beam, *B* the Handle, Tail, Stilts, Hales or Staves, *C* the Neck, or Share-beam, *D* the Earth-board, Mould-board, Breaſt-board, Furrow-board, Shield-board, *&c.* *E* the Sheath, *F* the Share-Iron, *G* the Coulter, *H* the Plough-pin, and Collar-links, *I* the Plough-pillow and Boulſter, *K* the Wheels.

About *Colcheſter* they have a fine light Wheel-plough, that with two Horſes they plough up two Acres in a Day of their light Lands; which Sort of Plough is very peculiar for its Earth-board being made of Iron, by which means they make it rounding; which helps to turn the Earth or Turf, much better than any other Sort of Plough that I have ſeen.

The *Lincolnſhire* Plough is very particular in its Shape, and is a very good Plough for Marſh or Fenny-Lands ſubject to Weeds and Sedge, and that is free from Stones, becauſe of its Coulter, and the largeneſs of the Share which they make many times above a Foot broad, and very ſharp; at *A* is a Foot which they ſet higher and lower with a Wedge at *b*, which keeps the Fore-part of the Plough from going deeper than they would have it: At *C* are Wedges that they ſet the Hinder-part with; the Coulter is a ſharp turning Wheel which cuts the Roots of the Graſs or Sedge croſs by its motion as it goes round, while the broad Share cuts the Bottom of their Roots. See *Fig.* 8. *p. ib.*

The moſt common Plough is the following called the Dray-plough, which is the beſt Plough in Winter for miry Clays, when the Land is ſoft; but the worſt in Summer, when the Land is hard: Becauſe the Point is always flying out of the Ground. This Plough is ſet higher or lower, as they find occaſion, by Wedges at *a*, and differs but little from other Ploughs. See *Fig.* 9. *p. ib.*

In *Suſſex* they uſe much the ſingle Wheel-plough, which is a Sort of Ploughs I ſhould not have mentioned, but for their different Make from moſt other Ploughs, becauſe they are a very clouterly Sort; and as they are very wide in the Breech, I cannot but think the Draught of them to be very hard. See *Fig.* 10. *p. ib.*

About *Caxton* in *Cambridge-ſhire* they have a very miry ſtiff Clay with ſmall riſing Grounds, the upper part of which they ſow with Corn; and the lower Vallies, becauſe of the Poachineſs of them, they keep for Graſs, which nevertheleſs in wet Winters are ſo ſpewy, that they know not how to feed them; and to cut Drains with Spades, they thought would be very chargeable, and ſo they invented a Plough to do it with; which they made much like another Plough, only much ſtronger and bigger. See *Fig.* 11. From the Beam ſtands out a Piece of Wood at *A*, in which is a Coulter ſet at *B*, and another ſet in the Beam at *C*, which two Coulters ſtand bending inwards as at *D*, to cut each ſide of the Trench. The Share is very broad and flat, and cuts off the Bottom of the Trench. The Mould-board is three times the length of other Ploughs, to caſt the Turf a great way off of the Trench. This Plough cuts a Trench a Foot wide at the Bottom, a Foot and an half broad at the Top, and a Foot deep. It was drawn with twenty Horſes, and coſt three Pounds to make, but the Diſpatch it made anſwered the Charge.

The following Plough is a *Spaniſh* Plough, with one of which, and one Horſe, they will in *Spain* plough two or three Acres of their Light Lands in a Day; becauſe of the great Difference there is in the Make of it from our common Sort, I thought the inſerting of it might be of ſome uſe to help towards the Improvement of this uſeful Inſtrument. See *Fig.* 12. *p. ibid.*

As to the Rules to be obſerved in the Shape of Ploughs: 1. They muſt be great or ſmall, according to the Depth and Strength of the Soil you plough, and as the Earth is wet or dry: For which reaſon every Farmer ought to have ſeveral Sorts of Ploughs.

2. The Coulter where the Land is ſtiff muſt be the greater and the ſtronger, and go the deeper; which muſt be proportioned to the Soil, becauſe in deep Grounds the Weeds root the deeper; for the better cutting up of which, ſome place on the right-ſide of the Coulter a ſmall Wing or Finn, which cuts in two the Bottom of the Roots; and eaſes much the Draught of the Plough.

3. A great matter to be obſerved in the making of Ploughs, is to make them go true to the Pitch they are ſet, and to keep the Line you ſet them in without ſwerving to the right or left, which depends much upon the Truth of the Iron-work; and therefore the Plough ſhould rather be ſuited to the Irons, than the Irons to the Plough, the Wood-work being eaſieſt altered, if there ſhould be occaſion.

4. A ſhort Plough or a Plough with a broad Breech can't go ſo eaſie after Cattle, as a long narrow one: For the ſharper and thinner any Tool is, the eaſier it paſſeth, and the leſs Strength is required: And ſuch an one may be made to turn a Ridge as well as a broader. But when all is ſaid that can be, though the Make of a Plough doth much help Cattles Draughts; yet the Main of the Draught lies in the ſtifneſs of the Land you plough, and the Depth you go. *Mortimer.*

Of ſeveral Sorts of Inſtruments, Tools and Engines neceſſary for the Huſbandman.

THere being ſeveral Sorts and Kinds of Inſtruments that are for the Huſbandman's Uſe, without the Knowledge of which, it will be impoſſible to go through the Difficulties of *Agriculture*: Such as are the beſt and moſt proper for each particular Sort of Work, ſhall be hinted at in this Place. That uſeful Inſtrument the Plough has been already accounted for; and therefore we ſhall now proceed to ſuch others as are neceſſary for the Farmer's Buſineſs, amongſt which his Carts and Waggons may be eſteemed ſome of the chief, moſt neceſſary and coſtly, of which there are ſeveral Sorts, and for ſeveral Uſes, as for carriage of Timber, Corn, Dung, and the like; all differing the one from the other according to the ſeveral Places where they uſe them, and that as the Countries are hilly, level, ſtony or claiey. In ſome Places they are much more curious in forming them than in others, making them neater, lighter and ſlenderer, as well in the Wheels as in other Parts. And ſo for the Form of the Wheels, ſome make them more Diſhing, as they call it, that is, more Concave, by ſetting of the Spokes and Felloes more outwards, which they reckon the ſtronger, becauſe the great Streſs of a Wheel is when a Cart or Waggon falls on one ſide into a hole, which occaſions the Spoaks that are underneath by the declining of the Waggon to come to a Perpendicular. And the larger a Wheel is, the eaſier is the Draught, becauſe the Ring or Round of the Wheel is more flat, and doth more eaſily paſs over the Stones, or other Obſtructions in the way, and ſinks not ſo ſoon into the Cavities or defective Places of the Earth; its Motion is alſo ſlower at the Center, for a Wheel of eighteen Foot Circumference goes but once round, where one of nine Foot muſt go twice, and ſo proportionably; the Advantage of which is confirmed by the Opinion of ſeveral.

There are ſeveral Inſtruments that need not be deſcribed, becauſe the very naming of them will be ſufficient; and therefore thoſe that are the moſt uncommon and moſt uſeful, or that have ſomething peculiar from the common Sort, and are only uſed in ſome particular Parts, ſhall only be a little explained by us.

And firſt, to begin with the Trenching-Plough or Coulter, which is a certain Inſtrument uſeful in Meadows or Paſture Ground, to cut out the Sides of Trenches, Carriages or Drains, it is alſo uſeful to cut out the Sides of Turf, for the taking of it up whole, to the intent to lay it down again in the ſame Place or ſome other. It hath only a long Stalk or Handle with a Button at the End for one's Hand, and at the other End turns upward like the Foot of a Plough, to ſlide in the Ground, in which Bend is placed a Coulter or Knife of the length you intend the depth of the Turf to be, the Faſhion of which you may ſee at *A.* Several Faſhions there are of them, ſome with one Wheel, ſome with two, and ſome with none, you may make them as you pleaſe. See *Plate* I. *Fig.* 13. *p.* 256.

There are alſo many Sorts of Spades, according to the diverſity of Places, and the ſeveral occaſions and humours of Men.

At *B* is the ſhape of a Spade much uſed in *Eſſex*, the broad Part all Iron, the Handle going into a Socket at *c*, where is a Piece of Iron to ſet the Foot on to dig with, which may be ſet on either ſide. This is one of the beſt Spades to dig hard lumpy Clays with, but 'tis too ſmall for light Garden Mould. *Fig.* 13.

At *D* is a Spade made uſe of in the Fenns in *Lincolnſhire*; the Edges are as ſharp as a Knife, which makes it eaſie to cut Flag-roots, and the Roots of other Weeds, and indeed is very uſeful in any Lands that have not Stones in them; ſome of theſe are made with one ſide turned up like the Breaſt-plough, by which means they with once jobbing it into the Ground, can cut an exact Turf, ſo that one Man with one of theſe Spades in fenny ſoft Ground, will do as much in a Day as two Men with a common Spade. *Fig.* 14.

At *E* is a very convenient Inſtrument to dig hard Gravels, ſtiff Clays, or chalky Lands with when hard. But if you make one of theſe Inſtruments about ſixteen Inches long, and four or five broad, making it every way ſtrong in Proportion, into which put a long ſtrong Handle. *Fig.* 15. *p.* 256. it's very uſeful to dig ſtrong Clays with, eſpecially in Summer, when it will riſe in large hard Lumps; the way of uſing of which is after this manner, firſt dig a ſmall Trench ten or twelve Inches deep, and about three Foot from this Trench let a Man drive down the Inſtrument into the Ground with a Beetle, and let two Men, having hold of the Handle when the Iron part is drove into the Ground, raiſe up the End of the Handle, and it will bring the Earth up with it in Lumps as far as the Trench that was firſt cut; when you have broke this part out, remove it two or three Foot farther, and ſo on till you begin again, which Lumps they fling into the Cart at once; one Man this way is able to do as much as two can with the Spades or Mattocks, but if you have room and are not hindred by Roots or Stones, *&c.* and have a mind to level a Piece of Ground, break up your Land with the Plough firſt, and you will ſave the labour both of the Spade and Pick-axe, and be obliged only to the uſe of the Shovel.

Beſides the forementioned, there are ſeveral other Inſtruments, as ſeveral kind of Hoes, Mattocks, Pick-axes, Grubbing-axes, Iron-crows, Shovels, Dung-forks, Paddles, *&c.* which are common every where. It behoves the Huſbandman that intends to thrive, to furniſh himſelf with all things neceſſary for his Buſineſs: And that he may not be forgetful of any, or at leaſt of the moſt uſeful and neceſſary Inſtruments, beſides the forementioned, take a Liſt of Mr. *Worlidge*'s, of ſuch as are of common Uſe, as follows.

Things belonging to the Arable and Field Lands are,

Harrows,
Sickles,
Weeding-hooks,
Rakes,
Sledges,
Mole Spears and Traps,
Seed-Lip.
Drags,
Reaping-hooks,
Pitch-forks,
Plough-ſtaff and Beetle,
Roller,
Cradle Scythes,

To the Meadows and Paſtures.

Scythes,
Pitch-forks and Prongs,
Cutting Spade for Hay-Ricks.
Rakes,
Fetters, Clogs & Shackles.
Horſe-locks,

To the Barn and Stable.

Flails,
Winnowing-fan,
Sieves and Rudders,
Sacks,
Bins,
Pails,
Mane-combs,
Harneſs for Horſes,
Pannels,
Pack-ſaddles,
Cart-lines.
Ladders,
Meaſures for Corn,
Brooms,
Skeps, or Scuttles,
Skrein for Corn,
Curry-combs,
Whips, Goads,
Yokes for Oxen.
Wanteys,
Surcingles,

Other neceſſary Inſtruments.

Hand-barrows,
Dibbles,
Pincers,
Wheel-barrows,
Hammer and Nails,
Sciſſors,

Bridles and Saddles,
Hedging-hooks & Bills,
A Grind-ſtone,
Hatchets and Axes,
Beetle and Wedges,
Sheep-ſhears,
Hod and Tray,
Marks for Beaſts and Utenſils,
Scales and Weights,
Nail-piercers or Gimlets,
Garden-ſhears,
Whet-ſtones,
Saws,
Leavers,
Trowels for H. & Garden,
Hog-yokes and Rings,
An Awl, and every other thing neceſſary.

Of Buildings, Repairs, &c.

THE Farmer, and Country Gentleman being often neceſſitated to build as well as to repair their Houſes, Barns, Stables, *&c.* and that not only upon the Account of Decays, but of Damages done by Storms and other Accidents; ſome ſhort general Rules about Building and Repairs, and likewiſe about the Coſt and Charges of Buildings, and of ſuch Materials as are uſeful upon ſuch Occaſions, will not be unneceſſary, that they may the better compute their Coſt and Charges, and not wholly truſt to Workmen (who often are very deceitful in ſuch Calculations), and know how to Let this Work to them, which is much the beſt way, where the Owner underſtands it; provided he minds one Caution, which is not to change or vary from his firſt Contract, which Workmen are very apt to perſwade Men to do, if they have undertaken the Work at a low Rate, or with Deſign to ingage them in Building.

Wherefore Mr. *Mortimer* in the firſt Place adviſes thoſe that are deſirous to build either out of neceſſity or choice, firſt to ſit down and conſider of the whole Deſign they intend to undertake, both as to the Manner and Method of it, as well as the Charge and Expence; and in order to it, he would perſwade all Builders to take the Advice of ſuch Surveyors or Workmen, as underſtand what they go about before they begin their Work, and that can make a good Draught and lay the Deſign well out, that they adviſe to; but more particularly five things ought to be conſider'd in Building, *viz.* Situation, Contrivance, Gracefulneſs, Uſefulneſs, and Beauty.

The Rules for Situation are, that it ſtand in a healthy Air, and not near Marſhes, Fenns or boggy Grounds, nor Rivers, except it ſtand on riſing Ground on the North or Weſt Side of them; neither let it be deſtitute of Breezes to fan and purge the Air, nor want the Influence of the Sun-beams. But more particularly, Mr. *Mortimer* adviſes the Planting of Shelter on the Weſt and South Weſt, as well as the North; and that care be alſo taken, that it be well water'd and wooded, that it have a good Aſcent to it, which makes a Houſe wholſome, and gives opportunity for good Cellaridge, and likewiſe that a good Proſpect is very pleaſant according to the Variety it affords.

As for Contrivance; every one that begins this Work, ought to be well adviſed in what he does, becauſe there will be no Alteration of things afterwards without a great deal of Charge; and good Contrivance doth not only make things handſome and convenient, but often ſaves a great deal of Charge too; and therefore get a Workman that is able to make a good Draught of your Building, as before, if your Building is ſuch, as requires no great Curioſity; but otherwiſe, a Model will be the moſt certain way of preventing Miſtakes in Buildings that require any great Nicety or Exactneſs; and as for a Draught, there ought to be in it the Ichnography of each Floor, and alſo the Orthography of each Face of the Building, as of the Front, Rear and Flanks; and if the Workman be ſkill'd in Perſpective, more than one Face may be repreſented in one Diagram Scenographically.

But in the Contrivance of all theſe things, the Quality of the Perſon is to be conſider'd for whom the Building is erected, and accordingly let every thing be deſign'd, and proportionable Lengths, Breadths and Heighth allow'd to each Place, with proper and convenient Rooms for what Occaſions and Uſes the Owner ſhall need; only what Draught you make, let it be as large as you can, that ſo the Ichnography of all Chimneys, Hearths, Jambs, Bedplaces, Stairs, and the Latitude of all Doors and Windows in each Floor may be repreſented; and if you agree by the great for the Workmanſhip, it will be neceſſary to inſert the Length and Thickneſs of the Ground-plates, Breaſt-ſummers, Girders, Trimmers, Joyſts, Raiſings, and Wall-plates; and alſo the Thickneſs of the Walls, Partitions, *&c.*

In the Orthographical Schemes there ſhould be a true Delineation, and the juſt Dimenſions of each Face, and of what things belong to it, as Doors, Windows, Balconies, Turrets, Chimney Shafts, *Facias*; Architraves, Corniſhes, and other Ornaments; and if it be a Timber Building, the ſeveral Sizes of the Ground-plates, Interduces, Breaſt-ſummers, Beams, principal Port-braces, Quarters, Window-poſts, Door-poſts, Cellar-beams, principal Rafters, *&c.* This Care will prevent Miſtakes and Diſputes that may ariſe, eſpecially where you agree by the great.

He next comes to conſider the Diſpoſal of the ſeveral Rooms and Offices, according to the Nature of the Building deſign'd to be erected, and informs us that in Building of Houſes long, the uſe of ſome Rooms will be loſt, in that the more room muſt be allowed for Entries and Paſſages, and it requires the more Doors; and if a Building conſiſt of a Geometrical Square, if the Houſe be large, the middle Rooms will want Light, and therefore many commend the Form of the Roman Capital H, which, they ſay, makes it ſtand the firmer againſt the Winds, and lets in both the Light and the Air, and diſpoſes every Room near to one another, except you will have a Court in the middle.

He commends the way of Building of Brick Houſes with ſtrong and firm Quoins or Columns at each Corner, and where any of the principal Beams lie that ſhall come out half their Thickneſs beyond the reſt of the Brick-work, whereby the reſt of the Walls between may be much thinner, and a great many Bricks ſaved; and beſides, it adds a handſome Gracefulneſs to the Building: Brick-walls likewiſe built after the ſame manner in Pannels, are very handſome, and ſave a great many Materials.

But according to Sir *H. Wotton*'s Definition of Contrivance, it conſiſts of theſe two Heads or Principles, *Gracefulneſs* and *Uſefulneſs*. The Gracefulneſs or Decency of a Building, he ſays, conſiſts in two Things. Firſt, An Analogy or Correſpondence between the Parts and the Whole, whereby a great Fabrick ſhould have great Appartments, great Lights, great Doors, great Stair-caſes, and great Pillars or Pilaſters, all which ought to be proportioned to the Bulk of the whole Building. And Secondly, An Analogy and Agreement between the Parts themſelves, as to the Length, Breadth and Heighth of the Rooms, Windows and Doors; for all which no certain Rule can be given. Though ſome propoſe, that a Room ought to be in Breadth two thirds of the Length, and that it ſhould be as High as Broad, and the Heighth of a ſquare Room to be two thirds of it's Square.

The Heighths indeed of Rooms are various amongſt us, according to the Perſons they are built for; our ordinary Buildings being but about ſeven and a half or eight Foot high, the ſecond ſort of Houſes in the Country are about nine Foot, and the third ſort which is fitteſt for Gentlemen's Houſes, is from ten to fourteen Foot.

As for the ſecond Point of Uſefulneſs, the Perſon, and the Occaſion he hath for his Rooms are to be conſider'd: To determine what Number of Rooms muſt be allowed to a Nobleman's Seat, will require too many Conſiderations to be inſerted here; but for an ordinary Gentleman's Family, a Hall, a great Parlour, with a Withdrawing Room by it, and a ſmaller Parlour for common Uſe, with a Kitchen, Butteries, and other Conveniences, is ſufficient; and underneath where there is a Deſcent that Drains may be made, good Cellars and the Dairy; but for the Kitchen in the Country, where there is room enough, it's better to join it to the Houſe, than either to have it in or underneath it, becauſe of the Smells that it ſends into the Houſe: And for the Farm-houſes, one large Room with a large Chimney in it, to do the chief of their Work in, with a good Parlour, a good Dairy, with good Conveniences of Butteries, Cellars, and Out-houſes is enough for a Farmer; but things muſt be in proportion to the Farm: To theſe Obſervations Mr. *Mortimer* having added ſome general Maximes to be obſerved in Building, they were thought very proper to be inſerted here, and are thoſe that follow.

1. Let not common Rooms be private, as Halls, Galleries, Stair-caſes, *&c.* and let not private Rooms lie open and common, as private Parlours, Chambers, Cloſets, *&c.*

2. Light alſo is a principal Beauty in Building, and the Rooms that reſpect each particular Coaſt, ought as near as may be to be accommodated to it, as thoſe Rooms next the South for Winter Rooms, and thoſe that regard the Eaſt for Summer Rooms, the North Windows are beſt for Cellars, Butteries, *&c.* Rooms that have thorough Lights for Entertainment, and thoſe that have Windows on one ſide for Dormitories.

3. As for the Size of the Houſe, better build it too little, than too big; for a large Houſe brings Company, and Entertainment occaſions the keeping a great many Servants, and often requires a larger Purſe than is laid up for it.

4. As to the Strength of a Building; Country Houſes ought to be ſubſtantial, and able to encounter all the Shocks of the Wind, and not to be above three Stories high, including the Garrets; and obſerve in working up the Walls, that no Side of the Houſe, nor any part of the Walls be wrought up three Foot above the other, before the next adjoyning Wall be wrought up to it, that ſo they may be all join'd together and make a good Bond; or elſe what is done firſt will be dry, ſo that when they come to ſettle, one Part being moiſt and the other dry, it will occaſion it's ſettling more in one place than another, which cauſes Cracks and Settlings in the Wall, and much weakens the Buildings. The Materials alſo ought to be ſubſtantial, and be ſure if you build a Brick-building to take care of a good Foundation, and not be ſcanty in allowing Mortar, taking care that all the Brick-work be cover'd with the Tiling, according to the new way of Building, without Gable-ends, which are very heavy, and very apt to let the Water into the Brick-work; the want of obſerving which three Things is the common Decay of Brick-Buildings.

5. Upon a good Foundation two Bricks or eighteen Inches thick for the heading Courſe is ſufficient for the Ground-work of any common Structure, and ſix or ſeven Courſes above the Earth to the Water-table, where the Thickneſs of the Walls are abated, or taken in on either Side the Thickneſs of a Brick, which is two Inches and a Quarter.

6. But for large high Houſes of three, four or five Stories high, the Walls of ſuch Edifices ought to be from the Foundation to the firſt Water-table, three heading Courſes of Brick, or twenty eight Inches thick at the leaſt, and at every Story a Water-table, or taking in on the inſide for the Summers, Girders or Joyſts to reſt upon, laid into the Middle or one fourth part of the Wall at leaſt, for the better Bond; but as for the Innermoſt or Partition-walls, a Brick and a half will be enough, and for the upper Stories nine Inches (or a Brick in length) Wall will be ſufficient.

A great many things might be ſaid concerning the Beauty of a Building, which cannot be dwelt upon here: In general, Groves, Walks and Gardens are very ornamental. And your Offices, Barns, Stables, *&c.* ſhould not join to, nor be too near your Houſe, eſpecially your Stable, which ought always to be a Building by its ſelf, becauſe of the Danger of Fire, upon the Account of the looking after Horſes, and the Uſe of Candles in it. There were ſeveral Regulations made by Act of Parliament for the Rebuilding of *London* after the great Fire; which ſhall not be repeated here; only 'twill be proper to add, that upon a terrible Fire which happen'd *Anno* 1707, in the *Strand*, an Act was made on purpoſe, that in Building, inſtead of Catalivers, which made one Houſe ſet another on Fire, the Wall ſhould be built upright.

Now as to the valuing of Buildings, and the Materials belonging to them, that you may know how to make ſome Eſtimate of things of this Nature, without being wholly impoſed upon by Workmen, obſerve theſe Rules.

Carpenter's Work is meaſured by the Square, that is ten Foot each way, or one hundred ſquare Feet; at *London* they will build a Houſe four Story high for forty Pounds a Square, if built with Oak-Timber, and thirty Pounds a Square for Fir; that is, to find all the Materials, and all the Carpenters, Bricklayers, Plaiſterers and Glaſiers Work; and conſidering the Price of Timber, and Workmanſhip in the Country, and that the Houſes are but three Stories high, and that they have all their Materials laid in, that is, carted for them; it's reaſonable to think, a good Houſe may be built for twenty five Pounds a Square in moſt Places; and in ſome, cheaper.

The *Carpenter*'s Work to frame a Houſe in the Country, where you find Timber, is ſeven or eight Shillings a Square, if the Carpenter pays the Sawing; if not, 'tis four and Six-pence.

The Carpenter's Work to build a Barn in the Country that hath one ſingle Stud, or one Heighth of Studs to the Roof, is 2 *s.* a Foot; but if it have a double Stud and a Girt, 'tis worth 2 *s.* 6 *d.* as ſuppoſe a Barn ſixty Foot long, and twenty Foot broad, that is eighty Foot. This the Carpenter's Work, to hew the Timber, ſaw it out, frame it, and ſet it together, will come to, at 2 *s* 6 *d.* a Foot, 10 *l.* you finding Timber.

Brick-layers Work at *London*, where a Brick-layer hath 2 *s.* 6 *d.* a Day, a Labourer 1 *s.* 8 *d.* and that Bricks are 14 *s.* a Thouſand, Lime 4 *d.* Half-penny a Buſhel, and Tiles 2 *s.* 6 *d.* a Hundred: For the Brick-layer to find Bricks, Mortar, Scaffolding, *&c.* for a Houſe, is 5 *l.* a Pole-Square, that is, ſixteen Foot and a half; but for Walling, 4 *l.* 10 *s.* a Pole, if the Brick-layer finds all Materials, is enough: for his Work only 'tis 1 *l.* 2 *s.* a Pole, that is, 272 ſquare Feet, and a Brick and a half thick. In the Country they will build a Wall for 18 *s.* a Pole, ſuppoſing the Wall to be a Brick and a half thick. His Work is meaſured by the Pole-Square, deducting out all Windows and Doors in the Wall; but if you are to meaſure a Wall, as ſuppoſe of 120 Foot long, and thirteen Foot three Inches high, you muſt multiply the one by the other, and it will make 1590 Foot, which divide by 272¼ makes five Poles, or Rods, three Fourths and 42 Feet; but if 'tis more or leſs than a Brick and a half thick, reduce it to a Brick and a half, by multiplying the Length and the Height by the Number of Half-Bricks that the Wall is in Thickneſs, dividing the Product by Three, and the Quotient by 272¼. Chimneys are commonly done by the Hearth. Note, That one Brick and a half thick is fourteen Inches, two Bricks a Foot and a half, and that 4500 Bricks will do a Pole-Square of Walling one Brick and a half thick, and 25 Buſhels of Lime where the Sand is good, and not mix'd with Soil.

Tiling is meaſured by the Ten Foot-Square, the Workmanſhip of which is 3 *s.* 6 *d.* a Square in the Country; to find all but Tiles is 12 *s.* and to find Tiles and other Materials is 1 *l.* 6 *s.* a Square. Three Buſhels of Lime will do a Square of Tiling.

Underpinning for the Brick-layer, to dig the Foundation where it is a Brick thick, and a Foot deep, is a Penny a Foot, and where it is a Foot and a half running Meaſure it is two Pence a Foot, and ſo proportionable.

Bricks may be made of any Earth that is clear of Stones, even Sea-Owze; but all Earth will not burn red. To burn a Clamp of Brick of Sixteen Thouſand, they commonly allow ſeven Tun of Coals, Twenty Hundred to a Tun, or Nine Hundred of Faggots of about three Foot long, and to ſome Earth, ten Buſhels of Coals to a Thouſand of Bricks. Bricks ought to be nine Inches long, four Inches and a half broad, and two Inches and a half thick. A Yard ſquare of Clay will make 7 or 800 Bricks, and the Workmen have commonly 6 *s.* a Thouſand to make them.

The *Plaiſterer*'s Work is commonly done by the Yard ſquare; for Lathing, Laying and Setting is eight Pence a Yard, Rendring on a Brick-wall is three Pence a Yard, Stopping and Whiting one Penny Halfpenny a Yard, Whiting a Penny a Yard; but Lathing, Laying and Setting with Oak-Laths is ten or twelve Pence a Yard.

To dawb a Partition-Wall with Clay on both Sides is three Pence a Yard, and to rough caſt it without, and render it on the Inſide, four Pence a Yard in the Country.

Heart-Laths of Oak are 1 *s.* 10 *d.* a Bundle or Hundred.

Sap-Laths of Oak are 1 *s.* 8 *d.* a Bundle.

Fir-Laths are 1 *s.* a Bundle.

A Bundle of Laths they reckon will do a Square of Tiling, and 500 of Nails.

Sawing of Timber is from 2 *s.* 8 *d.* to 3 *s.* a Hundred, which they meaſure in the Middle of the Tree, and ſuppoſe a Board to be ten Foot long, and one broad, once cut is reckon'd ſo many Foot.

Thatching with Straw is done from 2 *s.* 6 *d.* to 3 *s.* a Square, and with Reed for 4 *s.* a Square. Two good Loads of Straw will do about five Square, the Square being a hundred ſquare Feet; and a thouſand of Reed will cover three Squares of Roofing, which coſts about 15 or 16 *s.* both which Thatching muſt tie on with Withes; but old pitched Ropes unwound are much cheaper, and more laſting to tie them with.

Cellars, Foundations of Buildings, *&c.* are commonly done by the Yard Solid, which contains 27 ſquare Feet, uſually counted a Load; and therefore the Dimenſions being given in Feet, multiply the Length by the Breadth, and the Product by the Depth, dividing the laſt Product by 27, the Quotient will give the Content in ſolid Yards.

Glaſier's Work is done by the Foot-Square; *Engliſh* Glaſs is 6 *d.* *French* Glaſs 1 *s.* and Crown-Glaſs 1 *s.* 6 *d.* a Foot. To take down a Quarry of Glaſs to ſcour, ſoder, band, and to ſet it up again, is three Half-pence a Foot.

Of Mills.

IN ancient Times they bruiſed their Corn in Mortars, ſince which tedious Way Mills have been invented, ſome to be turn'd by Hand as Querns, others to be moved by Horſes, others by Wind, and others by Water.

Farra molit Molitor, vel Piſa, vel Hordea tundit,
Dum Rota ſpumantes ingemit inter Aquas:
Sed veteres collecta pilo frumenta terebant,
Quando lateret adhuc ars operoſa molæ.
Hac etiam ſervum pœna multare ſolebant
Qui Domini dextram fallere ſuetus erat;
Scilicet, ut vinc'lis, & compede vinctus onuſta
Pinſeret, aut moleret pulverulentus Ador.

The Water-mill is that Sort which is maintain'd with leaſt Coſt, and being moſt certain and moſt advantageous, hath gain'd the Preheminence, and is made uſe of in moſt Places where Water is fit for that purpoſe, and where there is Imployment. 'Tis indeed a little for the Eaſe and Conveniency of near Inhabitants, and the particular Advantage of the Owner; but a great Detriment and Damage to the Kingdom in general, by the injurious obſtructing of the Water, to the ſpoiling a great deal of Meadow-Ground, and the preventing of the Advantage that might be made by the Overflowing of Land, and the Corn as well be ground, either by Wind-mills, which grind twice the Quantity in an Hour, and may be erected on Hills, or in the Plains on any open Places, even where the Water-mills ſtood. Or by the Rectification of Water-mills, that a leſs Quantity of Water may ſerve them.

CHAP. V.

Of Herbs, Roots, Fruits, Plants, &c. planted and propagated in the Kitchin-Garden; *with Inſtructions how to ſow, raiſe and order them, according to the ſeveral Seaſons, as well thoſe for Food, as others for Advantage.*

Of Hops.

HOPS are now grown a National Commodity, altho' formerly petition'd in Parliament by the *Londoners*, to be prohibited the Importation or Growth in this Kingdom, as a Nuſance, or an offenſive Commodity, for that it would ſpoil their Drink, and endanger the Peoples Healths, it being an unhealthful Herb, occaſioning the Stone; for before *Hops* were uſed in Drink, that Diſeaſe was not known in this Kingdom; however, it advanceth Land to ſuch an Improvement, that ſometimes an Acre is worth fifty or ſixty Pounds: But it is an uncertain Crop, for over-much Drought or Wet ſpoils it; the like doth Mill-dews, which makes the Price ſo uncertain.

The *Hop* delights in the richeſt Land, or deepeſt Mould, and light (if mix'd with Sand) is the better. Alſo black Garden Mould is very good, but a barren mooriſh Soil is altogether unfit for it. Moſt Sorts will do, unleſs they be ſtony Rock, or ſtiff Clays. New Land is eſteem'd beſt for them in *Kent*, and for that Reaſon they plant their Hop-Garden with Apple-Trees at a large Diſtance, and Cherry-Trees between, that the Trees may begin to bear when the Land hath done with *Hops*, which is reckon'd about ten Years, The Cherry-Trees laſt about thirty, and by the Time that they are cut down, the Apple-Trees are large. If the Land lies near the Water, and yet dry, it is the better. It alſo ought to lie warm, and free from North and Eaſt Winds, as being ſhelter'd by Hills or Trees.

If the Land that you deſign for a Hop-Garden be cold, ſtiff, ſoure, or barren, it will be convenient to burn it about the latter End of Summer, and to make the Ground mellow, light and free from Weeds, by ſowing it with Turneps, Hemp, or Beans; and fail not to till it in the Beginning of Winter with the Plough or Spade, be it in what Condition ſoever; and let it be laid very even, croſs which ſtretch a Line, wherein Knots are tied at ſuch Diſtances as you deſign your Hills. Some plant them in Squares chequerwiſe. It is the beſt Way, if you intend to plough with Horſes between the Hills. Others will have them in the Form of a Quincunx, which is the more beautiful to the Eye, better for the *Hop*, and will do very well where the Ground is but ſmall, that you may overcome it with the Breaſt-plough or Spade; but which way ſoever it be, at every Place where there is to be a Hill thruſt down a ſmall Stick for your Directions, the better to make the Hill; and if the Ground be poor and ſtiff, make the Holes good, by putting therein good Mould, or rotten Dung, which will ſufficiently repay the Charge and Trouble.

As to the Diſtances of the Hills, if the Ground be deep, moiſt, and of a rich Mould, about eight Foot aſunder is convenient; but if of a dry and burning Quality, then not above ſix; and let the Ground be what it will, ſo order it, that there may be Room to come between, and that they may receive the Influence of the Sun; for in moiſt Years the *Hops* grow large, ſo that the wider the Hills the better; and in hot and dry Years they grow thin, ſo that the nearer they are, the more *Hops* they bear. Let the Hills be made of a middle Size, for if they are big, they require the greater Quantity of Poles, and cannot be ſo conveniently dreſs'd.

The Seaſon for planting your *Hops* is about the End of *March*, or Beginning of *April*; but experienc'd Planters affirm, that the beſt Time is in *October*, for then the *Hops* will ſettle againſt the Spring.

Let the Sets be the largeſt you can get, with three or four Buds; and before you take the Sets out of the Ground, let the Holes be ready to receive them, and made as deep as the Plant or Set, and about a Foot over, and at every Corner of the Hole put a Set, and raiſe the Earth two or three Inches above it; but if you plant ſo late, that the green Sprigs are ſhot forth, then cover them not quite for fear of killing them.

Dig your Holes according to the Depth of your Plants, eight or ten Inches deep, and about a Foot over. Some take two or three of the Plants, and join them together with one Hand, while they fill the Hole with fine Mould, prepared and made ready for that purpoſe, obſerving to ſet the Tops even with the Surface of the Earth, and the ſame End uppermoſt that grew ſo before, and then they faſten the Earth well about the Roots.

If your *Hops* are old, or worn out of Heart, thro' ill Huſbandry, then about the Beginning of Winter dig them, and take away as much of the old barren Ground as you conveniently can, and in the Room thereof (after they are dreſs'd) put good rich Mould, or rotten Dung, which will exceedingly nouriſh and revive the Roots; and the Winter-Digging or Tilling will deſtroy the Weeds and Couch-Graſs; but if the *Hops* be ſtrong, and in good Heart, then dreſs them not until *March*, or the Beginning of *April*, and in dreſſing the *Hops* theſe Rules are to be obſerved. You muſt pull down your Hills, and undermine them round about till you come near the principal Roots, and then the upper or younger Roots. Shake off and remove the Earth away from them with your Hand, you may ſee where the new Roots grow out of the old Sets: In the doing of which, be careful of the old Sets; but for the other Roots they are to be cut away. You ſhall not need to ſpare them to the Delay of your Work, except ſuch as you mean to ſet; and take heed that you uncover not any more of the Tops of the old Sets in the firſt Year of cutting: And at what Time ſoever you pull down your Hills, do not cut your Roots till *March*. When you firſt dreſs your young *Hops*, cut away all ſuch Roots or Sprigs as grew the Year before. Cut off your Sets within one Inch of the ſame. Every Year after you muſt cut them as cloſe as you can to the old Roots; but to a weak *Hop* ſome of the chief of the new Shoots are to be left at Dreſſing, the not obſerving of which hath often much decay'd a *Hop-Garden.* The Roots that grow downwards are not to be cut; 'tis only thoſe that grow outward at the Sides of the Plant that are to be meddled with, becauſe they will elſe incumber the Ground. The old Roots and the young may be diſtinguiſh'd, in that the firſt are red, and the latter white. If there are any wild *Hops*, you muſt take up the whole Hill, and new plant it, marking the Hill with a Stick at Hop-Harveſt-time to prevent Miſtakes. When you have dreſs'd the Roots, apply your rich Mould or Compoſt to them, and make not the Hills too high at firſt, leſt you hinder the young Shoots: And if the *Hops* are ſpringing out of the Hills, you need not fear cutting them off when you dreſs them; and be ſure to keep all Poultry out of the Hop-Ground, eſpecially Geeſe.

For the Poling *Hops*, if the Hills are wide, the more Poles are required; and if the Ground is hot, dry and hungry, the Poles may ſtand nearer together than in rich and mellow Ground, where they muſt be alſo larger and longer, otherwiſe the beſt Profit will be loſt; whereas on the contrary, if the Land is poor, the Poles muſt be ſmall, for if over-poled, the *Hop* will run it ſelf out of Heart, eſpecially the firſt Year: And begin not to pole until your *Hops* appear above Ground, for then you may diſcern where the biggeſt Poles are required; and you may continue poling until the Plants are about a Yard in Height. Poles of Alder are eſteem'd the beſt, as being ſtreight and tapering, and of a rough Rind, ſo that the *Hop* will not ſo eaſily ſlip down: But for laſting the Aſh is to be preferr'd before the Alder. Be ſure to fix the Poles deep in the Earth, that the Wind force them not out, aud let them lean outwards from one another, to prevent Houſling, as they call it; for thereby they will have the greater Benefit of the Sun, and by Conſequence bear more and better *Hops*; and you ſhould be always provided with ſpare Poles, in caſe any ſhould break; for if the *Hops* lie on the Earth, they will ſoon periſh.

Your *Hops* being got two or three Foot above Ground, it is time to fix them to the Poles, by winding them about according to the Courſe of the Sun, and by faſtening them thereto; but in doing this be ſure not to break the young and tender Shoots.

In *April* and *May* your Care is required to be guiding the Shoots to the Poles as you would have them, which may be done with fork'd Sticks, where they are out of your Reach.

About Mid-Summer the *Hops* bigin to leave ſhooting, or running at Length, and then begin to branch; at which time thoſe that are not at the Tops of the Poles ſhould be nipp'd off at the Top, to cauſe them to branch the better.

In *May*, after Rain, you ſhould pare off the Surface of the Earth with a Spade, Hoe, or Breaſt-plough, and with the Parings raiſe up the Hills, burying all ſuperfluous Shoots of the *Hops*, as alſo the Weeds.

In a dry Spring, where Water is to be had, 'tis of great Advantage to water them. The firſt Watering is beſt to be done before you lay the Parings of the Garden upon the Hills. If the Summer prove dry, Watering may be repeated three times, and after every Watering make up the Hills with the Parings, and with the Weeds, to keep the *Hops* moiſt; for the more the *Hop* is ſhaded from the Sun, the better it thrives, as is evident by ſuch as grow under Shelter, that are never dreſs'd, and yet may compare with thoſe that the moſt Care is taken of.

About the End of *July* Hops blow, about the Beginning of *Auguſt* they bell, and are ripe in the latter End of *Auguſt*, or Beginning of *September*. At ſuch time as the *Hops* begin to change Colour, or that they are eaſily pull'd to Pieces, or that the Seeds begin to look brown, and ſmell fragrantly, you may conclude them ripe, and then procure what Help you can for a quick Gathering of them; for one windy Day or Night may otherwiſe do much Miſchief.

The Manner of Gathering Hops is, to take down four Hills, ſtanding together in the midſt of the Garden, and to cut the Roots even with the Ground, and laying of the Ground level, they throw Water on it, and level and ſweep it, and ſo make a Floor of it, on which they lay the Hops to be pick'd. On the Outſide of this Floor the Pickers ſit, and pick them into Baſkets, after the Vines are ſtrip'd from the Poles. The Floor they clean two or three times in a Day. Always in this Way of picking 'tis neceſſary to have the Poles without Forks, otherwiſe it will be troubleſome to part the *Hop-Vines* and the *Poles*.

The beſt Way of gathering *Hops* is in a Frame or Bin, made for that purpoſe of Canvas, and ſhort Poles to remove from place to place, and the Pickers to ſtand on each Side to gather the *Hops*, and ſo convey them to Drying; but cut no more Stakes, nor draw no more than can be diſpatched in an Hour or two, for fear of Rain; and let them not be over-ripe before you gather them, for fear of ſhedding the Seed, which is the Strength of the *Hop*; and gather them as free from Leaves and Stalks as poſſible.

Before you draw your Poles, with a ſharp Hook fix'd at the End of a long Pole divide your *Hops* above where they grow together with other Poles; then you ought to cut the *Hops* about two or three Foot above, and not cloſe at the Hills, becauſe it occaſions the *Hop* to bleed too much of its Strength away, and weakens them very much. Then draw your Poles; but in caſe they are ſo faſt in the Ground, that they cannot be raiſed without breaking, you muſt get a Pair of Tongs like a Smith's Tongs, only ſtronger, and toothed at the End; with theſe Tongs taking hold of the Pole, and reſting of the Joint thereof on a Block of Wood, you may weigh up the Poles without Trouble; or, for Cheapneſs ſake, you may have a Wooden Leaver, forked at the End, into the Sides of which drive ſome Iron Teeth, which put to the Pole, and by the Strength of your Right-Hand, whilſt you pull the Pole to you with your Left, you may raiſe it. Cut no more *Hops*, nor draw any more Poles than you can conveniently diſpatch in an Hour or two, in caſe the Weather be hot, or likely to rain.

If your *Hop-Garden* be large, it may be worth while to raiſe a Shed in the midſt of it to ſhelter the Pickers and the Hops from the Sun and Rain, and to lay *Hops* in over-night for the Pickers to pick next Morning before the Dew is off your other *Hops*. The *Hops* muſt be wet gather'd; but if the Dew or Rain be on them, ſhake the Pole, and they will dry the ſooner. If the *Hops* be over-ripe, they will be apt to ſhed their Seed, wherein conſiſts the chief Strength of the *Hops*. They will alſo not look ſo green, but ſomewhat brown, which much diminiſhes the Value of them; yet ſome let them ſtand as long as they can, becauſe they waſte leſs in the Drying; four Pounds of undried *Hops*, thorough ripe, will make one dry; and five Pounds of *Hops* ſcarcely ripe, yet in their Prime, makes but one: So that they judge they get more in the thorough-ripe *Hop* by the Weight, than they loſe in the Colour.

There are alſo two Sorts of *Hops*, the Green and the Brown; the one yielding the beſt Colour by much when they are dry, and the other bearing a larger and greater Quantity of *Hops*, which is to be preferr'd. In the picking, keep 'em as clean as you can from Leaves and Stalks, which will damage you more in the Sale than they will advantage you in the Weight. As faſt as you pick your *Hops*, dry them; for their lying undried heats them, and changes their Colour: But if your Kiln be full, that you cannot do it preſently, ſpread them on ſome Floor, that they may not lie thick; and thus they will keep a Day or two without Damage, if you have a great Quantity; but if your Number be ſmall, and you have Room to lay them very thin, if you take care to turn them often, you may this way dry a ſmall Quantity better than any other Way. The well Drying of *Hops* is the moſt neceſſary Thing to be taken care of; for if that be not rightly done, they are not fit for the Market, nor for Uſe: For a Handful of ſlack-dried *Hops* will mar and ſpoil many Pounds, by taking away their pleaſant Scent and Colour: Therefore let your *Hops* be thoroughly and evenly dried; which to accompliſh there are ſeveral Ways. That uſed by the *Hollanders* and *Flemmings*, is to make a ſquare Room or Kiln about eight or ten Foot wide, according as you deſire it in Bigneſs, built up with Brick or Stone, with a Door-place at one Side: In the midſt of the Room, on the Floor, muſt the Fire-place be made, about thirteen Inches wide within, and thirteen high in Length, from the Mouth thereof almoſt to the Back-part of the Kiln, leaving only a Way for a Man to go round the End of it. It is uſually called a Horſe, as is commonly made in Malt-Kilns, the Fire paſſing out at Holes on each Side, and at the End thereof; every Maſon or Brick-layer almoſt knowing how to make it.

About five Foot high is placed the Bed or Floor, whereon the *Hops* lie to be dried, which muſt have a Wall about it four Foot high, to keep the *Hops* up from falling. At the one Side of the upper Bed muſt be made a Window to ſhove off the dried *Hops* down into the Room prepared for them. The Beds muſt be made of Laths or Rails ſawn very even, an Inch ſquare, and laid a Quarter of an Inch aſunder, with a croſs Beam to ſupport them in the Middle, into which Beam the Laths are to be let in even with the Top of it, which will keep the Laths even in their Places. On this, without any Ooſt-cloth, lay the *Hops* by Baſketfuls, beginning at the one End, and ſo proceeding till all be covered over half a Yard thick without treading on them, then lay them even with a Rake or Stick, that they may not lie thicker in one Place than another; and ſo make your Fire below of broken Poles, or the like; but Charcoal is the only Fuel for *Hops*. The Fire muſt be kept at a conſtant Heat, and only at the Mouth of the Furnace; for the Air will diſperſe it ſufficiently. The *Hops* this way are not to be ſtirr'd until they are thoroughly dried, which is not until the Tops are dry as well as the Bottom; but if any Place be not ſo dry as the reſt, (which you may perceive by reaching over them with a Stick or Wand, and touching of them in ſeveral Places) obſerve where they rattle; and where not, abate them there, and diſpoſe of them where the Places were firſt dry. When they are thorough dry (which is known by the Brittleneſs of the inner Stalk, if rubb'd, and it break ſhort) then are they enough; at which time take out the Fire, and ſhove out the *Hops* at the Window for that Purpoſe, with a Coal-rake, made of a Board, at the End of a Pole, into the Room made to receive them, and go in at the Door below, and ſweep together the Seeds and Hops that fell through, and lay them with the other; and then proceed to lay another Bed of green *Hops*, as before, and renew the Fire. In ſeveral Places they dry their *Hops* on the ordinary Malt-kilns on a Hair-cloth, laying of them about ſix Inches thick; and when they are almoſt dry, with a Scoop made for that purpoſe, they turn them upſide down, and let them lie again till every *Hop*, as near as they can, be thoroughly dried; and then with the Hair-cloth remove them to the Heap, where they are to lie till they be bagged.

Both theſe Ways are ſubject to ſeveral Inconveniences. In the firſt, the *Hops* lying ſo thick, and never turn'd, the Under-part of them muſt needs be dry before the Upper; and the Fire paſſing through the whole Bed to dry the uppermoſt *Hops*, muſt needs over-dry and much injure the greater part of the *Hops*, both in Strength and Weight, beſides the Waſte of Firing, which muſt be long continued to thorough-dry ſo many together.

By the other Way, the Turning of the *Hops* breaks them very much, by forcing of the Scoop amongſt them, the rough Hair-cloth frets and ſpoils many of the *Hops*, and ſhatters their Seed, elſe this Way is rather to be preferr'd before the other.

Which ſeveral Inconveniences may be prevented, by making the Lower-part of the Kiln as before is deſcribed, and the Bed thereof after the following Manner. Firſt make a Bed of flat Ledges about an Inch thick, and two or three Inches broad, ſaw'd, and laid a-croſs one another Chequerwiſe the flat Way, the Diſtance to be about three or four Inches; the Edges ſo entred the one into the other, that the Floor may be even and ſmooth. This Bed may reſt on two or three Joiſts, ſet edge-wiſe, to ſupport it from ſinking. Then cover this Bed with large double Tin, ſolder'd together at each Joint, and ſo order the Ledges before you lay them, that the Joints of the Tin may always lie over the middle of the Ledge; and when the Bed is wholly cover'd with Tin, fit Boards about the Edges of the Kiln to keep up the *Hops*; only let one Side be to remove, that the *Hops* may be ſhoved off as before.

On this Tin-Floor or Bed may the *Hops* be turn'd, without ſuch Hazard or Loſs as before on the Hair, and with leſs Expence of Fuel; alſo any manner of Fuel will ſerve for this Purpoſe, as well as Charcoal, the Smoak not paſſing thro' the *Hops*, as in either of the other Ways: But you muſt remember to make Conveyances for it at the ſeveral Corners and Sides of the Kiln. The ſaving of Fuel only, beſides the Advantage the *Hops* receive, will of it ſelf, in a little time, recompence the extraordinary Charge of a Tin-Floor.

The turning of Hops, after the moſt facil and beſt way, is found to be not only a waſte and an injury to the Hops, but alſo an expence of Fuel and Time; becauſe they require as much Fuel and a long time to dry a ſmall part when they are turned, as if they were almoſt all to be dried; which may be prevented, in caſe the upper Bed whereon the Hops lie have a Cover, that may be let down and raiſed at pleaſure: Which Cover may be tinned over, only by nailing of ſingle Tin-plates over the face of it, that when the Hops begin to dry, and are ready to turn, that is, that the greateſt part of the Moiſture is evaporated away; then may you let down the Cover within a Foot or leſs of the Hops, which (reverberatory-like) will reflect the Heat upon them, that the uppermoſt Hop will ſoon be as dry as the lower, and all of them dried equally: As this is the beſt way to dry Hops; it's alſo the moſt coſtly and troubleſome part of the Work that belongs to them.

Before you Bag up the Hops, after they come from the Kiln, let them lie three or four Weeks to cool and toughen, otherwiſe they will be brittle, and break to Powder. The better the Bags are trod the better will the Hops keep.

The Manner of Bagging is uſually thus: Make a Hole round or ſquare in an upper Floor, big enough that a Man may with eaſe go up and down, and turn and wind in it: Then tack on a Hoop faſt about the Mouth of the Bag with Pack-thread, that it may bear the weight of the Hops when full, and of the Man that treads them; then let the Bag down through the Hole, and the Hoop will reſt above, and keep the Bag from ſliding wholly through, into which Bag caſt a few Hops, and before you go in to tread, tie at each lower Corner a handful of Hops with a piece of Pack-thread to make as it were a Taſſel by which you may conveniently lift or remove the Bag when full; then go into the Bag, and tread the Hops on every ſide, another ſtill caſting in as faſt as you require them, 'till it be full: When it is well trodden and filled, let down the Bag by unripping the Hoop, and cloſe the Mouth of the Bag, filling the two uppermoſt Corners as you did the two lower; which Bag, if well dried and well packed, you may keep in a dry Place ſeveral Years; only you muſt have a care that the Mice do not ſpoil or deſtroy them; not that they will eat them, but make their Neſts in them.

In *Hampſhire* they ſell Water-Trefoil as dear as Hops, and ſay that it doth upon all accounts as well, and that an eighth part of the Quantity of it as of Hops will do. 'Tis a very wholſome Herb, and eſteemed very good for the Scurvy.

After you have laid by your Hops, you may return again to the Hop-garden to take care of your Poles for another Year. Strip off the Hawm firſt from them, and ſet up three Poles (like a Triangle wherewith they uſually weigh heavy Ware) ſpreading at the Bottom, and bound together near the Top, about which you may ſet as many of your Poles as you pleaſe; bind them about with a little Hawm twiſted to keep them together: By this means the outward Poles are only ſubject to the Injuries of the Weather, keeping all the inner Poles dry, except only at the Tops: And therefore ſome lay them on Heaps, and cover them with Hawm: But the beſt way is, to houſe them in your Shed, which may ſerve to preſerve them in, and to gather your Hops into.

In Winter, when little elſe can be done to the Hop-garden, provide your Soil, and Manure againſt the Spring. If the Dung you carry in be rotten, mix it with two or three Parts of common Earth, and ſo let it lie well mixed till you have occaſion to make up your Hills. But if your Dung be new, then let it lie mixed 'till another Year; for new Dung is very injurious to Hops.

Horſe-dung, or Cow-dung is very good; but no Dung to compare with Pigeon's-dung, a little whereof laid to a Hill, and mixed that it may not be too hot in a place, is of great advantage. Sheeps-dung is alſo very good. And if in Spring or Summer-time you ſteep Sheeps, Pigeons, or Hens-dung in Water, till it be quite diſſolved; and if when you water your Hops, on the Top of every Hill, in the hollow Place made to contain Water, you put a Diſhfull of this diſſolved Dung, it will prove a moſt expeditious way, and the leaſt expenſive to enrich your Hop-hills, and hereby may be conveyed the fineſt Salt of Urine, Lime-aſhes, *&c.* to the Roots of the Hops or other Plants.

Of Tobacco.

THis is a very advantageous Plant, and of great eſteem in this Age; it would grow very well in this Kingdom were it allowed, but by reaſon of its Prohibition, I ſhall not proceed to give Directions for the Planting, Dreſſing, Ordering and Curing it.

Garden-Beans and *Peaſe.*

Beans are of ſeveral ſorts, and known by divers Names, as the *Windſor* and *Sandwich*, which are the chief, and the largeſt are eſteemed the beſt; yet many are of Opinion that the middle ſiz'd Beans (provided they are ſound) are the beſt; that is, they go fartheſt, there being the greater Number to fill the Buſhel. The Horſe or Field Bean has been treated of before.

Beans delight in a rich, ſtiff and deep Mould; good Huſbandry ought to be uſed in digging the Ground well; the Seaſon to ſet them is from *Chriſtmas* to *Candlemas*, and alſo earlier or later, accordcording to the Seaſon of the Year; but if too early, then great Froſts coming after they are Spired, will kill them; and if too late, they muſt be ſteeped in Brine, or ſuch Water, as before preſcribed for ſteeping Corn in; and obſerve to ſet them very near when the Moon is in her Wane.

It is the common and uſual way to ſet them here and there promiſcuouſly in Holes made with a Dibble; this way I do not approve of (as by Experience finding it not the beſt) but make Ranges with a Hoe about three Inches deep, very ſtreight, and let the Ranges run from South to North, for the greater benefit of the Sun, and this way they bear far more, the Sun and Air having a freer paſſage between them; alſo it is more commodious to go between them to weed, top, and gather them. You may ſow them thicker or thinner according to the Goodneſs of the Ground, and your own Diſcretion; when they are ſown, with your Hoe raiſe up the Earth about them. Let the Ranges be about two Foot and a half, or three Foot aſunder; and that you may not loſe Ground, Carrots may be ſown betwixt the Ranges, which will prove a good ſecond Crop. In gathering Green Beans it is not good to pull them from the

Stalks as is uſual, for that prevents the Thriving of the younger Cods not ripe, but cut them off with a Knife; and if you cut off the Stalks cloſe to the Ground when the Beans are gathered, 'tis probable you may have a ſecond Crop before Winter.

Peaſe are of ſundry Sorts, *viz. Hotſpurs*, of which there are the *Barns Hotſpur*, the *ſhort Cod Hotſpur*, and the *long Cod Hotſpur*; they are uſually ſown in *November* and *December*, and ſometimes in *January*, they will be very early ripe provided the Ground is rich and warm; the *Sandwich White Peaſe*; the White, Grey, Blue, Green and *Maple Rouncival*; the large and ſmall White *Sugar Peaſe*; the Grey *Sugar Peaſe*; the *White Roſe* and the *Grey Roſe Peaſe*; the *Egg*, the *Wing*, and the *Sickle Peaſe*; the *Sugar Peaſe* which is to be eaten in their Cods like unto *French Beans*, and by reaſon of their Tenderneſs are to be ſown late. The large White and Green *Haſting* are tender, and not to be ſet till the Cold is over, and then not very thick, for they ſpread much and mount high; and therefore require the help of tall Sticks; beſides which there is another very large Grey and extraordinary Sweet *Peaſe*; that is but lately propagated, and deſerves a large Bed in your Kitchen Gardens.

They delight in a warm and light Soil; if it be rich, the Peaſe are the fairer; but if lean they are more early and ſpend better; eſpecially when dry. Your Ground muſt be well ordered, if you expect a good Crop, eſpecially if it be ploughed; and ſow them in Ranges made with a Drill Plough, or for want thereof with a Hoe indifferent deep, earthing them well over; and when they are come up, earth up the Roots, which is a great Preſervative to them, eſpecially in a dry time, and keep them well hoed and free from Weeds. Thoſe that have but ſmall Quantities to ſet,and have the Conveniency of Sticks, may uſe them for the Peaſe to run upon, which doth occaſion a far greater Encreaſe.

French-Beans.

FRench or *Kidney-Beans* are a ſort of Codware, that are very pleaſant wholſome Food, being but lately brought in uſe amongſt us, and are not yet ſufficiently known: There are four Sorts thereof. Firſt, the Scarlet-Bean with a red Husk, and is not the beſt to eat in the Shell, as Kidney-Beans are uſually eaten, but is reputed the beſt to be eaten in Winter when dry and boiled. Secondly, The painted or ſtreaked Bean which is the hardieſt, tho' meaneſt of all. Thirdly, The large white Bean which yields a fair delicate Pod. Fourthly, The ſmall white Bean which ſaving in ſize is like the latter, but eſteemed the ſweeter. They delight in a warm, light and fertile Ground, which being about the beginning of *May* or very ſoon after planted with them at a Foot diſtance, and two Fingers deep, will yield an extraordinary Crop: You may either ſet up tall Sticks near for them to twine about, or let them lie on the Ground; but if you are ſtraitned in room, thoſe on Sticks will yield the greateſt increaſe. To cauſe them to come up the ſooner, ſteep them in Water. It is a very great bearer, and would be very profitable to ſow them for a ripe Crop for Poultrey; but the common uſe of them is for the Kitchen, being eſteemed a very good Diſh; and therein made uſe of ſeveral ways.

Artichoaks.

THere are three ſorts of *Artichoaks*, *viz.* the White, which are the moſt early; the Violet, whoſe Fruit is almoſt of a Pyramidical Form, and is the hardieſt ſort; and the Red one's, which are round and flat like the White one's: The two laſt are eſteemed the beſt. This is an excellent Plant, and very ſtrengthning; the Ground fit for them muſt be deep, and of a very rich Soil, and Trenched up with Dung in the Winter, to make it the better, which will produce the larger *Choaks*.

The Slips that grow by the ſides of the Old Stubs ſerve for Plants, which are to be taken from them and planted in *April*, the Ground being well dug; and they muſt be kept well water'd until they have taken Root; and if they be ſtrong, they will bear Heads the *Autumn* following. They are to be planted four or five Foot diſtance one from another, and kept well weeded; and if the Summer prove dry, they muſt be watered. This is a laſting Crop for divers Years, but your care muſt be to look after them in the Winter, to preſerve them from the pinching cold Froſts, by cutting the Stalks within about a Foot of the Ground; and raiſe up the Earth bout them like unto Mole-hills, within two or three Inches of the Top, and that covered over with long Dung; but do not earth them up too ſoon, for fear of Rotting them: When the Winter is ſpent, uncover them, and lay them open by little and little leſt the Air pinch them as being tender; then trim them up very well, taking away moſt of their ſmall Slips, not leaving above three of the ſtrongeſt to each Foot for Bearers, and dig about the Roots as deep as conveniently you can, adding thereto good rotten Dung.

If you would have *Choaks* in *Autumn*, cut the Stems of thoſe that bore in the Spring, to hinder them from a ſecond Crop, and in *Autumn* theſe luſty Stocks will bear very good *Choaks*; but you muſt take away the Slips that draw the Subſtance from the Plants, and dig about them, dreſſing and watering them as occaſion requires.

The Stalk is blanched in *Autumn*, and the Pith eaten raw or boiled: The way of preſerving them freſh all Winter, is by ſeparating the Bottoms from the Leaves, and after parboiling, allow to every Bottom a ſmall earthen glaz'd Pot, burying it all over in freſh melted Butter, as they do Wild Fowl, *&c.* They are alſo preſerved by ſtringing them on Packthread, a clean Paper being put between every Bottom to hinder them from touching one another, and ſo hung up in a dry Place: They are likewiſe pickled. *Chards* of *Artichoaks*, otherwiſe called *Cuſtons*, are the Leaves of fair *Artichoaks*, ty'd and wrapp'd up in Straw in *Autumn* and Winter, being covered all over but at the Top; which Straw makes them grow White, and thereby loſe a little of their Bitterneſs; ſo that they are ſerved up, when boiled, like true Spaniſh Cardoons, but yet not ſo good: Beſides that you are to fear hard Weather and Exceſs of Wet, for your *Artichoaks*, they have Field Mice for their Enemies, which ſpoil them by gnawing their Roots.

Jeruſalem-Artichoaks.

These are much of the Nature of *Potatoes*, but are neither ſo toothſome, nor ſo wholſome, nor are they in any requeſt; they are planted of the Roots, or come of the Seed.

Collyflowers.

This Plant is raiſed from Seed, which is ſown in *Auguſt*, and carefully preſerved in the Winter, being a tender Plant; or you may ſow them in the Spring in a hot Bed, and remove them when they have indifferent large Leaves, and ſet them in good rich Ground, well prepared for that purpoſe; but the beſt way is to dig ſmall Holes about a Foot ſquare, and fill them with good rotten Dung mixt with rich Mould, and therein Plant the Collyflowers very deep, almoſt covering the Leaves, and be careful to water them well, eſpecially in a dry Seaſon, otherwiſe they will not flower. Let the Holes be about three Foot apart, and ſet in Ranges, to the end the Ground may be the better Hoed, and kept from Weeds. Thoſe that are of one Year's Growth uſually flower about a time; to prevent which, ſome of the Plants may be removed once a Fortnight; for two, three or four times, as you pleaſe; and ſo they may be had one after another ſucceſſively; or elſe the Flower may be cut off with a long Stalk before 'tis fully ripe, and ſet in the Ground as far as may be; and it will retard its ripening: But note, that it muſt be ſhaded, and have a little watering, leaſt it wither.

Cabbages.

There are divers ſorts of *Cabbages*, thoſe moſt common are the *Engliſh*, the *Dutch*, the *Ruſſia*, and the *Red Cabbage*, of which the *Engliſh* and *Dutch* (which are generally very large and firm) are the beſt.

The Ground ought to be very good, rich, and of a deep Mould: And the Manner of ſetting them is in Holes, as before directed for *Collyflowers*; they require Watering, eſpecially at the firſt ſetting, until they draw Root: It is moſt convenient to ſet them in Ranges, at about four Foot aſunder, if of a large kind, otherwiſe three Foot is enough.

The *Slugs* are very injurious to them, ſo that if they are not carefully looked after until they are grown pretty large, they will deſtroy them; therefore every Morning very early, and every Evening about Sunſet they ſhould be pick'd off the Leaves, for at other times in the Heat of the Day they are not to be ſeen; Now to eaſe your ſelf of this Trouble get a parcel of *Ducks*, and they will do that buſineſs, for the *Slugs* are good Food for them.

The *Cabbage Seed* is to be ſown between *Midſummer* and *Michaelmas*, that it may gain Strength to defend it ſelf againſt the pinching Cold, and in ſome Years the ſharp Froſts kill them. The Seed is alſo to be ſown in a hot Bed in the Spring, and then in *April*, or the Beginning of *May* they may be tranſplanted into your Grounds, as before directed.

Many ordinary Grounds will produce *Coleworts*, and indeed if the Cabbage Plants are not good, or if they be ſet too thick, they will turn to *Coleworts*.

Theſe, as alſo the Offal Leaves of *Cabbages*, are very good Food for Cows and Swine, ſo that were they planted for no other uſe, it were beneficial enough. They are alſo excellent for Rabbets, either Wild or Tame.

If you would preſerve any Cabbage Seed, let it be of the very beſt; and let them be placed very low in the Ground during the Winter Seaſon, to preſerve them from Froſts and Cold Winds, covering them with Earthen Pots, and warm Soil over the Pots, and at Spring plant them forth.

Carduus, or Thiſtle.

Some of theſe, tho' a noiſome Weed, are received into Gardens; of which the firſt is the greater Globe Thiſtle, with Leaves cut in, and gaſhed in the middle, full of Prickles; its branched Stalk above a Yard high, bearing large and round hard Heads, with a ſharp bearded Husk of a bluiſh green Colour, from whence come pale blue Flowers ſpreading over the whole Head, and are ſucceeded by the Seeds contained in the Husks, which muſt be preſerved, for the Plant dies in the Winter: Secondly, the leſſer Globe-Thiſtle, whoſe Leaves are ſmaller and whiter, as are the Stalk and Head of the Flowers, the Roots more durable, laſting four Years, bearing Flowers. They Flower uſually in *Auguſt*, and being ſowed of Seeds, they will come to bear Flowers in the ſecond Year; they prove a great Annoyance to ſome Lands by killing the Graſs, Corn, *&c.* tho' they be a ſure token of the ſtrength of the Ground. The way to deſtroy them, is to cut them up by the Roots before Seeding-time. Our Ladies Milky dapled Thiſtle is worth eſteem, for the young Stalk, about *May*, being peeled and ſoaked in Water, to extract the Bitterneſs, either boil'd or raw, is a very wholſome Salad eaten with Oil, Salt and Pepper; ſome eat them ſodden in proper Broth, or baked in Pies like the *Artichoak*, but ſome prefer the tender Stalk boil'd or fry'd; they are both nouriſhing and reſtorative.

Cardons Spaniſh.

Cardons *Spaniſh* are only propagated by Seed that is of a longiſh Oval form, and about the Bigneſs of a Wheat Corn, of a greeniſh Olive colour, ſtreaked from the one End to the other. They are ſown at two ſeveral times; the firſt from the Middle of *April* to the End, and the other about the latter End of *May*, in a good and well prepared Ground, in ſmall Trenches or Pits a Foot wide and ſix Inches deep filled with Mould, and then make for them Beds four or five Foot wide, in order to place them in two Ranks of thoſe Pits chequerways, putting five or ſix Seeds into every Hole, with intention to let but two or three grow, and take away the reſt if they come up: But if in fifteen or twenty Days the Seed does not come up, they ſhould be uncovered to ſee whether they be rotten or begin to ſprout, that their Places may be ſupply'd with new ones if need require; they muſt be carefully watered; and towards the End of *October*, if you have a mind to whiten them, take the advantage of a dry Day, firſt to tie up all the Leaves with two or three Bands, and ſome Days after to cover them quite with Straw or dry Litter well twiſted about them, except at the Top, which is to be left open; thus ordered they whiten in about three Weeks, and are fit to eat. They may be tranſplanted upon the approach of Winter into the green Houſe, removing ſome Earth with them, ſome of which may be planted next Spring to run to Seed in *June* or *July*.

Savoys.

THeſe are of two ſorts, *Dutch* and *Engliſh*; they are in Seaſon earlier than *Cabbages*, and are more ſweet: They are raiſed, and planted much after the ſame manner as *Cabbages*, but not ſo much Curioſity is required about them.

Potatoes.

THis is a Root in great Requeſt in our *American* Plantations, as alſo in *Ireland*, no doubt but it will grow well in *England*, were it Planted here. They require good Garden Mould, and are eaſily encreaſed, for the Roots, if cut in ſmall Pieces, will grow as well as the whole Roots. Mr. *Mortimer* ſays, they will grow indifferently in any Ground, provided 'tis well dung'd.

Carrots.

OF this Root there are ſeveral Sorts, *viz.* the *Red Carrot*, the Swelling *Orange Carrot*, which is the forwardeſt, and the *Yellow Carrot*.

The Ground moſt agreeable for this Root is a light, warm and ſandy Soil, and withal rich in Heart. The uſual way was to dig the Ground for them, which for ſmall Quantities for Gardens is the beſt; but of late Years the Farmer eaſeth himſelf of that great Charge, by Ploughing it deep, which ſerveth as well; but it muſt be well harrow'd and laid fine, otherwiſe it will be troubleſome to Hoe, which is the chief Care and Charge required about it, for it muſt be three times Hoed, which will coſt 30 *s.* an Acre to be well done; but thoſe that ſow but a little for their own Uſe, their Gardiner or other Servants may do it, being no difficult thing to learn; the chief Care being to ſet them apart, for if two or more grow together, they will be ſmall and come to nothing, and the cutting the Tops of them with the ſmall Hoe kills the Roots.

There are two Seaſons for ſowing *Carots*, one is about *February*, for forward *Carrots*, and thoſe will be ripe about the Beginning of *July*; and the other Seaſon is in *July* and *Auguſt* for Winter *Carrots*, and thoſe will be ripe and fit to draw in *October*.

Theſe Roots are of great uſe, not only for the Table; but alſo for Swine, Geeſe, Poultrey, and Rabbets. The beſt way to keep them all the Winter, is to lay them in dry Sand; and if you would reſerve any for Seed, let them be the fineſt.

Parſnips.

THis Root delights in a deep, rich and mellow Ground, which muſt be well dug, at the leaſt a full Spit deep, and laid looſe, the better to take Root. The Seaſon to ſow them is in the Spring, to wit about *April*; And great care muſt be taken in the Hoeing them, as is for the *Carrots*.

The *Swelling Parſnip* is by ſome preferred before the other. About *Chriſtmas* is the time to draw them, and the Seaſon holds all, or the greateſt part of *Lent*. The faireſt may be preſerved for Seed.

This Root is of that Nouriſhment, that it will fat Hogs with as firm a Fleſh as Peaſe; and thoſe that have experienced it ſay, that the Fleſh is ſweeter, and more delicate. *Carrots* will alſo fat them, but their Fat is looſe, waſhy, and waſtes in the Boiling. *Parſnips* are alſo very good, being cut into ſmall Pieces and boiled for fatting Poultrey.

Turnips.

TUrnips are of ſeveral ſorts, *viz.* the long, the round and the yellow, of which ſorts the long are eſteemed the beſt.

This Root is more uſually ſown in the Field than in a Garden, bearing generally a ſecond Crop, with no more Huſbandry, than only giving the Ground one ſtirring or Ploughing after the Crop is taken off, and ſo ſowing the Seed, and harrowing it well in. They muſt be twice Hoed to ſever them, but that great Exactneſs is not required as for *Carrots*.

Beſides the Benefit of this Root for the Table, it is excellent good for Cows and Sheep, eſpecially in hard Froſty Weather; And this Crop doth very much mellow the Ground, and fit it for another Crop, being as good as a ſmall Dunging: It is beſt to be ſown after a Crop of Peaſe, or Beans.

If you would raiſe good Seed whereby to have fair and large Roots, either of *Carrots*, *Parſnips*, or *Turnips*, gather the higheſt Branches when the Seed is full ripe, which ſow in *March*, or *April*; and at drawing time chooſe the faireſt Roots, cut off their Tops ſomewhat low, and ſet them again, and let them ſtand for Seed the next Year; which Seed take from the higheſt Top Branches, and ſow them in Seaſon, and they will anſwer your Expectation. The Seaſon of the Year, according to Mr. *Mortimer*, for the ſowing of this Plant for the Kitchen, is about *Midſummer*, that they may be ready to improve upon the Autumnal Rains, which makes them much ſweeter than the Vernal: That they muſt not be ſown too thick, ſeeing that will obſtruct the Growth of the Root: But if they run out into Leaf more than in Roots, thro' the over-fatneſs of the Ground, which is a very great fault for *Turnips*, or over-much Wet; in that caſe, treading down the Leaves will make the Root the better: And if the Roots are Uſeful and Palatable; the Greens or Leaves of ſuch as have been ſown late, and liv'd over Winter are ſo too: They being often boiled and eaten with Salt Meats, prove an excellent Condiment.

Skirrets.

THis is a very ſweet Root; it is raiſed of the Slips, and planted in the Spring Seaſon in Ranges about five or ſix Inches aſunder, and at Winter when you raiſe the Roots, you may lay the Tops in Earth until the Spring, for your further encreaſe. They delight in a very Fat and light Mould. If you would have the Roots of theſe Plants to be large, often tread down the Tops to hinder the Sap from running up.

Aſparagus.

THis is to be raiſed from the Seed in a rich and fat Soil, and at two Years Growth may be Tranſplanted into Beds; which muſt be rich, and well prepared with rotten Dung, about two Foot deep at the Bottom; and alſo very good rotten Dung muſt be mixt with the Mould. Then ſet the *Aſparagus Plants* at about two Foot diſtance, and three or four Rows in each Bed, which in time will extend themſelves throughout all the Bed.

After three Years ſtanding they will be fit to cut, but if you cut them ſooner, they will be ſmall. But if they be ſpared four or five Years, they will be as big as Leeks; the ſmall one's may be left, that the Roots may grow bigger; ſuffering thoſe that ſpring up about the End of the Seaſon to run into Seed; by which means it will exceedingly repair the Hurt done to the Plants in reaping the Shoots. But your Ground may not be loſt to you all this time; for the firſt Year you may ſow *Onions*, and may expect a good Crop.

At the Beginning of Winter when the Stalks are cut away, pare up the Alleys, and cover the Beds with Horſe-Dung about three Inches thick, which will preſerve them from the Cold pinching Froſts, which otherwiſe will annoy them; and about Mid-*March* uncover the Beds, and let the Dung lie in the Alleys to rot for good Mould againſt the next Seaſon, and caſt over the ſaid Beds rich Mould, about two or three Inches thick, which will exceedingly nouriſh them and bring them forward and early.

Cut the *Aſparagus* very low within the Earth and it will grow up the better; but be careful of cutting thoſe that are juſt peeping up, for that will hinder their Growth.

If you take up the Roots of old decayed *Aſparagus* about the Beginning of *January*, and Plant them in a hot Bed, keeping it warm and ſheltering it from the Froſts, you may have *Aſparagus* about *Candlemas*.

The Beds for this Plant muſt be covered every Year with a little Earth taken from the Path-way, becauſe they, inſtead of ſinking are always riſing by little and little; and every two Years they are to be moderately dung'd: About *Michaelmas* the Stems muſt be cut down, and the faireſt taken for Seed; and to make them come to bear, an Iron Fork (the Spade being dangerous) is to be uſed to draw them out of the Nurſery Bed. And you muſt not fail every Year, the latter End of *March* or Beginning of *April*, to beſtow a ſmall Dreſſing or ſtirring of the Ground about three or four Inches deep on every Bed (taking care not to let the Spade go too deep, ſo as to hurt the Plants and to render the Superficies of the Earth looſe) the better to diſpoſe it to drink up the Rain and *May-dew*, which nouriſhes the Stocks, facilitates the Paſſage of the *Aſparagus*, and kills the Weeds. The worſt Enemies to this Plant are a ſort of Flea that faſtens upon its Shoots and makes it miſcarry; againſt which Miſchief there has been yet no Remedy found out; if they are planted in good Ground, they may ſtand Ten or Twelve Years.

Melons.

MElons are very troubleſome and coſtly to raiſe; about the Middle of *February* make your Hot-beds in ſome encloſed Place that is ſheltred warm from the Wind by a Pale or Fence of Reeds, or Straw, which Hot-bed muſt be made of good new Horſe-Dung five or ſix Foot high, and about four Foot broad, and very hard trod or beat down; then ſift ſome pure Mould of laſt Year's rotten Dung without any mixture of Earth, about four or five Inches thick, and put in the Seeds with your Fingers at two or three Inches diſtance, and an Inch and an half deep; then cover them over with Melon Glaſſes, the better to draw up the Heat, and bring up the *Melons*; and this way is better than the covering the Bed with Straw, or Mats, raiſed or ſupported by Arched Sticks, which is the common way to thoſe that cannot, or will not be at the Charge of Glaſſes.

When the Plants begin to peep up, cover them thinly over with fine warm Mould; and when they are ſhot above Ground, cover up the Stalks cloſe to the Leaves, and in the heat of the Day give them a little Airing, taking off the Glaſſes, but caſting a little Straw over them for fear the Sun proves too hot for them, and this do about Ten a Clock to a Eleven, and open them again about Two till Four; and as the Plants riſe, raiſe up the Earth to the Roots to ſuccour them, and when you find the Bed begin to decay, remove the Plants into another Hot-bed, otherwiſe they will decay for want of Heat; but coming into a freſh Bed will mount up apace; if the Bed grows dry, Water them once in twelve Hours with Water made luke-warm: When the Plants are grown pretty big, remove them into another new Bed, and plant them about four Inches aſunder; Then plant them where they ſhall ſtand all the Year; dig a large Trench about four Foot deep, and three Foot over, and place therein ſome Dung about three Foot deep, that will heat them; then make a ſquare Hole about four Foot deep, and half a Yard ſquare, and fill it about half full with very rich Mould; then take up the *Melon-Plants* from your laſt Bed very carefully, and ſet three Plants in one Hole triangular in the warm Mould, ſo deep, that the Leaves may be level with the Top of the Earth; then ſet the Glaſſes upon them, and cover them very warm, and Water them with Dung-water Blood-warm for three or four Days after the Planting, and be ſure to give them good Attendance in the time of their Ripening, for the Excellency is to take them in their prime, and they will ſoon be over-ripe: Lay the young *Melons* upon ridge Tiles to keep them from the Ground, and to cauſe the Reflexion of the Sun the better; and the ſmall Shoots that do extract the Sap of the moſt leading Branches muſt be nipt off, taking care to leave not above three or four of the moſt vigorous Branches, whoſe Knots grow neareſt to one another. When your Fruit is grown as big as a Tennis-ball, nip off the Shoot at ſome diſtance beyond them, and they will grow large, provided you ſuffer not above two upon each Foot, chuſing ſuch as are neareſt the principal Stem, the reſt being of little value.

They are known to be ripe when the Stalk ſeems as if it would part from the Fruit, when they begin to gild and grow yellow underneath, and by the fragrant Odour they yield, which encreaſes more as they ripen; but if they be to be carried far, it is neceſſary they be gathered when they begin to ripen; before they be eaten, they muſt be put into a Bucket of cold Water, which will make them eat cool and pleaſant. The Seeds of the moſt early ripe ought to be preſerved, and thoſe Seeds that lodged on the Sunny-ſide of the *Melon*, are to be preferred before the reſt.

Mint

Mint.

MInt is multiplied by Runners, that are as ſo many Arms that ſpring out of its Tuft and take Root, but chiefly by Slips. There are divers ſorts, whereof the Garden *Mint* is the beſt. It muſt be removed every third Year, and placed always in good Earth, at about a Foot diſtance: Some thick Tufts of it are likewiſe planted in hot Beds in Winter.

Cucumbers.

CUcumbers are raiſed in hot Beds, and from thence tranſplanted as Melons; But the more uſual Way is to make a Trench of a ſufficient Bigneſs for the Quantity of *Cucumbers* you deſign to ſow, and fill it with new Horſe-dung and make ſquare Holes, as before directed for the *Melons*, which fill with rich Mould, and ſet the Seeds about two Inches deep in it, and put about Twelve in a Hole diſperſed up and down; when they come up cover them with Straw, Cabbage-leaves, or Mats, to ſhelter them from the Wind and Weather, until they are pretty big, and then they will be out of danger; but forget not to water them, eſpecially in a dry Seaſon. About the latter End of *March*, or Beginning of *April* is a good time to ſet the Seeds; and if you would have them earlier you muſt make uſe of Hot-beds and Glaſſes.

Cucumbers are of three Sorts, *viz.* long, ſhort, and prickly *Cucumbers.*

Pompions.

THeſe Roots are ſet in good Mould after the manner of *Cucumbers*, and muſt be well watered at their firſt appearing: When you perceive a *Pompion* to be kerned, and grown pretty big, and that the Runner ſhoots forwards and produceth another about a Yard beyond it, lay the Runner about half a Foot in the Ground and it will ſhoot out Roots and nouriſh the other *Pompion*, for that next the Root intercepts all the Sap from the other, ſo that in two or three Days it will pine away; and obſerving this Rule you may have nine or ten upon a Root, otherwiſe not above two or three. They are propagated only by Seeds of a flat and oval Figure, partly large and whitiſh: In *June* when their Vines begin to grow five or ſix Foot long, ſome ſhovel-fulls of Earth are thrown upon them, to prevent their being broken with the Wind, and to make them take Root at the Place ſo covered, whereby the Fruit that grows beyond that Part will be better nouriſhed and ſo grow bigger: They ſhould be well watered if the Weather be dry.

Mekings and *Gourds* are not much unlike unto *Pompions*, and require the ſame Ordering.

Of Onions, Leeks, Garlick, Shallots, with Sallating and Pot-herbs.

ONions are of ſeveral Sorts, *viz. Strasburgh Onions*, the *Red Spaniſh*, and the *White Spaniſh*, the *French* that comes from St. *Omers*, and the *Engliſh Onion.*

They delight in a fine, fat and warm Mould; they are ſown in *March* or the Beginning of *April*; If they are not ſown with an even Hand they will be in ſome Places too thick, and in others too thin; then where they are too thick let them be drawn up and planted in the thin Places: When they are grown to ſome reaſonable Bigneſs bend down the Blades, which will make the Heads the larger. They muſt be kept well weeded, otherwiſe they will not come to good Perfection.

In *Auguſt* they are uſually ripe, then gather them up, and lay them in the Sun to dry on a Blanket; then make them up in Ropes and hang them up, or lay them on ſome boarded Floor for your uſe. The *Strasburgh* is reckoned the beſt.

Onion's do not extend their Fibres far downwards, and therefore at the Time of ſowing, the Bed is to be trod and beat flat, and the Seed as equally diſperſed as may be. When they ſpring you are to ſift ſome fine Earth a Finger thick almoſt over them, and if when they begin to appear they are trod down, the Roots will grow the larger: They have proſpered exceeding well when ſown with Bay-ſalt; they are to be taken up and dried as aforeſaid; reſerve them in a dry Place for Uſe. But they may be ſown all the Year for the uſe of young *Onions* or *Scallions*; ſuch as are ſown in *Autumn*, muſt be covered with Straw or Peaſe-hawm, and being preſerved all Winter, they will be early *Cibouls* or *Scallions* in the Spring. The beſt *Onions* are ſuch as are brought out of *Spain*, whence they of St. *Omer's* had them, ſome of which have weighed eight Pounds, chuſe therefore the large round, white, and thin skinned one's.

Parſley.

PArſley, of all Garden Herbs, is the moſt univerſally uſed in the Kitchin, it being an excellent Ingredient in moſt Pottages, Sauces and Sallets. There is the common and curled ſort multiplied only by Seed, that is ſmall and of a greeniſh grey Colour, and a little bending inward on one ſide, and all over ſtreaked from one End to the other. It muſt be ſown in the Spring pretty thick, and in good and well prepared Ground; its Leaves when cut ſhoot out new ones like Sorrel; it can bear any moderate but no violent Cold, and therefore it is beſt to beſtow ſome covering on it to defend it: In order to its producing ſmall Roots, it muſt be thinned in Beds or Borders where it is ſown, and in hot Weather it requires pretty much Watering. Its Seeds are gathered in *Auguſt* and *September.*

Leeks.

LEeks are of the nature of *Onions*, and are ſo ſown; but when they are grown big, if they were tranſplanted and ſet deep in the Earth, they would have the more white ſtalk for uſe, but this is too great a trouble for any Quantity. Plant them about the Month of *Auguſt* in very fat, rich Ground, for which deep Holes are made with a ſetting Stick; but not filled up; they ſhould be watered once in two Days, with Water enriched with fat Dung, and they will be very large and white.

The faireſt and beſt *Leeks*, as alſo *Onions*, are to be kept and planted for Seed, and by reaſon of the Weightineſs of their Heads they are to be propped up with Sticks; when the Seed is ripe, cut off the Heads, and lay them to dry, then rub out the Seed.

Naſturces.

N*Aſturces*, called uſually *Capuchin Capers*, are multiplied only by Seed: It bears a pretty large Leaf, and an orange colour'd Flower. The Seed is of a Pyramidical Form, divided by Ribs, having its Superficies engraven and wrought all over, being of a grey Colour inclining to a light Cinamon: They ſow them about the End of *March* in hot Beds, or in the Beginning of *April*, and are afterwards replanted by ſome Wall: The Seed, as ſoon as ripe, falls off eaſily, as does that of *Borage*, and therefore muſt be carefully gathered.

Chervil.

C*Hervil* is only multiply'd by Seed that is black, very ſmall, pretty longiſh, ſtriped longways, and grows upon Plants ſown the *Autumn* before, which knits and ripens in *June*; the musked ſort thereof is one of our Salad Furnitures; and at the Beginning of Spring while the Leaves are tender is very agreeable. It remains many Years without being ſpoiled by the Froſt. As for the ordinary ones for Salads it is annual, and a little thereof ſhould be ſown Monthly, as there is occaſion for it. It runs very eaſily to Seed, and if you would have ſome of it betimes, it muſt be ſown by the End of *Autumn*; the Stalks are cut down as ſoon as they begin to grow yellow, and the Seed beaten out, as is done by that of other Plants.

Cives.

E*Ngliſh Cives* are multiplied only by Off-ſets, growing round about their Tufts; and from them a Part is taken to replant, being ſlipt out and ſeparated into many little one's, and tranſplanted nine or ten Inches aſunder, either in Borders or Beds in pretty good Ground: They will laſt three or four Years without removing, or any other Culture than weeding and watering ſometimes during the Heat: It is their Leaves only that are uſed for one of the Sallet furniture.

Peaſe Everlaſting.

P*Eaſe Everlaſting*, are eaſily propagated, and in good Land thrive exceedingly. Their Roots yield yearly a great Burden of excellent Provender for Horſes. Sow them early in the Spring on digged Ground in Rows, and ſo hoed in the intervals between the Seed; for the Seed is long in coming up, and affords no Profit the firſt Year. They require Care and Pains to preſerve them from Weeds, but the ſucceeding Years will recompence you abundantly. Some ſow them firſt on a ſmall Bed, and next Year remove them into Ground new dreſſed with Plough or Spade, and plant them about twelve or eighteen Inches aſunder, ſo as to be eaſily weeded or hoed.

Penny-Royal.

P*Enny-Royal* is of three or four ſorts. 'Tis a common Plant in every Kitchin-Garden propagated from Slips or Branches ſet in *April*.

Peony.

P*Eony* is a Plant both Male and Female; the firſt being ſingle and known by its Leaves coming conſtantly whole without any diviſion, its Root is long and round, and the Flower of a purpliſh red; the Females many times bear ſingle, others double, the Leaves of all being divided on the Edges, the Roots more tuberous growing in Clods, with many round Pieces faſtned to them with ſmaller Strings. Of the beſt double ones there are ſeveral Kinds: As 1. The *Double purple Peony* ſmaller in all its Parts than the common red one's, the Leaves of a whiter Green, and thoſe of the Flower of a bright ſhining Colour. 2. The *Double Carnation*, of a bright ſhining Carnation Colour at the firſt opening, but daily growing paler till almoſt white; the Leaves never fall off but wither on the Stalk. 3. The *Double Bluſh* or *White Peony*, large flowered, and at firſt opening tinctur'd with a light Bluſh, but ſoon turns perfect white, and continues ſo long before it decays, and then withers on the Stalk, which is the beſt yet come to our knowledge. 4. The *Double ſtriped*, is ſmaller than the laſt in all its Parts; the Flower of a fine red, ſtriped with white, laſts long, and falls no Leaf. They all flower in *May*, are hardy Plants and endure long in the Ground without ſtirring. *October* is the only time to remove them; and of thoſe Roots none will grow but ſuch as have Sprouts or Buds at the End, or rather Top of them, of which ſort each Piece thereof will grow, the double ones ſome Years bring Seeds to perfection, which being ſown very thin in *September*, where they may ſtand unremoved in the Ground for two Years, may produce new Varieties.

Purſlain.

RED or Golden *Purſlain* is raiſed only by Seed; to have a good Crop of it, the Plants ſhould be replanted by the End of *May*, and ſet a Foot diſtance from one another: It is a Sallet Herb propagated with ſome difficulty, being tender in the Spring, and the Froſts uſually nipping of it; but to have it early, it may be ſown on a hot Bed, or in *April* on any rich Soil finely dreſt; when the Seeds are ſown, clap over the Bed with the back of the Spade, and water it, for it delights in Moiſture. If it be ſown thin, or tranſplanted apart, it will yield fair Plants either for Seed to pickle or to boil; as ſoon as the Seeds look very black, the Stalks muſt be gathered and laid abroad in the Sun, (which will the better maturate the Seed) lay them on a Board or Cloth to preſerve them from ſcattering or ſpilling. Houſe them in the Night, and expoſe them again in the Day time till they are ripe. Some have affirmed that the Seed of three or four Years old is better than new.

Beet Raves or Beet Radiſhes.

R*ED Beet* produces Roots for Salads, being multiplied only by Seeds of about the Bigneſs of a middling Peaſe, and round but rough; ſow them in *March* very thin, either in Beds or Borders, in good well prepared Ground, or elſe they will not grow ſo fair and large as they ſhould be; the beſt are thoſe that have the reddeſt Subſtance, and the reddeſt Tops, and are not good to ſpend but in Winter; gather the

Seed in *Auguſt* and *September*; for the procuring whereof, ſome of the laſt Year's Roots that have been preſerved from the Froſt are tranſplanted in *March*, the Roots being cut into thin Slices and boiled, when cold, make a grateful Winter Salad.

White Beet.

WHite Beet is alſo propagated for *Chard* by Seeds only, like unto that of the *Red Beets*, but of a duller Colour; The Rib of it being boiled melts and eats like Marrow.

Chards of Beet.

PLants of *White Beet* tranſplanted in a well prepared Bed at a full Foot's diſtance, produce great Tops, that in the midſt of them have a large, white, thick, downy and cotton-like main Shoot, which is the true *Chard* uſed in Pottages and Entremeſſes. When *White Beets* have been ſown in hot Beds, or in naked Earth in *March*, that which is yelloweſt is tranſplanted into Beds purpoſely prepared, and being well watered in the Summer they grow big and ſtrong enough to reſiſt the hard Winter's cold, if ſo be they be covered with long dry Dung, as we do *Artichoaks*. In *April* they are uncovered, and the Earth dreſt carefully about them, and ſo produced; their Seed is gathered in *July* or *Auguſt*.

Borage.

IT is propagated only by a black Seed of a long oval figure, commonly with a little white End towards the Baſe or Bottom that is quite ſeparated from the reſt, being ſtreaked black all along from one End to the other. It grows and is to be ordered in the ſame manner as *Arrach*, of which by and by, but it does not come up ſo vigorouſly. It is ſown ſeveral times in one Summer; the Seed falls as ſoon as ever they begin to ripen, and therefore muſt carefully be watch'd, and the Stalks cut and laid to dry in the Sun, whereby few will be loſt: It's Flowers ſerve to adorn Salads, but they are not eaſily digeſted, tho' the Leaves are, if their String is firſt taken away. *Bugloſs* is ordered after the ſame manner.

Aleſander.

ALeſander is propagated only by Seed that is oval and pretty big, a little more ſwollen on one ſide than the other, which bends a little Inwards, ſtreak'd all along and croſs-ways on the Edges between the ſides. It's one of the Furnitures of our Winter Salads, which muſt be whiten'd in the ſame manner as *Wild Endive* or *Succory* at the End of *Autumn*, its Leaves being cut down, and the Bed wherein it grows covered over with long dry Dung or Straw, skreened ſo cloſe that the Froſt may be excluded from it, whereby the new Leaves that ſpring therefrom will grow white, yellowiſh and tender. Sow pretty thin in the Spring, and gather the Seed the latter End of Summer; the Plant being hardy requires not much watering.

Arrach.

ARrach, *Orrach* or *Orage*, propagated only by Seed, is one of the quickeſt Plants both in coming up and running to Seed, which laſt it doth the Beginning of *June*. It's to be ſown pretty thin, and ſome of it, which is good Seed, ſhould be tranſplanted to a ſeparate Place. The Leaves are very good in Pottage and Stuffings. It ſhould be uſed as ſoon as it peeps out of the Ground, becauſe it decays quickly; and to have ſome the more early, they ſow it in hot Beds. It thrives very well in all ſorts of Grounds, but grows faireſt in the beſt.

Bucks-horn Salad.

THis is only multiply'd by Seed, that is very ſmall, and ordered after the ſame manner as *Borage*. When the Leaves of this Plant are cut, there ſpring up new ones in the room of them.

Burnet.

BUrnet is propagated only by Seed that is pretty big, a little oval with four Sides, and as it were all over engraven in the Spaces between the four Sides. It is a very common Salad, ſeldom ſown, but in the Spring it often ſprings afreſh, after cutting; the Shoots are for Salads; the ſame requires watering in Summer, at the End whereof the Seeds are gathered.

Chamemel.

CHamemel double is like the common ſort, only the Leaves greener and larger, and ſo the Flowers, and very double, being white and ſomewhat yellow in the Middle. It's tenderer than the common one, and muſt yearly be renewed by ſetting of Slips thereof in the Spring, or parting of the Roots.

Fennel.

FEnnel is only propagated by Seed, which is ſmall, oval, longiſh and ſtreaked with greeniſh grey Streaks: It's ſeldom tranſplanted: And if ſowed in Beds or Borders reſiſts the Winter Colds: It ſprings again when 'tis cut; and its tendereſt and youngeſt Shoots are the beſt: The Seed is gathered in *Auguſt*, and thrives in any ſort of Ground.

Balm.

BAlm, is an odoriferous Herb, multiply'd both by Seed and rooted Branches like *Lavender*, *Hyſſop*, *Thyme*, &c. The tender Leaves are uſed with other Herbs for Salads; the Sprigs freſh gathered put into Wine or other Drink during the heat of Summer, give it Quickneſs; and beſides, this Plant yields an incomparable Wine made in the ſame manner as *Cowſlip*, &c.

Barberries.

BArberries are raiſed by Suckers, of which you have plenty about the Roots of old Trees, tho' 'tis not good to ſuffer too many of them to grow there; neither let their Tops be cut like cloſe round Buſhes, as many do, which makes them grow thick, that they can neither bear nor ripen Fruit ſo well as if they grew higher and thinner. It bears a Fruit very uſeful in Houſewifery, whereof there are ſeveral Sorts; altho' but only one common one, which bears its Fruit without Stones, and is counted beſt; there is beſides another ſort that chiefly differs from the common kind,in that the Berries are twice as big, and more excellent to preſerve.

Baſil.

THere are ſeveral ſorts of *Baſil*, as that which bears the biggeſt Leaves, eſpecially if they are of a Violet Colour; but that with the leaſt Leaves is moſt curious, and with the middling ones is the moſt common Sort; all which are propagated by Seed of a black Cinamon colour, very ſmall and a little oval, and by Slips. It is annual and very tender, being ſeldom ſown but in hot Beds, beginning therewith at the Beginning of *February*, and continuing ſo to do the whole Year. It's tender Leaves are uſed in a ſmall Quantity with the furniture of Salads, among which they make an agreeable Perfume, the ſame being likewiſe uſed in Ragou's, eſpecially when dry. To make it run to Seed, which is gathered in *Auguſt*, it's uſually tranſplanted in *May*, either in Pots or Beds. This Plant imparts a grateful Savour, if not too ſtrong: It is ſomewhat offenſive to the Eyes, and therefore the tender Tops are to be very ſparingly uſed.

Lettice.

THE ſeveral Sorts of them are multiplied only by Seed, which, if ſow'd in the Spring, ſeed in *July*; and ſo do the Shell or Winter-Lettice, after having paſs'd the Winter in the Places where they were tranſplanted in *October*. They are the moſt common and uſeful Plant in the Kitchin-Garden, eſpecially for Sallets. Many are the Kinds of them, as the *Cabbage-Lettice*, that with the ordinary Culture comes to Perfection; the *Shell-Lettice*, which is almoſt like a Shell, is the firſt that will cabbage at the going out of the Winter, otherwiſe called *Winter-Lettice*, becauſe they can pretty well endure ordinary Froſts. They are ſown in *September*, *October* and *November*, tranſplanted into ſome Wall-Border towards the South and Eaſt, or elſe ſown in hot Beds under Bells in *February* or *March*, and are good in *April* and *May*. Another Sort, called *Paſſion-Lettices*, proſper well in light Ground, and are ſucceeded by the bright curled *Lettices*, which uſually cabbage in the Spring, and do alſo well upon hot Beds. Of this Sort there are two more, *viz. George-Lettice*, thicker and leſs curled; and the *Minion*, the leaſt Sort, and requires good black or ſandy Ground. Near about the ſame Seaſon comes in curled green *Lettices*, beſides the red and ſhort ones that have ſmall Heads, and require the ſame Ground. In *June* and *July* come in the *Royal Bell-gards* or *Fair-looks*, *Bright Genoas*, *Capuchins*, to which frequent Rains are pernicious. Others are called *Imperial Lettices* from their Size, delicate in Taſte, but apt to run into Seed. But to have no more Diverſities, the great Inconveniences that befal *Cabbage-Lettices* are, that they often degenerate ſo far as to cabbage no more, and therefore no Seed ſhould be gathered but from ſuch as do cabbage well; and as ſoon as they are cabbaged they muſt be ſpent, unleſs you would have them run to Seed without doing any Service; for if the Rot that begins at the End of their Leaves ſeizes them, which it will often do when the Ground or Seaſon is not favourable unto them, there is hardly any Remedy, only the Ground that is faulty may be mended with ſmall Dung, whether it be ſandy or cold groſs Earth.

Thoſe *Lettices* which grow biggeſt ſhould be placed at ten or twelve Inches Diſtance, ſeven or eight will do for thoſe that bear Heads of a middling Size; and ſuch as would be good Husbands may ſow Radiſhes in their Lettice-Beds; for they will be all drawn out and ſpent before the *Lettice-Cabbage*; and for the ſame Reaſon, *Endives* being much longer before they come to Perfection than the *Lettices*, ſome of theſe laſt may be planted among the *Endives*. You may alſo Blanch the largeſt *Roman Lettices*, when they are at full Growth, by binding of them up with Straw or raw Hemp, or by covering of them with Earthen-pots, that have Dung put about them.

Maches.

M*Aches* or *Maskets* are multiplied only by Seed, which is very ſmall, and of an Orange-colour they being a Sort of little Sallet, which is term'd Wild or Ruſtical. Beds are made for them, which are ſow'd about the End of *Auguſt*; they are hardy enough to reſiſt the Rigour of Froſts; and foraſmuch as they produce a great many little Seeds that will eaſily fall, they will ſufficiently propagate themſelves without any other Culture than only Weeding.

Marjoram.

OF *Marjoram* there are ſeveral Sorts, which are eaſily raiſed to Seed, ſown in *May*; the vulgar Sort and *Pot-Marjoram* is raiſed by Slips, whoſe Uſes are commonly known. There is alſo a Diſtinction of *Winter-Marjoram*, which is the beſt, and *Summer-Marjoram*, that laſts only that Seaſon. It is alſo propagated by Slips or Suckers in *April*.

Conval-Lily.

C*Onval-Lily*, *May*, or *Lily of the Valley*, has a ſtrong Root, that runs into the Ground, and comes up in divers Places, with three or four long and broad Leaves, and from them riſes a naked Stalk with white Flowers at the Top, like Bottles with open Mouths, of a comfortable Scent. There is another Sort, differing from thoſe only in Flowers, which are of a fine pale Red, both of them flowering in *May*, and bearing beſt in a ſhady mean Soil, being eaſily propagated from Plants.

Corn-Sallet.

C*Orn-Sallet*, an Herb, whoſe Top-Leaves are a Sallet of themſelves, ſeaſonably eaten all the whole Winter, and early in the Spring with other Sallets: It's raiſed of Seed at firſt, but afterwards will ſow it ſelf.

Creſſes.

C*Reſſes-Garden*, *Indian* or *Yellow Lark-Spurs*, ſown in many Gardens for culinary Uſes; and the latter from a Flower, are now become excellent Sallets, as well the Leaf as the Bloſſom. For early Sallets they are raiſed in hot Beds; but if ſown in *April*, they will grow very well on ordinary Garden-

Ground, and their Leaves and Bloſſoms plentifully encreaſe. *Water-Creſſes* are eaten boil'd or raw, and, like the other Sorts of *Creſſes*, are raiſed of Seed.

Dandelion.

D*Andelion* is an Herb, which is macerated in ſeveral Waters to extract the Bitterneſs. It is little inferior to Succory or Endive, *&c.* The *French* Country-People eat the Roots of it.

Endive, or Succory.

E*Ndive*, or *Succory*, is of ſeveral Sorts, as the White, the Green, or the Curled, which are only propagated by Seed that is longiſh, of a white Grey, flat at one End, and roundiſh at the other. It grows upon the Stocks or Stems of the preceding Year's Growth, and you would take it but only for little Bits of Herbs cut ſmall. The wild is alſo propagated in the ſame Manner, from longiſh black Seed: It's a Sort of a very good annual Plant uſed in Sallet and Pottage in Autumn and Winter-Seaſons, if ſo be 'tis well whiten'd, and ſo made tender. All Sorts of them agree pretty well with any kind of Ground, and are ſeldom begun to be ſown till the Middle of *May*, and then very thin, or they muſt be thinned afterwards, in order to be whiten'd in the Place where they firſt grew, without tranſplanting. There is alſo but a little Quantity of them to be ſown at once, becauſe they are apt to run to Seed; but for a greater Quantity, let them be ſown the latter End of *June*, and all *July*, in order to have ſome good to ſpend in *September*: After this a great Quantity is ſown in *Auguſt*, for a ſufficient Supply to ſerve the Autumn and Fore-part of the Winter.

When they are tranſplanted in Summer, they muſt be ſet at a large Foot Diſtance, and great Beds of five or ſix Foot broad are uſually made for them, to plant them in afterwards, in Lines mark'd out with a Cord. It is a Plant that requires great and frequent Waterings, and when big enough to be whiten'd, is tied up with two or three Bands, according as its Height requires, and it is whiten'd in fifteen or twenty Days: But to preſerve it, upon the Approach of Cold, it muſt be covered with long dry Dung, whether it be tied up or not. At the End of *September* the Stocks are planted pretty near one another, becauſe it neither grows ſo high nor ſpreads ſo much as in Summer: And in caſe any Plants can be ſaved in Winter, they muſt be tranſplanted again in the Spring, in order to produce Seed, that they may have a ſufficient time to ripen. The wild Endive is ſown in *March* pretty thick in a well prepared Ground, and fortified by Watering and Cropping, that it may be fit to whiten in Winter. The beſt Way to do it, is to interpoſe ſome Props from Side to Side to keep the Dung, wherewith it muſt be well covered, from touching of it. It will ſhoot under a cloſe Cover, and therefore Care muſt be taken to ſtop up the Paſſages well on all Sides, that no Light or Air at all can get in; for hereby the Roots are much cleanlier, and reliſh not ſo much of the Dung. They tranſplant it in Winter into Conſervatories: It bears the Froſt well enough when green, and runs into Seed the latter End of *May*. Some eat its young Shoots in Sallet. It is eaten with Mint, Tarragon, and other hot Herbs.

Savory.

S*Avory*, Winter and Summer; the latter is annual, and raiſed of Seed, the other living over many Waters, and encreaſed by Slips, as well as Seed: They are both, as to the Uſes of them, well known in the Kitchin, more particularly the Leaves are uſed to ſome Ragou's, and among Peaſe and Beans.

Scallions. See *Ciboules.*

S*Callions* are Herbs well known how to be propagated, whereof the red, hard, little and ſweet are the beſt, being very good to excite Appetite.

Scurvy-graſs.

S*Curvy-graſs* is raiſed of Seed. That of the Garden, but eſpecially of the Sea, is a ſharp, biting and hot Herb by Nature, like unto *Naſturcium*, prevalent in the Scurvy, whereof a few of the tender Leaves may be admitted into our Compoſition of Sallet.

Selery.

S*Elery*, only multiplied by Seed is yellowiſh, and of a longiſh oval Form, and a little bunched. It's not good but at the End of Autumn, and in the Winter Seaſon. It is firſt ſown in hot Beds the Beginning of *April*; and becauſe of the extream Smallneſs of its Seed, you cannot help ſowing it too thick; ſo that, without thinning of it ſeaſonably before it be tranſplanted, it warps and flags its Head too much, and grows weak, ſhooting its Leaves outward in a ſtraggling manner. In the Tranſplanting of it, the Plants are to be placed two or three Inches one from another, for which they make Holes in the Nurſery Bed with their Fingers; only what comes from the firſt Sowing is tranſplanted the Beginning of *June*, about what time the ſecond Sowing is ſow'd, which is in open Beds at a Foot Diſtance; and the ſame muſt be thin cropp'd and tranſplanted as the other; but more muſt be planted the ſecond time than the firſt.

The Tranſplanting them in hollow Beds is good only in dry Ground; ſo the ſecond Way of Tranſplanting them is in plain Beds, not made hollow: but both muſt be extreamly well water'd in Summer, which contributes to make them tender; and in order to whiten the ſame, begin at firſt to tie the *Selery* with two Bands when 'tis big enough in dry weather, then earth it quite up with Earth taken from the high rais'd Pathways, or elſe cover it all over with long dry Dung, or dry Leaves, and this whitens it in three Weeks or a Month; but becauſe when it is whiten'd it rots as it ſtands, if not preſently eaten, it is not to be ſo earthed up or covered with Dung, but in ſuch Proportion as you are able to ſpend it out of Hand; hard Froſts quite ſpoil it, and therefore upon the Approach thereof, it muſt be quite covered over; and therefore after it is tied up with two or three Bands, take it up with the Earth at the Beginning of Winter, plant it in another Bed, and ſet the Plants as cloſe to one another as may be, which will make them require much leſs covering than before when more aſunder. To raiſe Seeds from them, ſome Plants muſt be tranſplanted into ſome By-place after Winter, which will not fail to run to Seed in *Auguſt*. There is but one Sort of this Plant. The tender Leaves of the blanched Stalk do very well in Sallets, as likewiſe the Slices of the white Stems, which being crimp and ſhort, and firſt peeled and ſlit longwiſe, are eaten with Oil, Vinegar, Salt and Pepper, and for its high and grateful Taſte is ever placed in the Middle of the grand Sallet at great Men's Tables. Have a care of a ſmall red Worm that is often lurking in theſe Stalks.

Smallage.

THis Herb is uſed by ſome in their Pottage; it's raiſed either by Slips or Seed, which is reddiſh and pretty big, of a roundiſh oval Figure, a little more full and riſing on one ſide than the other, and ſtreaked from one End to the other.

Snap Dragon.

S*Nap Dragon*, has ſome pretty Diverſities. 1. The White is very common. 2. The White variegated one like the other, but broader Leaved divided in the Middle and turned up on the Edges, with many ſmall long purpliſh Lines on the Inſide. 3. The Red, of two or three Sorts, the beſt flowered like the former of a deep red Roſe Colour; but the other paler. 4. The Yellow diſtinguiſhed only from the common White in the yellow Colour of its Flowers, they flower from *May* to *July*, and the Seeds are ripe in *Auguſt*, they being all raiſed from Seed, bear Flowers the ſecond Year, when the old Roots commonly periſh; yet the Slips being taken off and ſet, will grow, the beſt being thoſe that do not riſe to Flower, and the beſt time of ſetting them is the End of *May* or the Beginning of *June*.

Sorrel.

THere are ſeveral ſorts; the *French Sorrel* is the beſt; but of the common ſort the largeſt is the beſt for the Garden, and ſerves for many uſes in the Kitchin, being raiſed eaſily enough from Plants, which ſhould not be ſet too near, the ſame being apt to grow large and ſpread abroad; but the uſual way of propagating it, is by Seed, which is ſmall, ſlick, and of a Triangular Form, ſharp pointed at the End, and of a dark Cinnamon Colour. It may be ſown (of whatſoever ſort it be) in *March*, *April*, *May*, *June*, *July*, *Auguſt*, and the Beginning of *September*, provided ſufficient time be allowed it to grow big enough to reſiſt the Rigour of the Winter; it's ſown either in open Ground, or elſe in ſtreight Rows or Furrows, in Beds or Borders; in all which caſes it muſt be ſown very thick, becauſe many of its Plants periſh; the Ground it requires ſhould be naturally good or well improved with Dung; keep it clean from Weeds, well watered, and once a Year covered with a little Mould after it's firſt cut down to the Ground. The Mould ſerves to give it new Vigour, and the Seaſons moſt proper for applying it are the hot Months of the Year. The Seed is gathered in *July*, by which it is propagated, tho' that called round *Sorrel* (thoſe of the other ſort being ſharp pointed) is multiplied by running Branches that take Root in the Earth as they run over it, which being taken off and tranſplanted produce thick Tufts, and theſe alſo other Runners.

Radiſhes.

THoſe are multiplied by Seed, that is round, ſomewhat thick, and of a Cinnamon Colour, growing in little kind of Cods. It is a very good Garden Root, of which there are three Sorts; the ſmall eating one which is raiſed of Seeds on a hot Bed (to have 'em early) with a ſufficient thickneſs of good rich light Mould, that they may have Depth enough to root in before they reach the Dung, and in order to have large and clean one's, make Holes as deep as your Finger about three Inches diſtance, into each of which a ſound Seed or two is to be dropped and a little covered, leaving the reſt of the Hole open, whereby they will grow to the Height of the Hole before they dilate their Leaves, and yield a long tranſparent Root. Thoſe that are ſown after *Midſummer*, will not run to Seed that Year. The Second is the *Horſe-Radiſh*, encreaſed by Plants or Pieces of the Roots planted out, and by many made uſe of as an excellent wholſome Sauce. And note, that if you dig up any of the Roots for uſe, you muſt leave to the upper part that joins to the Leaves about an Inch in Length of the Root to plant again, which will grow and increaſe; only if 'tis dry Weather it will do well to water it, and to abate ſome of the Leaves in Proportion to your having leſſened the Root. The laſt is the black *Radiſh*, and deſpicable.

The beſt Seed for *Radiſhes*, is that which produces few Leaves and a long red Root. The time of its ripening and gathering is the End of *July*, when all the Stems are cut down, and when they have been dried ſome Days in the Sun, the Seed is beat out and winnow'd. The Stocks that run to Seed ſhoot their Branches ſo high, that it is good to pluck them off to a reaſonable height, that the firſt Stocks may be better nouriſh'd. The firſt *Radiſhes* that are eaten grow in hot Beds, and by that means ſome of them may be had during the Months of *February*, *March* and *April*. And in order to be ſupplied all the other Months, ſome muſt be ſown among all manner of Seeds, for they very ſoon come up, ſo that there is time to gather them before they injure other Plants: The bigger Roots, that are tranſparent, and much deſired, eat ſhort and quick, without Stringineſs, and not too biting.

Jack by the Hedge.

J*Ack by the Hedge* (Alliaria, or Sauce alone) is an Herb that grows wild under Banks and Hedges, and has many Medicinal Properties, being eaten as other Sallets are, eſpecially by Country People, and is much uſed in Broth.

Lavender.

L*Avender*, multiplied by Seed, and old Stocks or Plants tranſplanted, but chiefly by Slips, ſerves to garniſh Borders of the Kitchen-Gardens, and yields a Flower which is uſed for ſeveral Phyſical Uſes, and to put among Linnen to perfume it.

Spinage.

S*Pinage*, an excellent Herb crude or boiled, is multiplied by Seed only, that is pretty big, horned and triangular on two Sides, having its Corners very ſharp pointed and prickly, and on that Part which is oppoſite to thoſe pointed Horns, it is like a Purſe of a greeniſh Colour. It requires the beſt Ground, and is planted either in open Ground or in Furrows in ſtreight Rows upon well prepared Beds, and this ſeveral times in the Year, beginning about the Middle of *Auguſt*, and finiſhing about a Month after; the firſt is fit to cut about the Midſt of *October*; the ſecond in *Lent*, and the laſt in *May*. They may be alſo ſown early in the Spring. Thoſe that remain after Winter run to Seed towards the End of *May*, and they gather them about the Midſt of the Month following. They muſt be well ordered; and if the Autumn prove very dry, it will not be amiſs to water them ſometimes. They are never tranſplanted.

Violets.

Violet-Plants, as well the double as ſingle, and of what Colour ſoever they be, tho' they produce Seed in little reddiſh Shells or Husks, yet are multiplied only by Slips, each Plant or Stock of them growing inſenſibly into a Tuft, divided into ſeveral little ones, which being replanted grow in time big enough to be likewiſe divided into others. The *Double Violets* more particularly ſerve to make pretty Borders in our Kitchen-Gardens, their Flowers placed on the Superficies of Spring-ſallets making a very agreeable Figure.

Wormwood.

Wormwood is multiplied by a pretty odd Figured Seed, as being a little bent inward in its ſmalleſt part, and on the other End, which is bigger and rounder, a little open, upon which laſt End there is a little black Spot. Its Colour is yellowiſh at the bigger End, and its ſharper End inclines to black: The Seed is ſeldom uſed, becauſe it is difficult to fan, it being very little; and therefore when there is occaſion of propagating *Wormwood*, its Cuttings, that are a little rooted, are rather made uſe of. It's planted on Borders or Edges, in a line, at two or three Inches diſtance, and five or ſix deep in the Ground. It is good to ſlip them every Spring, to renew them every two Years, and to take away their oldeſt and decayed Stocks. The Seed is gathered about *Auguſt*.

Tanſie.

Tanſie is raiſed by Seeds, Slips or parting of the Roots; a Herb hot and cleanſing, but in regard of its domineering reliſh, muſt be ſparingly uſed with our cold Sallets.

Tarragon.

Tarragon is one of the perfuming or ſpicy Furnitures of our Sallets, being propagated both by Seeds and rooted Slips, and by ſetting of the Tops which ſpring again ſeveral times after they are cut. It endures the Winter, and requires but little watering in the drieſt of Summers. When planted in Beds, it requires eight or nine Inches diſtance one from another, and the beſt time for it is *March* or *April*, but it may be tranſplanted again in the Summer Seaſon. The beſt for uſe, is that which is freſh and tender, and not the Leaves which hang on the Ground, but the Tops are to be preferred.

Thyme.

Thyme of ſeveral ſorts is multiplied by very ſmall Seed, and thoſe Plants or Stems of it that produce ſeveral rooted Slips and Suckers are ſeparated to replant into Borders, for *Thyme* is ſeldom planted otherwiſe; a Border of it is a conſiderable and neceſſary Ornament in a Kitchen-Garden.

Rampion.

Rampion, is a Plant whoſe tender Roots are eaten in the Spring, like thoſe of Radiſhes, but much more nouriſhing.

Reponces.

Reponces, or wild Radiſhes, are propagated only by Seed, being a ſort of little wild ones that are eaten in Sallets, and grow without any pains in the Fields.

Rocamboles.

Rocamboles are a ſort of mild *Garlick*, otherwiſe called *Spaniſh Garlick*, and multiplied both by Cloves and Seed, which latter is about the bigneſs of ordinary Peaſe.

Rocket.

Rocket, a Sallet Furniture, is multiplied by Seed which is extream ſmall, and of a Cinnamon or dark tanned Colour; it's ſown in the Spring, the Leaf being pretty like that of *Radiſhes*.

Roſemary.

Roſemary is ſmall, but a very odoriferous Shrub, that is propagated by Seed, or Branches that have ſome ſhare of Root, or by Slips. The principal uſe is to perfume Chambers, and in Decoctions for Waſhing, being multiplied much like Rue, and other Border Plants; it laſts ſeveral Years. And being planted upon dry Ground, hardly any Froſt injures it. There are ſeveral ſorts of it, as the broad-leaved, which is bigger than the common, and the gilded, and variouſly ſtriped with yellow as if gilt, the Silver denominated from its Silver coloured Leaves, and the double flowered *Roſemary* that has ſtiffer Stalks, bigger Leaves, and many pale blue double Flowers.

Rue.

RUE is multiplied by Seed that is of a black Colour and rugged, but 'tis uſually propagated rather by its Layers and Slips than by its Seed. It makes pretty Borders for Flowers being kept clipt.

Sage.

There are the Red, Green, Small and Variegated *Sage*; but the firſt is the beſt, and the young Leaves thereof a very wholſome Sallet in the Spring. It is commonly a Border Plant whoſe Culture hath nothing particular; it is like that of other Border Plants, as *Roſemary*, *Lavender*, *Wormwood*, &c. It is raiſed by ſetting the Slips and Branches in the Beginning of *April.* The tender Tops of the Leaves, but eſpecially the Flowers ſhould be ſparingly cropped, yet ſo as not to ſuffer it to be too predominant.

Salſifie.

SAlſifie or *Goats-beard.* The common ſort is multiplied only by Seed, of a very long, oval Form, as if it were ſo many Cods all over ſtreaked, and as it were engraven in the Spaces between the Streaks, which are pretty ſharp-pointed towards the End.

Spaniſh Salſifie.

SPaniſh *Salſifie*, or *Scorzonera*, is multiplied by Seed as well as the other, and is very good boiled, both for the pleaſure of the Taſt and the health of the Body. It's ſown in *March*, and very thin, whether it be in Beds or Borders, or elſe at leaſt it muſt be thinned afterwards, that the Roots may grow the bigger. It runs up to Seed in *June* and *July*, and is gathered as ſoon as it is ripe.

Samphire.

SAmphire, one of our Sallet furniture, is multiplied only by Seed; it ſhould be planted by the ſides of Walls expoſed to the South or Eaſt. The open Air and great Colds are pernicious to it. It's uſually ſown in ſome Pot or Tub filled with Mould, or elſe on ſome ſide Bank towards the South or Eaſt, and that in *March* or *April*, and afterwards tranſplanted into thoſe Places abovemention'd; but the *French* Seed is better than our *Engliſh*.

Garlick and Shallots.

GArlick is ſet in *February* or *March*, in rich Ground; one Head being ſevered into Cloves will ſet a ſmall Bed.

Shallot is to be ſet in rich Ground, but this and *Garlick* may be raiſed from Seed, as the *Onions*, and ſo ordered: *Shallots* are to be ſet earlier than *Garlick*, becauſe they ſpring ſooner, and are to be taken up as ſoon as the Leaves begin to wither: Long after which, they muſt not lie in the Ground, for they will either rot there, or the Winter kills them: They give a fine Reliſh to moſt Sauces, but they are apt to degenerate, if planted two or three Years together in the ſame Ground.

Seeds neceſſary for the Kitchen.

THere are divers Seeds neceſſary for the *Kitchen*, the ſowing and propagating of which, being ſo eaſie, I ſhall not trouble the Reader with a Diſcourſe of each particular Part, only ſay that they are to be ſown for the generality in the Spring, and the Ground muſt be of a rich and mellow Mould, and well huſbanded by digging and laying into Borders.

As near as you can, let not the Seed be above a Year Old; and to try if it be good, put ſome thereof into a Sawcer of fair Water, ſet over a Chafingdiſh of Coals, and if they be good they will ſprout forth in a ſhort time, elſe not. Alſo new Seed is of a brighter Colour than that which is old.

For ſowing, the Seeds being ſo ſmall, the beſt way is to mix them with fine Aſhes, and that the Ground may lie the better, let it be finely raked, and then ſow the Seeds; and having good fine Mould, ſift it through a Sieve on the Beds about half an Inch thick, which is far better than to ſow them, and ſo rake the Ground afterwards.

In the next Place it will be convenient to give ſome Directions for the Watering them which is the chief Preſervative in a dry Seaſon.

It is better to water a Plant or Seeds ſeldom and throughly, than often and ſparingly, for that is but a deceiving it, and cauſeth it to root not ſo deep as otherwiſe it would, and by conſequence makes it the more obvious to the Weather.

If the Weather be never ſo dry when you ſow your Seeds, do not Water them until they have been in the Ground ſome Days, and the Ground be a little ſettled about them.

Pond, or Rain-water, is eſteemed the beſt for the Watering Plants, or Seeds, and is preferred far before Spring, or River Water.

Many curious Plants and Seeds would ſuffer, were they not carefully Watered at the firſt Removal, or in the dry Seaſons; therefore 'tis not to be neglected: Early in the Spring (whilſt the Weather is cold) be cautious to water the Leaves of the young tender Plants, only wet the Earth about them: When the Plants, or Seeds, are more hardy, and the Nights yet cold, water them in the Forenoon; but when the Nights are warm, or the Days very hot, then the Evenings are beſt.

Directions for drying Herbs, and preſerving Seeds.

GAther them in their Prime, pick them clean from the withered and rotten Leaves, then tie them up in ſmall Bunches, and hang them on Lines in the Wind and Sun to dry, but where no Rain comes, for that will make them look black, and alſo take away their Scent: When they are ſufficiently dried, put them in brown Paper-bags, and ſo hang them up in convenient dry Places againſt the Walls to keep for your uſe; and if you lay them, before the Winter comes, in the Sun for a few Hours, it will much refreſh them.

Then for the preſerving the Seeds, let them be gathered when they are through ripe, and laid to dry in the Sun; then rub them out, and cleanſe them from the Duſt, and ſo preſerve them for uſe.

Of Goosberries, Currans, Rasberries, and Strawberries.

GOosberries and *Currans* are much of one nature, and the ſame Huſbandry that is required to the one is to the other: They muſt be planted in good rich Ground, and of a deep and light Mould. You muſt keep the Ground in good heart, by Soyling it at leaſt every third Year, and keep it dug, and well hoed, to be free from Weeds, which are great Enemies to them: Alſo keep the Trees clear from Suckers, or young Shoots, by cutting them off cloſe to the Root; and ſuffer not a Buſhy thick Head, for that will hinder the Sun's Influence to ripen the Fruit, nor will they bear ſo well, nor the Fruit be ſo large as if thus trimmed and ordered.

If you plant either *Goosberries*, or *Curran-Trees*, for a full Crop, four or five Foot ſquare is enough, and be ſure to plant them in even Ranges, which is better for the Digging, Hoing, Gathering, and all occaſions.

There are ſeveral Sorts of *Gooſberries*, as the *Engliſh*, both White and Red; the Yellow and White *Dutch Amber*, which are the beſt and faireſt Fruit.

Currans are of three Sorts, the Red, the White, and the Black, which as yet is not common. They took their Name from their Likeneſs to the ſmall Grape or Raiſins which come from *Corinth*; they are raiſed by Suckers or cutting Sticks in moſt Places; plenty of which may be had about the Roots of old Trees, which when they have grown for ſome Years, ſuffer not many Suckers to grow about them: The Tops ſhould not be cut to a round cloſe Buſh, which will make them grow ſo thick, that they will neither bear nor ripen their Fruit ſo well as if they grew thinner and taller: Mr. *Mortimer* ſays, that ſince the adulterated *Curran* has become a Native of our Soil, it has been much improved in moſt rich Grounds, ſo as to obtain the higheſt Name: Their Culture is in cutting away the old Wood, and preſerving only that of one or two Years Growth: And when the Stocks grow old, a new Plantation ſhould be raiſed in ſome other freſh, choice piece of Ground, after they have ſtood about ſeven or eight Years.

Rasberries are an excellent Fruit; they delight in a good ſtiff Ground, and will grow in the Shade, but then the Fruit is not ſo good and pleaſing to the Palate, being more wateriſh. They are beſt ſet in Beds; and if the Plants are ſet about a Foot aſunder they will ſoon be too thick, by reaſon of the great ſtore of Shoots that ſpring up.

In the Winter let the Borders be pared, and the Earth caſt up on the Beds, with Dung over them, which will very much nouriſh the Plants, and cauſe them to bear the better, and keep the Beds clear from Weeds. They are planted in *March*, and the only Culture uſed to them firſt in the Month of *March* is to ſhorten all their new Shoots, which grow round about the Stock, and which ought only to be the thickeſt and handſomeſt; and Secondly, to pluck away all the ſmall ones, as likewiſe the old ones that are dead.

Strawberries are alſo of ſeveral ſorts, *viz.* the great *White Strawberry*, the ordinary Red one that grows in the Woods, and the *Virginia Strawberry* of late Years brought into *England*, being a large Berry, and of a delicate Taſte, far exceeding the *Engliſh*.

They delight to be ſet in new broken Ground, or at leaſt where they have not grown before, and ſhould be removed every third Year, otherwiſe they will decay and ceaſe bearing, ſo that they muſt be removed into freſh Ground well prepared, and rich: But *Wood-Strawberries* are found to proſper beſt in Gardens. The Beds may be about four Foot broad, and not too thick ſet, for they will ſoon ſpread: Let them be kept clean weeded, and in the Winter pare the Borders, and caſt the Earth on the Beds, with ſome Dung, as before directed, for *Rasberries* to nouriſh them.

Watering them, eſpecially in the hot, dry Weather, doth cauſe a great Encreaſe, and makes the Berry the larger.

If you would have *Strawberries* in *Autumn*, cut away the firſt Bloſſoms that they put forth, to hinder their timely Bearing, and they will Blow anew, and Bear in *Autumn*.

Thus having treated of the *Kitchen-Garden*, the next Buſineſs ſhall be to ſpeak of the *Garden of Delight*, for *Flowers*, *Greens*, &c.

CHAP. VI.

Of Flowers, *and how to Raiſe, and Order them.*

G*ardens* for *Delight* are of two Sorts, *viz.* producing Flowers from Stalks, and Flowers from Trees; under which Head all Greens are comprehended.

The moſt graceful Grounds for the Garden is a Level; and for a Soil, neither a Sand nor a Clay, but a good deep light black Mould, which muſt be made rich with Soil: But if the Ground is not upon a Flat, the beſt way is to divide it into Parts with Deſcents, as the Place will admit of, and for the laying it out into Walks, Beds, and the like; If our own Ingenuity will not perform the ſaid Undertaking, 'tis convenient to have the Aſſiſtance of one Expert therein, to the end your Coſt and Labour may be effectual, and that you may not wiſh it were to do again.

Theſe *Gardens* are not good to be too big, for then requiring ſo much Coſt and Attendance to look after carefully, 'tis probable many things will be neglected; which if but ſmall, would be exactly kept, and according to the Proverb, *A little well done, is better than a great deal ill done.* Alſo great Care ought to be taken in the Walls, that they be of good Workmanſhip, have a good Foundation and Thickneſs, that the high Wind may not blow them down; and for Height, about nine or ten Foot is ſufficient, and under is too low: And Brick is far better than Stone, which is too cold for Fruit to ripen againſt (to that perfection) as againſt a Brick-Wall. Pailing (provided the Boards are whole Deals, and laid over one another Featheredge-wiſe) is very good, and more kindly than a Stone-wall.

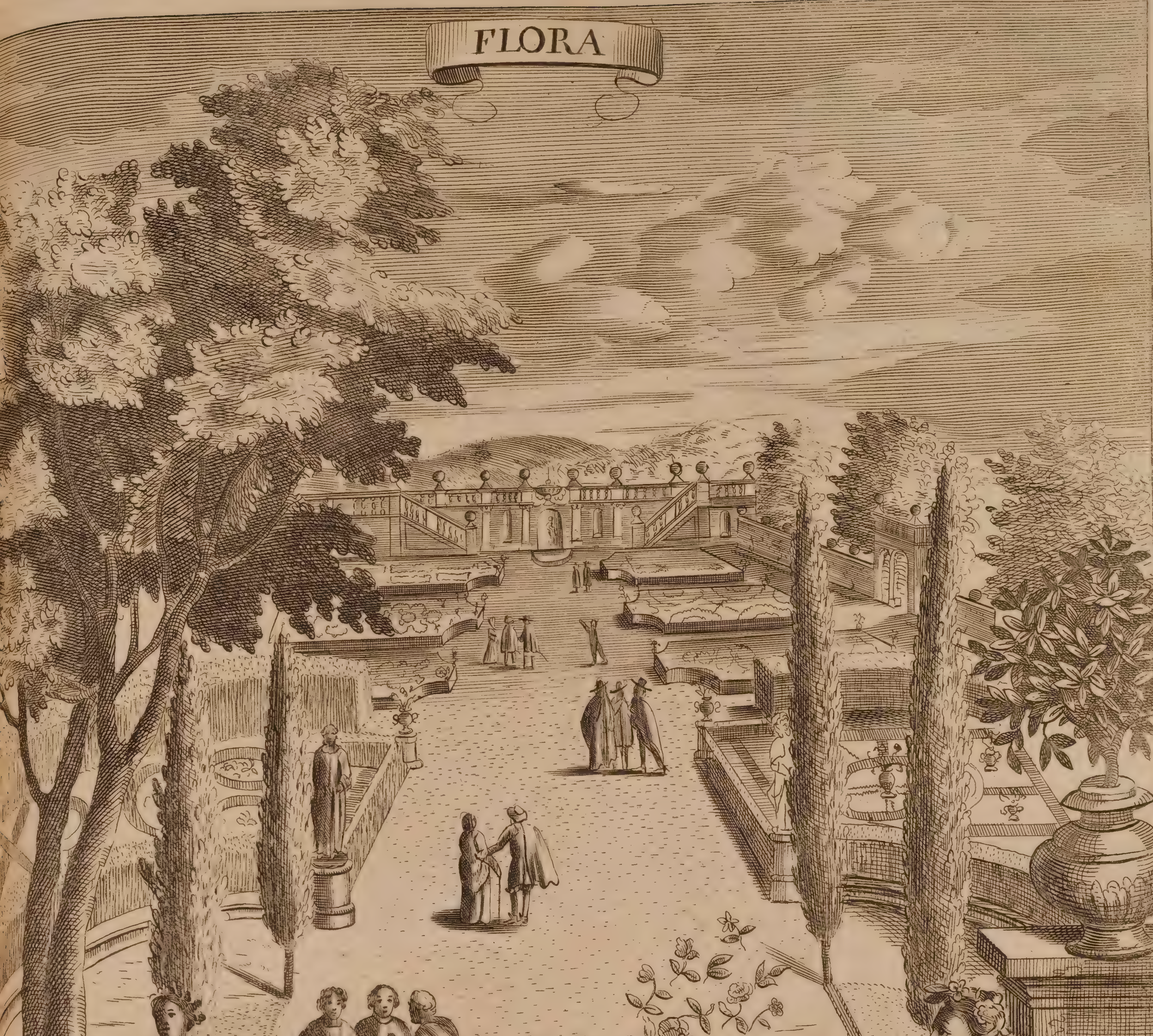
Fruits proper to be planted againſt the Walls, are May-Cherries, Apricots, Peaches, Nectarins, Pears, and Vines; all which require a South Sun, ſo that the North-ſide is beſt next to the Eaſt; the Weſt is indifferent good, as having the Morning Sun; but moſt fit for Plumbs, as the South-ſide is, which is fit for nothing elſe.

Theſe Trees may be planted at about ten Foot diſtance, and between each may be ſet Curran-Trees, to fill up the vacant Places until the Trees ſpread forth, and require the ſaid Place, and then they may be cut up; and in ordering the Branches along the Wall, lay them low within a Foot of the Ground; for when the Boughs, or Branches are well diſperſed, and that there is no vacant Places, it is an handſome ſight to look upon; and above all things be ſure to make the Borders (where you plant the Trees) very rich, which will extreamly bring forward the Trees.

To fill up the Borders ſet Auricula's, Wall-flowers, Stock-gilly-flowers, double Violets, Hepaticaes, double Pinks, *&c.*

As for the laying out your Garden into Walks, Borders, and Graſs-Plats, ſome few Directions ſhall ſuffice, every one having a Form to his own liking.

For *Graſs-Plats*, let them be of Turf, and taken from the Barrenneſt and Hungrieſt Ground, provided the



To the Rt. Honble Richard Lord Maitland Lord Iustice Clarke
of the Kingdome of Scotland one of the Lords of his Matys
most Honble privy Councell in that Kingdome and eldest
son to the Rt. Honourable Charles Earle of Lauderdale

This Plate is humbly Dedicated by Richard Blome

Consilio et animi

the Graſs is thick and ſhort, for that which groweth Rank is not ſo good. Let the Ground be exactly made Level, then lay the Turf cloſe together, beat it well with a heavy Beater, and be not ſlack in Watering it for ſome time, until it be ſettled to the Ground.

For Gravelling the Walks, lay the Gravel thick, the Courſeſt at the Bottom, and the Fine at the Top, which ſhould be Screned, and let the Middle be higheſt, with a gentle Deſcent on either ſide. It is now the Faſhion to lay on the Top of the Walks Cockle-ſhells inſtead of Gravel, which is far better, and not very chargeable.

The Walks muſt be kept well Rolled, and the Graſs-Plats well Mowed and Rolled, to keep them ſmooth and handſome.

Worms are great Eye-ſores to Walks in caſting up the Earth, for preventing which, it is good to ſtrew amongſt the Gravel good ſtore of Bay-ſalt.

It is now cuſtomary to ſet in the Borders that encompaſs the Graſs-Plats, Dwarf Fruit-Trees, as Pears, Apples, and Cherries, which are generally of the beſt and choiceſt Fruits growing, and you may have two or three ſorts upon one Stock. They may be planted about ten or twelve Foot aſunder, with an Apple, or Pear-Tree, betwixt a Cherry; and betwixt the ſaid Trees may be planted Roſes, Currans, Gooſe-berries, Cypreſs-Trees, Miſzerions, and the like; and the reſt of the Beds may be ſet with Tulips, Daffadillies, Lillies, Pionies, Martagons, and the like; and about the Edges of the Beds double Pinks; or elſe Box, which being always Green is pleaſant to behold; the only fault is, it eateth out the heart of the Ground, ſo that you muſt keep it always Soiling.

Ever-green Hedges are very Ornamental; the beſt are made with *Pyracantha* and *Phillirea*, as much of the one as the other, equally diſperſed; and for lower in ſmall Gardens, *Celaſtrus* and *Alaternus*. For the raiſing and ſetting of theſe Plants more anon. Theſe Hedges muſt be kept orderly, cut Even on the Top and Sides, and not too Broad.

Your Garden cannot be compleat, if the Borders are not bounded in with Border-Boards, which ſhould be laid in Oil for laſting, and Coloured for Ornament, with handſome round Balls placed at equal diſtances on the ſaid Border-Boards, which may be coloured Black, and the Boards White.

A *Summer-Houſe* is requiſite to be erected in ſome convenient Place of the Garden, which may be made of Framed Timber-Work, covered over at the Top; and for curioſity of Workmanſhip in the ſaid Houſe, in Carving and Painting, it is left to your Diſcretion.

The Summer Seaſon being generally dry, the *Flowers* require frequent Watering, ſo that there ſhould be the conveniency of a Well, or Fountain, and if pumped out of a Well, a Ciſtern is neceſſary; for the Water ſhould ſtand ſome time in the Sun before it is fit to be uſed on tender Plants and Flowers.

For the maintaining and keeping up your Garden, a Nurſery muſt be in ſome convenient Place adjoining to your Garden, where not only Stocks for Fruit, but Flowers may be raiſed by Seeds, Slips, and the like: And here your Hot-beds ſhould be for the Raiſing of choice Annuals, to be tranſplanted into your Garden.

In this Nurſery ſhould be ſome convenient Houſe raiſed againſt the Side of the Wall for the Houſing your Greens, and tender Plants that are in Pots, as Gilly-flowers, *&c.* which the cold Winter will kill; as alſo to keep your Garden Tools in, that they may be ready at hand on occaſion, as Hoes, Rakes, Spades, Shovels, Garden-Sheers, Pruning-hooks, Grafting and Inoculating Knives, Trowels, Saws, Chiſſels, Mallets, Hammers, Nails, Garden Reel and Line, a Screen, a fine Wire Riddle, Brooms, Watering Pots, Wheel-barrows, and the like Tools.

In your Nurſery there ſhould always be a Stock of old Dung of ſeveral ſorts, each laid by it ſelf to be uſed as occaſion requires; for if the Ground be hot and ſandy, Cow-Dung mixt with Lime is beſt; and if cold and claiey, then that of Horſes, Pigeons, or Poultrey.

Now foraſmuch as laying of Branches, planting by Cuttings, Budding, and the Hot-bed, are in great uſe; it will be neceſſary to ſpeak a word or two of each.

Laying of July-flowers is thus done; chuſe ſuch Slips that are ſtrongeſt, prune off the Ends and Sides of the Top Leaves, and under the middlemoſt Joint cut the Stalk half through, and ſlit it upwards to the next Joint; then make a Hole in the Earth, and gently bend it down thereunto with a ſmall hooked Stick to keep it from riſing; then turn up the Head of the Slip, that the Slit may open, in which poſture hold it with one Hand, and earth it up with the other, preſſing it down to keep the Slit upright, then water it.

There are ſome good Slips that grow ſo high from the Ground, that they can't be laid: In ſuch caſe you muſt make uſe of ſmall Pots, that have Slits in one ſide made on purpoſe, and ſold by *Potters*. Theſe Pots are to be filled with good Mould, and kept well watered.

The beſt Seaſon for laying of *July-flowers* is from Mid *June* to Mid *July*, and about the Beginning of *September* they may be taken off with the Earth about them, and ſet in Beds or Pots fitted with good Earth. Place theſe Pots in the Shade, ſometimes gently watering them, but not too much; and to preſerve them from great Rains, ſhelter them in Paint-Houſes made of Boards for that purpoſe.

For the laying of *Jaſmines*, *Roſes*, *Greens*, and other *Woody Plants* after directed to be raiſed by Layers, make choice of ſuch a Branch or Launce, that may eaſily be bended to the Ground; the ſame Year's Shoots are the beſt for Rooting; cut it half through on the underſide at a Joint, or Knot, if it have any, then ſlit the ſame upward two or three Inches long, and prick the Bark through with a blunt pointed Awl in divers Places about the ſlit: Take off the Tops of all Laid Plants except Greens, then make a wide Hole to hook it down, and follow the Directions as for *July-flowers*.

Such Plants that will not take Root, let the upper End of the Slit be bound very hard with Wire, or Pack-thread, which will ſtop the Sap, and cauſe it to grow; and put ſome rich fat Earth about the Place where they are layed.

The beſt time to lay Greens, or other Plants is about Mid *Auguſt*, that they may have taken Root by the Spring, and the next Year they will be fit to take off, as being well Rooted; and to cauſe them the better to Grow, water them often.

Cuttings are to be taken as ſoon as the Sap begins to riſe: They muſt be cut ſloping from a Joint or Knot at the lower End, and left about a Foot long: Make a deep Trench and lay them therein a little ſloping, fill the Trench with good Mould, and preſs it hard down, and let it be often watered.

As for Budding, or Inoculating of *Roſes*, it is performed after the ſame manner as for Fruits, of which more hereafter.

Hot-beds are uſed for raiſing up of forward Plants, *&c.* and how to make the Beds is already treated of in the Chapter concerning *Melons*.

You may remove any rooted Plant of Flower or Herb, although it be in the midſt of the Summer, if you remove them in the Cool of the Evening, and well water them, taking all the Earth about the Root, without looſening it from them there is no danger.

Should I make a Diſcourſe of each particular Flower, and the great Variety of each Sort, it were enough to make a Volume of it ſelf. Mr. *Rea*, a great *Floriſt*, hath Publiſh'd an elaborate Piece of this kind, Entituled *Flora*, *Ceres* and *Pomona*, wherein he hath treated of each particular Flower, as alſo of the Greens, as well thoſe bearing Fruits and Flowers as otherwiſe. I ſhall therefore give a ſhort Account of the Names thereof, and refer you to the Book it ſelf.

Mr. *Rea* begins his Diſcourſe of *Flowers*, with thoſe that have either Scaly, Bulbous, Grumous, or Tuberous Roots, from whence the Leaves, Stalks and Flowers do annually ſpring, moſt of them dying even to the Root ſoon after their Flowering. And firſt with the *Lillies* and *Martagons*.

Of *LILLIES*. The *Crown Imperial*, the *Double Crown Imperial*, the *Yellow Crown Imperial*, the *Narrow Crown Imperial*, with a reddiſh Flower. The *Perſian Lilly*, the red *Lilly*, the *fiery red bulbed Lilly*, the *double red Lilly*, the yellow *Lilly*, the white *Lilly*, the white *Lilly* of *Conſtantinople*, the double white *Lilly*.

MARTAGONS. The *Mountain Lilly* or *Martagon*, the *Martagon Imperial*, the white *Martagon*, the white ſpotted *Martagon*, the ſpotted *Martagon* of *Canada*, the *Martagon* of *Conſtantinople*, the red ſpotted *Martagon* of *Conſtantinople*, the *Martagon* of *Hungary*, the *Virginian Martagon*, the *Martagon* of *Pompony*, the yellow ſpotted *Martagon*, and the yellow *Martagon* without Spots.

All theſe ſorts of *Lillies* and *Martagons* flower in and about *June*, and are all, except thoſe of *Canada* and *Virginia*, ſtrong and hardy Plants and great Encreaſers.

FRITILLARIES. Theſe are of two Species, the one with ſmall Roots, ſharp pointed green Leaves and large Flowers; and the other with bigger Roots, round pointed whiter green Leaves, and different faſhioned ſmaller Flowers, and of each kind there are ſeveral Sorts, *viz.*

The common *Chequered Fritillary*, the double *Buſh Fritillary*, the white *Fritillary*, the yellow *Fritillary*, the dark-red *Fritillary*, the great red *Fritillary*, the great yellow *Fritillary*, the ſpotted yellow *Fritillary*, the great yellow *Italian Fritillary*, the ſmall *Italian* yellowiſh green *Fritillary*, the exotick narrow leaved *Fritillary* with a whitiſh green double Flower, the ſmall yellow *Fritillary* of *Portugal*, the black *Fritillary*.

Theſe do flower about the End of *March* and Beginning of *April*. The Roots loſe their Fibres as ſoon as the Stalks are dry, and may then, or any time after, before *Auguſt*, be taken up, and kept dry for ſome time, but not be kept longer out of the Ground than *Mid-Auguſt*.

TULIPS. There are innumerable many Sorts of *Tulips*, all which are (or may be) comprehended under three Sorts, *viz.* the Early, the Middle, and the Latter-flowering *Tulips*, of which in order.

The Early flowering *Tulips* are the *Winter Duke*, *General Duke*, *General Brancion*, *Pretty Betty*, *Dutcheſs Brancion*, *Lac Varine*, *Violet Ratgans*, *Violet de Remow* or *Purpure Liſſe*, *Palto van Leyden*, *Floriſante*, *Religious*, *Blindenburgh*, *Non-ſuch Petits late*, the *Corn Heart*, *Admiral Crinki*, *General Molſwick*, *Cleremont*, *Paragon-Cleremont*, *Admiral Encuſen*, *Morillion Cramoſine*, the *Noble Aurora*, the *Early Perfect*, *Piriſhot*, *Princeſs*, *Fair Ann*, the *Omen*, the *Marqueſs*, *Vice-Roy*, *Galatea*, *Maria*, the *Superintendent*, *Aurora van Bart*, *Paragon Greberi*, *Gilden Blome Brentel*, *Gilden Blome Seonie*, *Alcetus*, *Unique of Delfe*, *Ugenia*, *Climene*, *Clitus*, *Venetian*, *Rotrocede*, *Dorade*, *Witten Root Hodie*, *Bonaventura*, *Dos de Chamoy*, *Paragon Iſerant*, Purple and White *Evers-Wind*, *Brun Moreſco*, &c.

The Middle flowering *Tulips* are, the *Swiſh* of *Portugal*, *Munera*, *Semper Auguſtus*, the *Prince of Orange*, *General Eſſex*, *Pluto*, *Paſs Endinard*, *Paragon Oudenard van Bole*, *Agot Morine*, *Agot Robine*, *Agot Robine Paragon* or *Robinet*, the White *Agot*, *Tudart*, *Jaſper Tudart*, *Harvy*, *Admiral vander Pool*, *Morillion*, *Nacarat*, *Cardinal Flambiant*, *Prince Cardinal*, *Morillion de Anvers*, *Orient Virgin*, *General Gowda*, *Envy*, *Triumphans*, *Bew Turnier*, *Bell la Bar*, *Bell Breire*, *Bell Brune*, *the Cardinal*, *Veſta*, *Royal Veſta* or *Non parel*, *Mazarine*, *Sattine*, *Morillion de Argiers*, *the Pearl*, *Bien venu*, *Admiral Cataline*, *Suſanna*, *the Pelican*, *Belline*, *Paſs Belline*, *General Sweman*, *Camuſetta*, *Paragon Franſwiſe*, *Admiral of France*, *Benedictine*, *Paragon Blackham*, *Paragon de Gildon*, *Dautile de flure*, *Paſs Roſie*, *Roſilliante*, *Holofernes*, *the Chimney-Sweeper*, *Turban*, *Admiral Heart*, *Zeablom*, *Cedo Nulli*, *Lauſcot Bole*, *Altes Royal*, *Zweman*, *John Garet* or *Chamolet*, *Paragon Liſgen*, *the Parot*, *the Rich Parot*, *Agot Rampard*, *Agot Gekeire*, *Star de Mans*, *Marvelia de Quacle*, *the Preſident*, *the Royal Preſident*, *Noſte la perfeit*, *Pompeza*, *the Eagle*, *Eminentiſſime*, *the Royal Agot*, *Agot Oriental*, *Paragon-Floriſon*, *Morillion-Curtiis*, *Admiral de Mans*, *Jacobea rectified*, *Paragon de Coſta*, *General of Holland*, *La Towers*, *Bell Pallas of Paris*, *Paſs bel Tew*, *Marbre Jaſper*, *Agot poit vin*, White *Paſs Cittadel*, *Dorile*, *Carthage*, *Diana*, *Diſpute*, *Doria*, *General Doctor Boleſom van Bole*, *Otter*, *Brown Purple Cataline*, *Paſs Heron*, *Violetta*, *the Flanders Widow*, *Princeſs Royal*, *the White Widow*, *Prince of Wales*, *Princeſs*, *Turgiana*, *Ariana*, *Rundelo*, *Brown Anvers*, *Bew Anvers*, *General Anvers*, *General Bole*, *Paragon Geron*, *Dorothy of Holland*, *Carolus*, *Volverte*, *Paſs Zeablon of Paris*, *Brown Purple de Marris*, *Agot Hanmer*, *Agot St. Dennis*, *Brabazon*, *Hiſpaniolet*, *Agot de Gorier*, *Arch Duke Imperial*, *Le Arche de Auckre*, *Amphitrio*, *Armiante*, *Conſiergi*, *Althea*, *Atlas*, *Paragon Alette*, *Sigiſmond*, *Unick la Croy*, *Jacobine*, *the brown Purple of Marris*, *the brown Purple Paragon*, *the brown Purple Blaſſack*, *the brown Purple King*, and *the brown Purple Prelate*.

Other good *Tulips*, viz. *Amarantine*, *Atlas*, *Aurora Celeſte*, *Bellincourt*, *Borimda*, *Brabazon Elſerier*, *Brabazon Hugh van Hij*, *Cardinal Mazarine*, *Celeſtine*, *Dulcina*, *Dutcheſs of Venice*, *Eliza*, *Fauſtina*, *Finetta*, *Fleuricourt*, *General Picot*, *Hercules*, *Jaſper Angloice*, *Jacobine*, *Imperial*, *la Conſtante*, *la valles Mahomet*, *Melinda*, *Mirandola*, *Morillion Chirar*, *Monſter Cytroon Parat*, *Morine*, *Oriental*, *Non plus bella*, *Paragon Aletta*, *Paragon Hellena*, *Paragon Buſh*, *Paragon Quacle*, *Paragon Gowda Quacle*, *Richmont*, *St. Nicaiſe*, *Sigsmont*, *Specioſa*, and *Tunney Dolphin*.

Admiral de Groot, *Admiral van Zierchee*, *Admiral Lifebrews*, *Sierchee*, *Beline*, *Camillus*, *Dorillies*, *Daphne*, *Dorothea Paragonee*, *Duke of Calabria*, *Don Frederick*, *Emillia*, *Floridort*, *Galliard*, *General Hannibal*, *General Pump*, *Harders*, *Jacaſta*, *Keremi*, *Luxemburg Paragonee*, *Metander*, *Non-ſuch*, *Orinda*, *Paragon Veſta*, *Paragon Orant*, *Paragon Sheldenburg*, *Paragon paſt Marmillion*, *Queen Elizabeth*, *Queen of France*, *Rechelu*, *Shoon Hellena*, *Timon*, *Victoria*, *Venus*, *Wiggons*, *Paragonee*, *Xenophon*, *Youngſter*, *Zeablon*, *King*, *Zealot*, and *Zacaria*.

Other Sorts, *Tremontane*, *Proteus*, *Amidore*, *Brown George*, *Agot Pigot*, *Aurora*, *Clytus*, *Agot Bizar*, *Rich Portugal*, *Memorables*, *Proſerpine*, *the Curle*, *Eremanthe*, *Cleomedon*, *la Billy*, *Clelia*, *Zelinda*, *Phenix*, *Charmante*, *la Fine*, *Amazon*, *Swiſſiſis*, and *Philadelphia*.

The Latter flowering *Tulips*, viz. *Pato Madam*, *the Yellow Crown*, *Prince de la More*, *the Zerotine Zeoblom*, *Greſourd*, *Star of Venice*, *Paragon Mullen*, *Agot Romane*, *Marbre Harlus*, *Tenebris*, &c.

The Roots of all *Tulips* loſe their Fibres every Year, and are to be taken up ſo ſoon as the Stalks are dry, which is about *Mid-ſummer*, and muſt be kept dry on the Board of ſome Room until Setting-time, which is about the Beginning of *October*.

The Roots in light Ground may be taken up with the Hand, but in ſtiff you muſt uſe a Trowel; and thoſe that are curious lay every Sort by it ſelf in Papers, and write the Names thereon; and you muſt take away the dead Fibres, and the looſe outward Skins, as alſo the Off-ſets or Roots to ſet again.

The beſt *Tulips* ſhould be ſet by themſelves in good prepared Beds, and the ordinary ones may be diſpoſed in Borders; but ſo diſperſe them, that there may be a handſome Mixture of Colours.

After the Flower is ſhed, break off the Head, or Seed-pod from the Stalk, unleſs of ſuch that you intend to keep for Seed, which will cauſe them to dry down the ſooner, as alſo to fortifie the Roots.

Thoſe that are deſigned for Seed are to be made choice of when in the Prime of Flower; chuſe the ſtrongeſt Stalks, ſuch as have the moſt Benefit of the Sun, and ſuch as have the Bottoms, and Tamis, either Blue or Purple.

When the Seed is ripe the Pods will open, and the Stalks will be dry; then gather them off, but rub not the Seed out until about the End of *September*; then ſow the Seed in Beds of fine Mould. In *April* the Seeds will come up high enough to weed, and about *Mid-ſummer*, (two Years after the Sowing) they may be taken up, the Roots cleanſed, and ſet in Rows at a wider Diſtance; and ſo every Year till they come to bear Flowers, ſtill altering the Ground with rich and freſh Earth. Thoſe that prove excellent, keep, and the common ones caſt away; but although they come up at firſt of one Colour, if they be *Brimſtone*, *Dove*, *Orange*, *Hair*, *Iſabella*, *Gredeline*, *Shamway*, or any light and ſtrange Colour, caſt them not away; for in a Year or two many ſuch have changed into good mark'd Flowers.

NARCISSUS, or *DAFFODILS*. There are divers Sorts of *Daffodils*, as well ſingle as double, ſome with broad, and ſome with narrow green Leaves; ſome bearing one, and others many Flowers on a Stalk. And amongſt the great Variety, theſe Sorts following are of chief Eſteem amongſt *Floriſts*.

Narciſſus Non parel, or the Incomparable *Daffodil*; the Incomparable *Daffodil* with a double Flower or Cup; the great double *French Daffodil*; the leſſer double *French Daffodil*; the double white *Daffodil* of *Virginia*; the great *Daffodil* of *Africa*; the great Brimſtone-colour'd *Daffodil*; the *French Daffodil* with the yellow Cup; the White *Daffodil* with many Flowers; the Yellow *Daffodil* of *Cyprus* with many Flowers; the great *African Daffodil*; the White *Junquilia*, or *Ruſh-Daffodil*; the White turning *Junquilia*; the Yellow turning *Junquilia*; the Yellow turning *Junquilia* with a white Cup; the White turning *Junquilia*, with a Yellow Cup; the *Junquilia* with a great Cup; the double *Junquilia*; the great *Sea-Daffodil*; the *Indian* broad-leav'd *Daffodil*; the *Indian* broad-leav'd *Autumn Daffodil*; the *Indian Autumn Daffodil*; the broad-leav'd *Daffodil*, with Scarlet Flowers, called *Jacobea*; the broad-leav'd *Virginian Daffodil*, with a Purple Flower; the great yellow *Spaniſh Baſtard Daffodil*; *Tuggy*'s great double *Baſtard Daffodil*, the leſſer double *Baſtard Daffodil*, or *Wilmore's* double *Daffodil*; *Parkinſon*'s double *Daffodil*; the double *Engliſh Baſtard Daffodil*; the white *Baſtard Junquilia*; the Golden double narrow-leav'd *Daffodil*; the great yellow *Baſtard Junquilia*.

The greateſt part of theſe *Daffodils* are hardy, and great Encreaſers, except it be thoſe that bear many Flowers on a Stalk, as alſo the double White of *Virginia*, the double Yellow of *Cyprus*, and thoſe of *Conſtantinople*.

Not much unlike unto the *Daffodils* as to Nature are, the greater early bulbous Violet, the leſſer early bulbous Violet, and the great late flowering bulbous Violet.

Theſe, as well as the *Daffodils*, are early Flowers, and do alſo much encreaſe by the Root, and very apt to Off-ſets: They loſe their Fibres, and are taken out of the Ground, and ordered like unto Tulips.

The *HYACINTH*, or *JACINTH*. The Sorts of moſt Eſteem of this Flower are either the great *Indian* tuberous rooted *Hyacinth*, the great yellow Muſk *Grape-Flower*, or yellow *Muſcari*, the Aſh-colour'd *Muſcari*, the red *Muſcari*, the white *Muſcari*, the fair-hair'd *Jacinth*, the fair curled-hair'd *Jacinth*, the great ſtarry *Jacinth* of *Peru*, the great white ſtarry *Jacinth* of *Peru*, the great bluſh ſtarry *Jacinth* of *Peru*, the Sky-colour'd *Grape-Flower*, the white *Grape-Flower*, the bluſh *Grape-Flower*, the branched *Grape-Flower*, the great Oriental *Jacinth*, the Celeſtial *Hyacinth*, the early white Oriental *Jacinth*, the fair double blue Oriental *Jacinth*, the comomon blue ſtarry *Jacinth*, the early ſtarry *Jacinth*.

All theſe loſe their Fibres, and may be removed in *June* and *July*. They are hardy, and require no great Attendance; moſt of them bear Seeds, and are ſow'd as Tulip-Seeds.

ORNITHOGALUM. The Star of *Bethlehem*, the greateſt white Star of *Bethlehem*, the Star-Flower of *Arabia*, the Star-Flower of *Naples*, the yellow Star of *Bethlehem*, the Star-Flower of *Æthiopia*, the great white ſpiked Star of *Bethlehem*.

The aforeſaid Flowers loſe their Fibres, and the Roots may be taken up ſo ſoon as the Stalks are dry, and may be kept out of the Ground until *September*.

MOLY. The great *Moly* of *Homer*, the *Indian Moly*, the *Hungarian Moly*, Serpents *Moly*, the yellow *Moly*, the *Spaniſh* Purple *Moly*, the *Spaniſh* Silver-cupp'd *Moly*, *Diſcorides*'s *Moly*, the ſweet *Moly* of *Montpelier*, and *Homer*'s *Moly*.

Theſe loſe their Fibres, and are to be taken up after the Stalks are dry: They are hardy, and will thrive in any Soil.

The *ASPHODIL*. This bears a Star-like Flower; the chief Sorts are, the great white branched *Aſphodil*, the white unbranched *Aſphodil*, the bluſh-colour'd *Aſphodil*, the great white ſtriped *Aſphodil*, the little white hollow *Aſphodil*, the ſmall yellow *Aſphodil*, the yellow *Lily-Aſphodil*, the *Lily-Aſphodil* with a white Flower, and the *Lily-Aſphodil* with a bluſh Flower.

The *SPIDER-WORT*. Of this Flower the beſt Sorts are, the *Savoy Spider-wort*, the great *Italian* white *Spider-wort*, the common unbraced *Spider-wort*, and the *Virginian Spider-wort*.

The *Lily-Aſphodis* Flower about the End of *May*, and the *Spider-worts* about the Beginning of *June*. They are both hardy, and will thrive in any Soil: The beſt Time to take them up and tranſplant them is in *Auguſt*.

The *MEADOW-SAFFRON*. The principal Sorts of this Flower are the party-colour'd *Meadow-Saffron*, the variegated *Meadow-Saffron*, the dark Purple ſtriped *Meadow-Saffron*, the chequer'd *Meadow-Saffron* of *Naples*, the chequer'd *Meadow-Saffron* of *Chio*, the double *Meadow-Saffron*, the double variegated *Meadow-Saffron*, and the greateſt double *Meadow-Saffron*.

When the Stalks of theſe are dry, take them up, and about the Beginning of *September* they may be ſet again. They will ſuddenly put forth Fibres, and ſoon after will flower: They are hardy, and will thrive in any Soil.

CROCUSES. This Flower is of divers Sorts, ſome flowering in the Spring, and others in Autumn, and of this the true Saffron is a Kind. The other chief Sorts are the great white *Crocus*, the white *Crocus* of *Maſia*, the pale feather'd *Crocus*, the Imperial *Crocus*, the Royal *Crocus*, the ſmaller Purple *Crocus*, the greater Purple *Crocus*, the blue *Neapolitan Crocus*, the Purple-feather'd *Crocus*, the Purple ſtriped *Crocus*, the great Purple ſtrip'd *Crocus*, the greater Purple flamed *Crocus*, the yellow *Crocus*, the yellow ſtriped *Crocus*, the Cloth of Gold *Crocus*, the Silver-colour'd Autumn *Crocus*, the Purple *Mountain-Crocus*, and the Autumn *Mountain-Crocus*.

All theſe Sorts of *Crocuſes*, both of the Spring and Autumn loſe their Fibres with their Leaves, and may be then taken up, and kept dry; thoſe of *Autumn* until *Auguſt*, and thoſe of the *Spring* until *October*: They are hardy, and will thrive in any Soil.

The *IRIS*, or *FLOWER DE LIS.* There are great Varieties of this Flower, *viz.* the *Perſian Iris*, or *Flower de Lis*, the *Engliſh* blue bulbous *Iris*, the great bulbous *Iris*, with a rich blue Flower, the blue ſtriped *Iris*, the great Purple variable bulbous *Iris*, the great Aſh-colour'd ſtriped bulbous *Iris*, the great variable colour'd bulbous *Iris*, the great pale red or Peach-colour'd bulbous *Iris*, the great white bulbous *Iris*, the great white ſtriped *Iris*, the great white bulbous *Iris* ſtriped with Purple, and the great yellow bulbous *Iris* or *Flower de Lis.*

The leſſer bulbous *Flower de Lis*, or *Iris*, is alſo of ſeveral Sorts, *viz.*

The *Spaniſh* narrow-leav'd *Iris*, the narrow-leav'd bulbous *Iris* with a ſpotted Stalk.

Other Sorts of *Flower de Lis* in *France*, viz. The *Agat Iris*, the *African Iris*, *Aleppo Iris*, *Ambois Iris*, *Arabian Iris*, the *Iris* of *Auvergne*, *Iris du Blois*, *Iris de Bologne*, *Iris* of *Britany*, *Iris* of *Brie*, *Chamber-Iris*, *Iris* of *Candy*, *Iris* of *Caſtile*, *Iris* of *Damaſcus*, *Iris* of *Egypt*, *Iris* of *Florence*, *Iris* of *Florida*, *Iris* of *Frontiers*, *Iris* of *Gaſcoigny*, *Grand Seignior's Iris*, *Iris* of *Greece*, *Iris* of *Guiney*, *Indian Iris*, *Iris* of *Judea*, *Iris* of the *Levant*, *Iris* of the *Lombards*, *Iris* of *Lorrain*, *Iris* of *Lybia*, *Iris* of *Macedon*, *Iris* of *Maldives*, *Iris* of *Melinda*, *Iris* of *Mexico*, *Iris* of *Milan*, *Iris* of the *Moluccoes*, *Iris* of *Parma*, *Iris* of *Picardy*, *Iris* of *Poets*, *Iris* of *Poictou*, *Iris* of *Portugal*, *Iris* of *Pay*, *Rochetain Iris*, *Iris Royal*, *Iris* of *Savoy*, *Iris* of *Sicily*, *Iris* of *Siena*, *Swiſs Iris*, *Iris* of *Syria*, *Iris* of *Tartary*, *Iris* of *Turkey*, *Iris* of the *Vallies*, *Iris* of *Valois*, *Iris* of *Vandois*, and the *Venetian Iris.*

The Seeds of all theſe are ſow'd, and order'd as Tulips.

Other Sorts of *Flower de Lis.* The tuberous or flag-leav'd *Flower de Lis*, the great and leſſer *Chalidonian Iris*, the great *Flower de Lis* of *Dalmatia*, the blue *Flower de Lis* of *Aſia*, the twice flowering *Portugal Flower de Lis*, the variable Purple *Iris* of *Camerarius*, the blue party-colour'd *Iris*, the white variable *Flower de Lis*, the yellow *Flower de Lis* of *Tripoli*, the great blue narrow-leav'd *Iris*, the narrow-leav'd variable *Iris* of *Cluſius*, the greater double narrow-leav'd *Iris*, the great white Dwarf *Iris*, and the bluſh-colour'd Dwarf *Flower de Lis*, or *Iris.*

All theſe Flowers are hardy, and will grow in any Soil.

CORN-FLAG. The chief Sorts of this Flower are, the *Corn-flag* of *Conſtantinople*, the *Corn-flag* with a bright red Flower, and the *Corn-flag* with bright Flowers.

Theſe flower about *July*, when their Stalks are dry they loſe their Fibres, and may be taken up, and order'd as *Iris.*

The *BEE-FLOWER.* The *Bee-Flower*, *Gnats*, *Satyrion*, *Fly-Orchis*, *Dogs-Tooth Violet*, *Dogs-Tooth* with a white Flower, *Dogs-Tooth* with a pale Purple Flower, *Dogs-Tooth* with a red Flower, and *Dogs-Tooth* with a yellow Flower.

The *SOW-BREAD.* Theſe are alſo of ſeveral Sorts, *viz.* the purpled *Cyclamen* of the Spring, the white Candy *Cyclamen* of the Spring, the double white Spring *Cyclamen* of *Antioch*, the pale Purple *Cyclamen* of the *Spring*, the *Summer Cyclamen*, the *Roman Cyclamen*, the Ivy-leav'd *Cyclamen*, the narrow-leav'd *Cyclamen*, and the double-leav'd *Cyclamen* of *Antioch.*

The Roots of theſe Flowers do not loſe their Fibres, and therefore are ſeldom to be removed; but if tranſplanted, it is in *June* or *July.*

ANEMONIES, or the *WIND FLOWER.* There are great Variety of theſe Flowers, but they may be reduced under theſe two Heads, *viz.* the *Anemone* with broad Leaves, and the *Anemone* with narrow Leaves; and both Sorts bring forth divers Slips of curious Flowers, *viz.*

The common great double variable broad-leaved *Anemone*, the common broad-leav'd ſcarlet *Anemone*, the broad leav'd *Anemone* with a double ſcarlet Flower, the broad-leav'd double ſcarlet variegated *Anemone*, the double broad leav'd red *Anemone*, the broad-leaved double purple *Anemone*, the double broad-leaved purple variegated *Anemone*, the broad-leaved *Anemonies* with ſingle Flowers, the common double narrow-leaved red *Anemone*, the double narrow-leaved variable *Anemone*, the double narrow-leaved ſcarlet *Anemone*, the double ſcarlet variegated narrow-leaved *Anemone*, the double narrow-leaved *Anemone* with a ſcarlet Thrum, the double narrow-leaved *Anemone*, called *Nacara*; the double Brimſtone-colour'd narrow-leaved *Anemone*, the narrow-leaved double green *Anemone*, the greater white narrow-leaved double *Anemone*, the narrow-leaved bluſh *Anemone*, called *Colombina*; the double narrow-leav'd Roſe-colour'd *Anemone*, the narrow-leaved double ſpotted bluſh *Anemone*, the narrow-leaved double purple *Anemone*, the narrow-leaved double Lavender-colour'd *Anemone*, the narrow-leaved *Anemone* with the purple Thrum, the narrow-leaved double *Anemone* with the dark purple Thrum, called *Amarant*; the double narrow-leaved variegated *Amarant Anemone*, the double narrow-leaved *Anemone* of five Colours, and the noble double *Anemone.*

Beſides theſe *Anemonies* already mention'd, which have been long in *England*, there are abundance of other new Sorts raiſed of Seeds in *France* and *Flanders*, all bearing five double Flowers, differing from each other both in Colour and Faſhion, the Names of which are taken Notice of in Mr. *Rea*'s Book of *Flowers*, Fol. 123.

Theſe *Anemonies* (both double and ſingle) bring forth their Flowers in *March*, *April* and *May*, which, for the Generality, are very beautiful; and for the ordering them, great Care muſt be taken as to the Soil of the Ground, the Seaſon, and Manner of planting and taking them up, which Mr. *Rea* hath largely treated of.

RANUNCULUS, or *CROW-FOOT.* This Flower is of divers Sorts; thoſe of moſt Eſteem are the double white *Ranunculus* of *Candia*, the Cloth of Silver *Crow-foot* of *Candia*, the double yellow *Crow-foot* of *Aſia*, and the double red *Crow-foot* of *Aſia.*

There are divers other Sorts of *Ranunculus's*, or *Crow-foot* of *Aſia*, with fine double Flowers; *viz. Bozvel*, or *Plumaſh*, *Pianiſco*, *Lang de Beuf*, the Monſter or Giant *Ranunculus*, the great Monſter of *Rome*, *Puvoin* of *Rome*, *Marvelia*, *Sphericus*, *Fericus Traſhe*, *Surifex*, *Turks Turbant*, *Marvellin de Paris.*

Ranunculus of *Aſia*, with ſingle Flowers, is of divers Sorts and Colours, which, with Directions for the ordering them, are ſet down by Mr. *Rea*, p. 131.

WOLF-BANE. This is alſo of divers Kinds, the chief are the Winter *Wolf-Bane*, the pale Winter *Wolf-Bane*, &c.

Theſe bring forth their Flowers with green Leaves in *January*, which is the chief Rarity in them.

HEPATICA, or *LIVER-WORT.* This is of two Sorts, the one bearing ſingle, the other double Flowers, which are of moſt Eſteem, the chief of which are the double purple *Hepatica*, the double Blue, the double White, and the double Red.

Theſe Flowers, about *Mid-March*, are to be order'd as *Auricula's*.

HELLEBORUS, or *HELLEBOR.* This is of two Sorts, *viz.* Black and White: The true black *Hellebor*, called the *Chriſtmas Roſe*; the white *Hellebor*, with a dark red Flower; *Our Lady's Slipper*; the ſmall white *Hellebor*, and the ſmall purpliſh *Hellebor*.

GENTIAN. The *Gentian* is of ſeveral Sorts; the chief are the Great *Gentian*, with a yellow Flower, and the *Gentian* of the *Spring*.

BELL-FLOWERS. Theſe are alſo of ſeveral Sorts, and both double and ſingle; the chief are the Peach-leav'd *Bell-flower*, the Steeple *Bell-flower*, the great *Canterbury Bell*, the double *Canterbury Bell*, *Giants Throat-wort*, and the *Cardinal's Flower*.

All theſe Flowers are eaſily encreaſed, and thrive very well in moſt Soils, provided they ſtand not too hot in the Sun; but the *Cardinal's Flower* is more tender, and requires good Care.

JUCCA INDICA, with other Indian *Plants.* The *Indian Jucca*, the *Virginian Silk*, the *Indian flowering Reed*, and the *Indian Fig*.

AURICULA's. This Flower is of ſeveral Sorts and Colours, as purple, red or ſcarlet, yellow or buff, and white. Moſt bear the Names of thoſe that raiſed them, which are taken notice of by Mr. *Rea*, fol. 142. together with Directions for the raiſing and ordering them.

PRIMROSES *and* COWSLIPS. Theſe Flowers are of divers other Sorts than thoſe common to us in *England*. Mr. *Rea* takes notice of theſe Sorts, *viz.* the common double Garden *Primrose*, th *Cowſlip Hoſe in Hoſe*, the double green *Cowſlip*, the double green *Primroſe*, the *Jack-an-apes on Horſeback*, the *Cowſlip* with a jagged Hoſe, the red *Primroſe*, the double red *Primroſe*, the red *Cowſlip* or *Ox-lip*, the Orange-colour'd *Cowſlip*, and the red *Cowſlip* in Hoſe.

CAMPIONS. Theſe are likewiſe of ſeveral Sorts, *viz.* the double red *Roſe-Campion*, the double white *Roſe-Campion*, the ſingle *Nonſuch*, the Flower of *Briſtol*, and the rich ſcarlet *Nonſuch*.

WALL-FLOWERS. The principal Sorts of this Flower are the great ſingle *Wall-flower*, the double *Wall-flower*, the ſingle White, and the double White; the double Red, and the pale Yellow *Wall-flower*.

STOCK-GILLIFLOWERS. This Plant is of ſeveral Sorts and Colours, and both ſingle and double, *viz.* the double ſtriped *Stock Gilliflower*, the yellow *Stock*, the bluſh *Stock*, and the whiter *Stock-Gilliflower*.

They are raiſed from Seed, and Slips; if from Slips, make choice of ſuch Branches as bear no Flowers, which cut off ſome Diſtance from the Stock; then ſlit down the Bark at the End of the Slip about half an Inch, in three or four Places, which peel as far as it is ſlit, and turn up; then cut off the naked woody Part cloſe to the Rind that is turned up; then make a pretty wide Hole in the Earth to ſet it in, about 3 Fingers deep, with the Bark ſpread open round about the End thereof; which done, cover it with good Earth, keep it in the Shade, and water it for ſome time, to cauſe it to draw Root.

Plants that bear double white Flowers. Double *Pellitory*, double *Feather-few*, double *Camomil*, double *Dog-fennel*, double *Lady-Smocks*, and double *Daffies*.

GILLIFLOWERS. This Flower, for its Beautifulneſs and fragrant Smell, may deſervedly have the Preheminence of all others. There are innumerable many Sorts, both double and ſingle, amongſt which theſe following are taken notice of by Mr. *Rea*, which had their Original from *Holland*, *Flanders*, and the *Netherlands*, viz *Achilles*, *Acteon*, *Admiral of England*, *Admiral Young*, *Admiral Rowſe*, *Admiral Liſgins*, *Admiral of Spain*, *Admiral of Arragon*, *Adonis*, *Agot*, *Bertine*, *Ajax*, *Abertine*, *Alcetus*, *Abiance*, *Imperial*, *Alexander the Great*, *Alexander of Holland*, *Albertine*, *Amazone*, *Andronicus*, *Angelion*, *Approaching Sun*, *Apollo*, *Apelles*, *Argus*, *Aſtrea*, *Attalanta*, *Auguſtus Cæſar*, *Auguſtina*, *Aurora*, *Aure ſtella*; *Barnadine*, *Barkſhire*, *Beauty of England*, *Baron of France*, *Bel-Triumphant*, *Bel-Montwas*, *Bel Videre*, *Bel Curtiſan*, *Bel-Angloiſe*, *Bel-Believer*, *Bel in Younton*, *Bel-Infanta*, *Bel-Franſway*, *Bel-Roſe*, *Bel-Gentoice*, *Bel-Magdalen*, *Bel-Holandres*, *Bel-Antus*, *Bel-Brunetta*, *Bel-Blome*, *Bel-Joy*, *Bel-Roſaline*, *Bellarmine*, *Beloved*, *Bethlem*, *Beu Buiſſon*, *Beu de Lile*, *Beu de Dennis*, *Beu Deeper*, *Belle Olinda*, *Beu Monelle*, *Beu de Corn*, *Beu de Harlem*, *Beerſheba*, *Boor van Lakerbeck*, *Belle de Lanoy*, *Belle Princeſs*, *Belle de Bruxels*, *Blazing Star*, *Black Imperial*, *Blanch de Bruxels*, *Blue Chriſtal*, *Bohemia Crown*, *Bonaventura*, *Bonum Magnum*, *Brown Purple*, *Brabaſon*, *Brewers Paragon*, *Brown Favourite*, *Brown Apelles*, *Bride of Holland*, *Brun de Brune*, *Burſtol*; *Cardinal*, *Carthuſa*, *Charles the Great*, *Charles the Fifth*, *Charles the Firſt*, *Charles the Second*, *Chriſtal*, *Chancellor*, *Cleopatra*, *Celuſia*, *Count Mansfield*, *Count Lodowick*, *Count Florus*, *Count of China*, *Count Henrick*, *Counteſs of Flanders*, *Covenant of England*, *Court of Caſtile*, *Coridon*, *Crown of England*, *Curſella*, *Cupidon Royal*, *Cydonia*; *Darius*, *Daris*, *Diana*, *Don Alphonſo*, *Don Doria*, *Don John*, *Dolphin*, *Dore*, *Dorothy of Holland*, *Dorilliſant*, *Duke of Anjou*, *Duke of Bucks*, *Duke of Burgundy*, *Duke of Brunſwick*, *Duke of Cambridge*, *Duke of Frieſland*, *Duke of Florence*, *Duke of Lorrain*, *Duke Philip*, *Duke Victor*, *Dutch Royal Dunkirk*, *Dutcheſs of Brabant*, *Dutcheſs of Cleaveland*, *Dutcheſs of Monmouth*, *Dutcheſs of York*, *Dalfaſt*; *Eagle-Royal*, *Eaglet*, *Emperor Conſtantius*, *Empire of Ruſſia*, *Emperor*, *Emperor's Court*, *Emperor Rodolphus*, *Emperitoria*, *Emillai*; *Fair Dutcheſs*, *Fair Flora*, *Fair Frances*, *Fair Hanna*, *Fair Hellena*, *Fair Shepherdeſs*, *Favourite Fieldsby*, *Florida Floradine*, *French Marble*; *Galatea*, *General of Auſtria*, *General de Dorne*, *General Gouda*, *General of Holland*, *General of the Indies*, *General Lambert*, *General Monk*, *General Palmer*, *General de Pike*, *General Rowſe*, *General Tuſt*, *General Wigons*, *German Empire*, *Giant's Head*, *Gigantick*, *Gliſtering Star*, *Golden Crown*, *Golden Piece*, *Grand Duke Royal*, *Grave Earneſt*, *Gray Floriſt*, *Gray Hulo*, *Grand Britain*, *Grand Conſtantine*, *Grand Cæſar*, *Grave Florus*, *Grave William*, *Grave Vandike*, *Great Boor*, *Great Captain*, *Great James*, *Great Monarch*, *Great Prophet*, *Great Seneca*, *Great Tamberlain*, *Great Turk*, *Grotius*; *Halſion*, *Hariſon*, *Heart of Oak*, *Hecuba*, *Houſe of Peers*, *Houſe of Commons*, *Hoſt of Bohemia*, *Honora*, *Hugonot*; *Imperial of Holland*, *Incarnadine Corinthi*, *Incarnadine de Bezond*, *Incarnadine de Blan*, *Joyeſſe*, *Iſſabella la bella*, *Jupiter*, *Juno*; *Kereme*, *Kill-all*, *King of Aſſyria*, *King of Bohemia*, *King David*, *King of England*, *King of Ethiopia*, *King of France*, *King of Naples*, *King of Poland*, *King of Portugal*, *King Rehoboam*, *King of the Romans*, *King Solomon*, *King of Spain*, *King's Court*; *La Croy*, *La Moriſco*, *Land of Promiſe*, *Lackerbet*, *La Joyeſſe*, *La Perle de Dennis*, *La Placidia*, *La Super Bona*, *Laſt Hope*, *Latiſſon Dore*, *Leviam*, *Leont* *de Scemes*, *Leo*, *Linne Frecal*, *Lord of the Camp*, *Looſte*, *Lorea*, *Loyalty*, *Lord of Gaunt*, *Lord Frances*, *Lord Pleaſure-boat*, *Low Haule*, *Luſty Gallant*; *Maſter de Camp*, *Mamada*, *Marvel de Mundi*, *Martin Grim*, *Marble-ſtone*, *Marble-Roſe*, *Mermaid*, *Minerva*, *Mirabilia*, *Morillion*, *Nonparel*, *Monſtrum of England*, *Monſtrum of Holland*, *Morillion Triumphant*, *Morning-Star*, *New St. George*, *New Bonaventura*, *New Hogonet*, *New Apollo*, *New Boore*, *New Cook*, *Covenant*, *Neſarial*, *Nimph-Royal*, *Non-parelia*, *Non-ſuch*; *Olimpia*, *Old Veſtal*, *Omega*, *Oriental*, *Ovid*, *Oxenar*, *Oyleman*; *Paſs Monarch*, *Paſs Imperial*, *Paſs Tout*, *Painted Lady*, *Pantelece*, *New Paragon Aleta*, *Paragon Rike*, *Philomel*, *Phillis*, *Piramid*, *Picolomine*, *Polidore*, *Prince of Tire*, *Prince Henry*, *Prince Rupert*, *Prince Thomas*, *Prince of Wales*, *Prince of Orange*, *Princes Court*, *Princeſs of Savoy*, *Purple Paragon*, *Purple Imperial*, *Purple Royal*; *Queen Elizabeth*, *Queen Katherine*, *Queen of France*, *Queen of Sweden*, *Queen of Portugal*, *Queen of Perſia*, *Queen Heſter*, *Queen Hellena*, *Queen Cleopatra*, *Queen Biddia*; *Raviſant*, *Regent*, *Reutineere*, *Remus*, *Romulus*, *Roſilliante*, *Roſamond*, *Roſe of Jerico*, *Royal Match*, *Royal Oak*, *Royal Jeremy*, *Royal Exchange*, *Roxolana*; *St. John*, *St. Joſeph*, *St. Michael*, *St. George*, *Salamander*, *Salisbury*, *Soliman*, *Summer-Fair*, *State-Houſe of Amſterdam*, *Super Bonerges*, *Suſanna*, *Super Eminent*, *Tapiſere*, *Thodeſier*, *the Jewel*, *the Cook*, *Thomalin*, *Tiberius Cæſar*, *Tribune*, *Triumph of Spain*, *Tricolor*, *Troupes*, *Validdi*, *Van Velſon*, *Vetonica*, *Veſtina*, *Virgin of England*, *Virgin of Middleſex*, *Virgin of Orleance*, *Virgin of Lile*, *Virgin of Cullen*, *Vice-Admiral*, *Vice-Roy*, *Victoria*, *Ulyſſes*, *Unick de Lovel*, *Utrick Duny*, *Utrependragon*, *Warwick Hero*, *White Diana*, *White Nobleſs*, *White Hagonet*, *White Lady*, *Witty's Rich Scarlet*.

By this Catalogue the great Variety of *Dutch Gilliflowers* doth appear, which by them are yearly raiſed from Seeds; but it will not be ſo with us in *England*, as Mr. *Rea* noteth; for they will ſoon degenerate, and become ſingle, nor will they be ſo large, thick and double, neither of ſuch well intermix'd, ſtriped and flaked Colours; and all the beſt *Dutch* Flowers may be comprehended under thoſe three Heads, *viz. Red* and *White*, *Purple* and *White*, and *Scarlet* and *White*.

And amongſt the great Variety of Flowers, theſe following are now in the moſt Eſteem.

Red and White GILLIFLOWERS. *Achilles*, *Ajax*, *Alcetus*, *Approaching Sun*, *Argus*, *Barkſhire*, *Bel Infanto*, *Bel Joy*, *Bel Franſway*, *Bella de Bruxels*, *Bella Brunetta*, *Bohemia*, *Crown*, *Coridon*, *Count of Lodowick*, *Cydonia*, *Duke of Lorrain*, *Duke of Bucks*, *Duke of Anjou*, *Duke of Florence*, *General of Holland*, *Great Turk*, *Grand Duke Royal*, *King Charles the Second*, *La Super Bona*, *Low Haule*, *Marble-ſtone*, *Monſtrum of England*, *Monſtrum of Holland*, *Polidore*, *Prince Henrick*, *Queen Katherine*, *Queen Hellena*, *Super Eminent*, *Virgin of England*, *Virgin of Cullen*, *Virgin of Middleſex*.

Purple and White *JULY-FLOWERS*. Admiral of *Spain*, *Aliance Imperial*, *Andronicus Beloved*, *Brown Purple*, *Cleopatra*, Court of *China*, Crown of *England*, *Darius*, *Dolphin*, Duke of *Burgundy*, Fair *Hellena*, General *Wigons*, *Grave William*, Great *James*, King of *Spain*, King of *Aſſyria*, King of *Naples*, *La Placidia*, New *Apollo*, New *Hugomot*, New *St. George*, *Oylman*, *Paſs-tout*, Prince of *Tyre*, *Purple Imperial*, *Purple Paragon*, Queen of *France*, Queen *Elizabeth*, Queen of *Portugal*, Queen *Biddia*, *Salisbury*, *Tapiſere*, *Ulyſſes*, *Warwicks Hero*.

Scarlet and White *JULY-FLOWERS*. *Albertine*, *Attalanta*, *Aurora*, Baron of *France*, *Bel Gentoice*, *Beauty* of *England*, *Blazing Star*, *Brewers-Paragon*, *Pride* of *Holland*, *Don Doria*, Duke of *Cambridge*, Dutcheſs of *Cleaveland*, Dutcheſs of *Brabant*, Emperor *Conſtantius*, Fair *Flora*, *Golden Crown*, *Golden Piece*, *Iſabella*, *Labella*, *Juno*, King of *France*, King of *Poland*, Land of *Promiſe*, Lord of *Gaunt*, *Mirabilia*, New *Cook*, New *Paragon*, *Aletta*, *Paragon Rike*, *Remus*, *Romulus*, *Roſamond*, *Royal Exchange*, *Somerfair*, *Tiberius Cæſar*.

Theſe *Julyflowers* are in their pride and glory in *July*, and ſo continue till the Middle of *Auguſt*.

For the Raiſing and Ordering theſe choice Flowers, take theſe following Directions. Be ſure to make choice of a good Soil, neither too ſtiff, nor too light; and withal that it is very rich by mixing good ſtore of old rotten Dung amongſt the Earth. This Earth put into your Pots deſigned for your Flowers, and therein ſet the Layers, either as you take them off in *September*, or elſe in *March* being the Spring time; but before you plant them, cut away with a pair of Sciſſars from the Layers all the dead Leaves, and the Tops that are too long; and when you take them up to ſet into the Pots, let the Earth be about the Roots, and give them convenient Watering, but not too much whereby to rot the Roots. Let the Pots be ſo placed to have the Morning Sun only, for that of the Afternoon doth more hurt than good; until Mid *April* water in the Morning, and after when the Sun grows hot, in the Evening; and the Pots with Flowers ſo ſoon as the Sun is gone off them.

The Fat and Richneſs of the Earth in Pots, is ſooner waſted than in Beds, ſo that every Year there ſhould be a new ſupply of freſh and good, by taking away as much of the old Earth, as you can without hurting the Roots, and putting in more in the room; and alſo take away thoſe Roots that are killed by the Cold.

When the Flowers begin to Spindle, nip off ſuch that are ſmalleſt, leaving one or two of the biggeſt at each Root to bear Flowers, by which means the Flowers will be fairer.

From Mid *June* to Mid *July* is the beſt Seaſon for laying *Julyflowers*, and if well watered, they will take Root in about ſix or eight Weeks, and be fit to remove if occaſion requires; but the beſt Seaſon to remove them is in *March*.

When the Flowers are ſpindled, tye them to Sticks, and let all the Superfluous Buds be nipt off to make the Flower the fairer. When the Flowers begin to appear, open the Tops of the Pods a little, to give the Flower liberty to come forth. Thoſe Pods that break through the largeneſs of the Flower, may be neatly bound about with a Thread, or Wire.

Your great Care to preſerve theſe tender Plants is in Winter, from Rains, Snows, pinching Froſts, and cold North and Eaſt Winds; therefore be provided with a Winter Houſe to ſet them in, as before adviſed; and in *February* and *March* when the Days are Fair and Warm, ſet them abroad a little to Air; and now and then a gentle ſhower of Rain to fall upon them, would much refreſh them; but be ſure to take them in at Night; and in *April* you may ſet them abroad where they are to ſtand, filling up the Pots that want Earth, and cutting away the dead Leaves.

But thoſe that have not the Conveniency of a Houſe, may place the Pots cloſe to a South, or Weſt Wall, where with Boards made Penthouſe-wiſe, they may be defended from the aforeſaid injuries of the Winter Weather, which Boards may be to take off at Pleaſure to air them; And this way by ſome *Floriſt*'s is eſteemed better than to put them in Houſes.

Julyflowers or *Carnations* are alſo raiſed by Seed, for which obſerve theſe Directions; about *October* cut off the Stems with the Cods of thoſe Flowers you deſign for Seed, which hang up in ſome dry upper Room until Spring, then rub out the Seed, and ſow it, which will bear in the Flower Seaſon.

CLOVE-JULYFLOWERS. The Clove is a more hardy Flower, and will endure to grow in Beds well enough, but in the Snowy Froſty Weather ſhake off the Snow from them, and lay about the Roots ſome mouſhy Straw, which is a great preſervative of them. They are encreaſed by Layers, as other *Julyflowers*; but not by Seed.

PINKS. This Flower is of ſeveral ſorts, and both ſingle and double, the latter being the beſt; and of thoſe the double *Feathered Pink of Auſtria* is of moſt eſteem, being of different Colours, but generally white and reds. They are encreaſed by Slippings, and are moſt uſed to ſet on the Edge of Borders, for which uſe is alſo the *Matted Pink*.

SWEET JOHNS and *SWEET WILLIAMS.* Theſe are of ſeveral Sorts, and all bear many Flowers on one Head or Stalk; and of Variety of Colours; but generally white and red, with a Mixture of both. They flower in *June* before *Pinks*; they are raiſed by Seeds, and the Slippings alſo will grow.

The double *Sweet Johns*, and the *Velvet Williams* are pretty Flowers.

COLOMBINES. Theſe are of many Sorts, differing in Form as well as Shape, being raiſed from Seeds; the double are of moſt Eſteem, and are generally white, blew, murrey, red or purple, or a Mixture of ſome of theſe. Thoſe of moſt repute are the double inverted *Colombines*, the double *Roſe*, the *Degenerate*, and the *Virginia Colombine*.

They flower about the End of *May*, when *Tulips* go out. The Seeds are ſown in Beds in *April*, and from thence tranſplanted, ſo that it will be the next Year ere they bear Flowers, nor will they continue double well above three Years without degenerating, or turning ſingle.

SNAP-DRAGON. This is a common Flower, and chiefly differs in its Colours; the beſt ſorts are the white, the white variegated, the red and the yellow *Snap-Dragon*.

They are raiſed from Seeds, and bear Flowers the ſecond Year after Sowing; alſo the Slips taken off and ordered as the double *Stock Julyflowers*, will grow and bear Flowers.

FOX-GLOVES. This Flower is of ſeveral Sorts, as to the Size and Colour, the chief are the *Dun coloured*, the Orange Tauny, the great white, and the great yellow *Fox-Glove*. All which are raiſed by Seeds, and bear Flowers the ſecond Year.

Corn Flowers and Blew Bottles. This is a common Flower, and grows in Fields.

FLOWER-GENTLE. This is of two Sorts, the greater and the leſſer, and of each many Diverſities and Colours. They flower in *Auguſt*, and are raiſed by Seeds as others are.

SCABIONS. This Flower is of ſeveral ſorts and Colours, the chief are the white flower'd *Scabion*, the red *Scabion* of *Auſtria*, and the red *Indian Scabion*. They are raiſed by Seeds, and ordered as other ſuch like Flowers.

LARKS HEELS. This is as well double as ſingle, being alſo of ſeveral ſorts, and raiſed from Seeds uſually ſown in *April*; the chief Sorts are the double upright *Larks Heel*, and the *Indian Creſſes*, or yellow *Larks Heel*.

DOUBLE POPPIES. This is a very common Flower, and almoſt in every Country Garden; it bears Flowers that are Red, Purple, Scarlet, Lead-colour, Bluſh or White, and one Sort that is very ſmall, with the Flowers very double, they flower in *June*.

MARYGOLDS. This is a Flower of a great Encreaſe, and when once ſowed in a Ground, will preſerve it ſelf, being hardy to endure the cold Froſts, the Seed lying in the Ground all the Winter. There are ſeveral Sorts, the chief of which are the Corn Marigold of *Peru*, called the Flower of the Sun, the double Garden Marigold, the African or French Marigold, and the leſs double French or African Marigold.

BLEW BINDWEED, or the *BELL-FLOWERS.* It is ſo called by reaſon of the Flowers coming forth from the long Stalks, which for Shape (when blown) reſemble Bells, one ſort being called *Canterbury Bells*.

Not much unlike theſe in the Manner of growing is the Mervil of *Peru*, but the Flowers of different Colours; they are raiſed from Seeds ſown the Beginning of *April*, in Hot-beds, and from thence tranſplanted.

APPLES of LOVE. Theſe are received more for the Beauty of the Apples, or Berries, than for their Flowers, which are of a yellow Colour.

GARDEN LUPINS. Theſe are of four Sorts, one with yellow Flowers, another with white, and two with blue; they bear Peaſe like Bloſſoms of a blue Colour; and are ſown in *April*.

Not much unlike theſe are the Scarlet Kidney Beans, which of late Years are very common in Gardens.

Thus having given you a Summary of the Flowers mention'd by Mr. *Rea*, with ſome ſhort account thereof; In the next Place, I ſhall obſerve the ſame Method in giving an Abſtract of Greens; referring the moſt curious *Floriſts* to the Book it ſelf.

CHAP. VII.

Of Greens, to wit, Ever-Green Trees, that bear Flowers, Fruits, or Berries.

THE BAY-TREE is of ſeveral ſorts, *viz.* the Common Bay-Tree, known to all; the Bay-Cherry, growing about ten or twelve Foot high, as it were with a thick Buſh full of Boughs, adorned with bright ſhining green Leaves with whitiſh Flowers, which are ſucceeded by ſmall Cherries, black when ripe.

The WILD-BAY is moſt proper to ſpread againſt a Pale, or Wall; It beareth dark green Leaves, with great Tufts of ſmall white Flowers with Bluſh-edges on the Tops of the Branches, and hath alſo ſmall blue Berries that ſucceed the Flowers.

The ROSE-BAY-TREE is of two ſorts, the one bearing red Flowers, and the other white, and both with ſmall Stems.

The INDIAN-BAY ſeldom grows above four Foot high, and hath a thick Buſh well leaved, with Flowers of a greeniſh white, ſucceeded by Berries like ſmall Olives: 'Tis a fine Plant, and by careful keeping in the Winter may be preſerved; it is encreaſed (as moſt others are) by Layers, every Slip having the great Leaves ſtript off, and ſet in *March*, will grow.

The WILD-Bay of *Portugal* is much different from the former Wild-Bay, the Leaves being browner, and the Flowers inclining to purple, but the Berries are not unlike them.

The CHERRY-BAY flowereth in *May*, the Wild-Bay in Winter; but moſt beautiful in *March* and *April*; the Roſe-Bay, and Indian-Bay in *July*.

The ORANGE-TREE is a very tender Plant in our Climate, and muſt be ſet in Caſes, ſo that they may be houſed in the Winter, as other Greens muſt be; and by careful Tendance it is of great Beauty, there being at one time Flowers and Fruit both green and ripe; but with us it is in its greateſt Beauty in the Spring. Young Plants may be raiſed from the Kernels, ſet in rich

Mould in Caſes in *March*, and tenderly kept; they may alſo be grafted in the Bud.

The STRAWBERRY-TREE is a ſlow Grower, ſeldom exceeding five Foot in height; the Leaves are green, like the Bays, and on the End of the Branches grow the Flowers with long Stalks, being little white Bottles like thoſe of the Lilly of the Valley, which are ſucceeded by red Berries, which are ripe in *October* and *November*; this Tree being then in its greateſt Beauty.

This is a choice Plant to raiſe either from Seed, or Layers; but being paſt its tender young Age, 'tis hardy, and will grow very well under any warm Wall.

The MYRTLE-TREE is a very tender Plant, but by careful Houſing may be preſerved in our cold Climate. There are ſeveral Sorts; the Broad-leaved Myrtle groweth in a thick Buſh about four or five Foot high, full of Branches, with ſweet and fine bright ſhining Leaves, with Flowers at the Joints of the Branches.

The Leſſer-leaved Myrtle groweth like the former, but not ſo high.

The Box-leaved Myrtle differeth only but in the Leaves, which are like to thoſe of Box.

The Double-flowered Myrtle differeth not from the Broad-leaved Myrtle, only it is not ſo large and tall; and the Flowers are white, very thick, and double, and of a delicate ſweet Scent.

The Great Spaniſh Laurel-leaved Myrtle is larger than any of the former; the Leaves are of a whitiſh Green, and for Flowers and fruit little differing from thoſe of the Broad-leaved Myrtle.

The ſweet Indian yellow JESSAMIN is not above 2 Foot high, adorned with fair, ſhining dark-green Leaves, with fair yellow Flowers of a ſweet Scent, like unto the white Jeſſamin.

The Variegated, or Striped PHILLIREA is a curious Plant, far exceeding the ordinary one's, uſed for Ever-green Hedges: It will grow to the Height of a Man, and thick with ſmall Branches, and Leaves, edged or ſtriped with white.

Theſe and the like Greens muſt be ſet in Caſes, or Boxes, and carefully houſed in your Conſervatory at the Approach of the cold Winter; but at firſt ſet them in only in the Nights, and about *March*, when the Froſts are paſt, open the Doors, to give them Sun and Air to refreſh them; and about the End of *April* ſet them out, waſhing them clean from the Duſt and Cob-Webs, which they did contract in the Houſe. In the hot Seaſon cover the Earth with Moſs, to keep it moiſt, watering them as occaſion requires; and whilſt they are in the Houſe forget not to Water them gently, eſpecially in *November*, and after long Froſts; but let not the Water touch the Leaves.

Alſo every Spring and Autumn, that is, before the Setting the Plants forth and Houſing them, you muſt take ſome Earth out of the Caſes, opening the reſt with a Fork, or Tool, not hurting the tender Roots, ſupplying the Place thereof with good rich Mould, that is one part Earth, and two parts rotten Dung.

The Layers of the hardieſt Greens are to be tranſplanted about Mid *March*, and the more tender about the End of *April*: Let the Earth be very rich and fine ſifted before it is put into the Caſes for the ſetting the Layers; and at the bottom of the Caſes put ſome ſmall Stones, Pieces of Brick, or the like, to draw away the Moiſture from the Earth, which will elſe prejudice the Roots; and ſet not the Plants too deep in the Earth: When they are ſet, water them, and keep them ſheltred from the Sun and Wind until they have taken Root, which will be about a Fortnight, and after that they may ſtand in the Air and Weather.

CHAP. VIII.

Of Flower-Bearing Trees, and Shrubs, that fall their Leaves in Winter, and renew them again in the Spring.

THE double-flowered CHERRY is in all parts like the common Engliſh Cherry-Tree, only in the Flowers, which in this are large, thick and double; of a fine white Colour, many growing together, which fall off without bearing Fruit.

There is another Double-bloſſom'd Cherry, called in *France Meriſziere*, of the common Black-Cherry, that beareth a large double Flower, as big as the leſſer double white Roſe.

The Double-flowered PEACH-TREE is not much unlike the common Peach-Tree, only its Flowers, which are double, conſiſt of three or more Rows of Leaves of a rediſh Bluſh-colour.

The Double-Bloſſom'd Wild POMGRANATE-TREE groweth, if pruned up, about ſeven Foot high; otherwiſe 'tis a thick Buſh full of ſmall Branches with ſome Thorns thereon, and many ſhining green Leaves, and at the Sides and Ends of the Branches come forth divers hard, hollow and reddiſh Cups, and out of them beautiful Flowers of a bright Crimſon Colour as big as Province Roſes.

The Double White PIPE-TREE, or Jaſmine of *Arabia*, is a rare and tender Shrub, having divers long, ſlender, yet ſtiff Branches, whereon grow fair long Leaves of a freſh green Colour, two ſtanding at one Joint one againſt another, and at the Ends of the Branches ſhoot forth divers Flowers, each in an Hoſe, like thoſe of the common white Jaſmine, and of an excellent Scent.

The PERSIAN JASMINE comes up with many ſmall Woody Branches, bedeck'd with fine ſmall Leaves, and purpliſh blue Flowers of a ſweet Scent.

The Tree of PARADICE, is of a dark yellowiſh Colour, ſet with long whitiſh green Leaves, bearing along the Branches divers ſmall Flowers of a greeniſh yellow.

The Tree NIGHT-SHADE is about a Yard high, with a Woody Stem, with many green Branches, beſet with ſmall long Leaves, and at the Joints thereof it putteth forth two or three Flowers together of a Star-like Form, and upon the Decay of the Flowers come ſmall green Berries, that in *December* are red.

The Shrub SPIRÆA riſeth up with divers woody Stalks about a Yard high, and at the Tops of the Stalks come forth divers pale Peach-coloured Flowers thick ſet together. It flowereth in *Auguſt*, endures the Winter, and is encreaſed by Layers.

WOODY St. JOHN's-WORT groweth about a Yard high, is beſet at certain diſtances with Tufts of ſmall green Leaves, and amongſt them many ſmall white Flowers with purple in the midſt. It flowereth in and about the End of *April*, is hardy, and is encreaſed by Layers.

The MIZERION, or Dwarf-Bay, groweth in a thick Buſh full of Branches, with Leaves and ſmall Flowers growing thick together; ſome of a pale bluſh Colour, others of a white, and others of a red; and when theſe fall off, ſmall Berries come forth, which when ripe are red. Theſe Bloſſoms begin about the End of *January*, and continue till the End of *March*. It is an hardy Plant, is raiſed by ſowing the Berries, which lie long in the Ground, not coming up till the next Spring, and the Year following may be tranſplanted.

ROSE-TREES. There are divers excellent Sorts of Roſes, which former Ages were Strangers unto. An Account thereof is as followeth:

The Engliſh Red Roſe, common to all; the Roſe of the World, of a pale Bluſh with red Spots; the Hungarian Roſe, which is of a paler Red than the common Roſe, and hath many faint Spots in the Leaves; the Red Province Roſe, which hath its Flowers large, thick, and double, with no great Scent; the Red Belgick Roſe, of a fine deep red, with the Flowers very thick and double; the Dwarf Red Roſe, called by ſome the July Flower Roſe, which grows low, with the Flowers thick but ſmall, and is of a pleaſant Carnation Colour, and well ſcented; the double Velvet Roſe, which hath two or three Rows of Leaves of a dark Velvet red Colour; the Marble Roſe, much of the nature of the Velvet Roſe, as to its Growing; but different in Flower, which is larger, more double, and of a lighter red; the Roſe without Thorns, or the Virgin Roſe, much like the Marble Roſe, only without Thorns, and the Flowers are not ſo thick and double, and of a pale Colour; the Frankford Roſe, which hath large thick whitiſh green Leaves, with the Flowers very thick and double, which are of a blueiſh red, and very ſtrong ſcented; the Cinamon Roſe which is very early, coming in *May*; it is but ſmall, and of a pale Red; the Damask Roſe well known to all, none being ſo common nor of ſo much uſe, eſpecially for making Roſe Water; the party Coloured Damask Roſe commonly called York and Lancaſter, differeth in that the Flowers are parted and marked with a pale bluſh, inclining to a white upon the Damask Colour; the Chriſtal Roſe little differeth from the York and Lancaſter, only 'tis better marked; the Damask Province Roſe is very large, thick and double, and of a deeper bluſh; the Monthly Roſe, much like the Damask Roſe, but not ſo ſweet, it commonly bears three times a Year, *viz.* in *June*, about Mid *Auguſt*, and about the End of *September*; the Bluſh Belgick Roſe, or the white Province, as being of a pale bluſh. Thus much for Red Roſes.

The ſingle yellow Roſe, by ſome *Floriſts* eſteemed but a wild Roſe; the ſcarlet Roſe of *Auſtria* groweth much like the former, with ſingle Flowers, which within are ſcarlet, and without ſide of a pale Brimſtone Colour. The double yellow Roſe hath its Flowers of a pale yellow, and grows ſomething like the Damask Province Roſe.

The common white Roſe is of two Sorts, the one double the other ſingle, and both well known.

The Bluſh-roſe differs nothing from the White but in Colour, which is a very pale Bluſh.

The double Muſk-roſe hath its Flowers, that come forth on long Foot-ſtalks at the End of the Branches many together in a Tuft, not very double, and of a whitiſh Colour and ſtrong Scented; They flower in *Auguſt*.

The Ever-green Roſe, ſo called by reaſon the Leaves fall not off in the Winter, but ſtay on until thruſt off at the Spring by the new.

The Great Apple-roſe hath a great Stock, and many Branches, with the Flowers ſmall and ſingle, ſtanding on prickly Bottoms, which after the Flowers are fallen, grow great, red, and of the faſhion of a Pear.

Mr. *Rea* ſaith, that Roſes are increaſed by laying of Layers, that is, the Branches put in the Earth with good rotten Dung about them to grow the faſter; or by Inoculating the Buds of them in other Stocks; and the beſt Stocks are thoſe of the Damask, the white and the Franckford; and about Midſummer, or when good Buds can be got. The Stocks of Budded Roſes muſt be carefully kept from Suckers. But the beſt Stocks for the Muſk and Yellow Roſe, and all thoſe double and Centiple-Roſes are the ſweet Brier.

When the Roſes have done bearing, the Tops ſhould be cut with your Garden-Shears ſomething near, and three or four Days after the Change of the Moon, and then they will bear again about *Michaelmaſs*; and towards the Spring each Branch ſhould be cut again with a Pruning-Knife cloſe to the Leaf-bud, and what is dead or ſuperfluous ſhould be taken away.

JASMINES, HONISUCLES, and ſome other woody Flower-bearing-Trees. Jaſmines are of ſeveral Sorts, the white Jaſmine ſufficiently well known and much eſteemed for its pleaſant Scent; The *Catalonian* or *Spaniſh* Jaſmine, hath its Flowers much larger than the former, and ſweeter, with Bluſh-coloured Edges: The double Spaniſh Jaſmine much like the firſt, but the Flowers double; the yellow Jaſmine is a great Encreaſer, bearing ſmall long hollow Flowers. The *Indian* Scarlet Jaſmine hath its Flowers that come forth at the Ends of the Branches many together, which are of a deep Scarlet, veined with ſmall yellow Lines.

The double Honiſuckle is ſo common, that every one knows it, nevertheleſs it is to be eſteemed for its ſweet Flowers. The *Italian* Honiſuckle is a very great Spreader and Bearer, but not of ſo ſweet a Scent.

Virgins-Bower is much of the nature of the Honiſuckle; the Flowers are ſome Red, and others Purple; ſome double, and others ſingle.

Baſtard-Dittany is a ſmall Woody Plant that grows not above two Foot high; it is of ſeveral Sorts, ſome beareth a reddiſh Flower, ſome a white, and ſome an Aſh-colour Flower, they are all ſtrong ſcented.

The Ciſtus is alſo a ſmall Woody Plant, and is of two Sorts, the Male Ciſtus, and the Gum Ciſtus, which is the biggeſt and greateſt Spreader. This is a tender Plant not enduring the cold Winter, which the Dittany will.

Other Flower-bearing Trees, and Shrubs. The Horſe Cheſnut, of ſome eſteem'd for its beautiful fair green Leaves, as alſo for its Flowers in *May*.

JUDAS-TREE hath its Flowers before its Leaves, three or four ſtanding together like Peaſe-Bloſſoms, of a fine purpliſh bright red, which are ſucceeded by long flat Cods; this is apt to put forth Suckers, by which as alſo by Layers 'tis encreaſed; it ſeldom grows above ſix Foot high.

BEAN TREFOILE is of two Sorts, the greater and the leſſer, and both put forth yellow Flowers, much like thoſe of Broom, but leſſer and paler, which are ſucceeded by flat thin Cods.

Spaniſh Broom puts forth its Flowers towards the Top of the Branches in *May*, which are much like the common Broom, but larger, and the Cods are long and ſmall. There is another kind that bears white Flowers.

The *French* mightily adorn their Walks with the Virginian Acacia: It endures all ſharp Seaſons but high Winds. The Roots which run like Liquorice under Ground, are apt to emaciate the Soil, and therefore not fit for Gardens. It's increas'd by Suckers.

The Alaternus thrives very well in *England*, and bears the ſevereſt Froſts. It makes fine Hedges, and is a quick Grower; the Seed ripens in *Auguſt*, the Bloſſoms of which afford an early Relief to the Bees: And the Phyllyrea, of which there are ſeveral Sorts, are ſtill more hardy, both which are raiſed of their own Seeds or Layers, only the Phyllyrea lies long in the Ground, and the Alaternus comes up in a Month after it's ſowed. Being tranſplanted for Hedges or Standards, they are to be governed by the Shears, and tranſplanted at two Years growth; clip them in Spring after Rain, before they grow ſticky, while the Shoots are tender; thus it forms a fine Hedge planted in ſingle Rows at two Foot diſtance, of a Yard thick and twenty Foot high, if you think fit, and furniſhed with Branches to the Bottom: Only becauſe of the Winds, it may be neceſſary to ſupport it with ſome Wall or Frame, if you let it grow to ſuch a height.

Almonſdwarf, a very humble Shrub, bearing in *April* many fine Peach-colour'd Bloſſoms. 'Tis a very pleaſant Plant, and yields plenty of Cions.

Althæa Fruticoſa, or Shrub-Mallow, the Purple and the White, endure the Winter, and are uſually planted Standards: They bring forth their Flowers in *Auguſt* and *September*, and laſt till the Wet or Cold ſpoils them: The Tree is increaſed by Layers.

Arbutus, or Strawberry Tree, grows common in *Ireland*. It is difficult to be raiſed from the Seeds, but may be propagated by Layers. It grows to a goodly Tree, endures our Climate, unleſs the Weather be very ſevere, and makes beautiful Hedges.

Bucks-horn Tree, or Virginian Sumach, grows in ſome Places ſix Foot high, the young Branches being of a reddiſh brown, feeling like Velvet, and yielding Milk if cut or broken. The Leaves are ſnip'd about the Edges, and at the End of the Branches come forth long, thick and brown Tufts, made of ſoft and woolly Thrums, among which appear many ſmall Flowers: The Roots put forth many Suckers, whereby it's increaſed.

Granade, are three Sorts: They differ little in Culture from the Alaternus: Conſiderable Hedges may be raiſed of them in Southern Aſpects: Their Flowers are a glorious Recompence for our Pains in pruning them, they muſt be diligently purged of their Wood. If you plant them in Gardens to the beſt advantage, keep them to one Stem, and enrich the Mould with Hogs-dung well rotted. Plant them in a warm corner to have Flowers. If you plant them in Hedge-rows, looſen the Earth at the Roots, and enrich it Spring and Autumn, leaving but a few woody Branches. At the Tranſplantation of them they ſhould be well watered.

Hypericum Frutex, a Shrub yielding abundance of ſmall ſlender Shoots, which in *May* are very thick ſet with ſmall white Bloſſoms, that the Tree ſeems to be all over hoary with Froſt, or covered with Snow. It is increaſed by Suckers and endures all Weathers.

The Bladder Nut, if pruned up, and kept from Suckers, will grow to about ſix Foot high; its Flowers are white and ſweet, many hanging down on a long Stalk: After them greeniſh Bladders, each containing one ſmooth ſmall Nut with a green Kernel; the Leaves are like thoſe of Elder. It is encreaſed by Suckers.

The Gilder, or Gilderland Roſe; is a pretty large ſpreading Tree, at the Top of the young Branches comes forth a round Ball of many ſingle white Flowers cloſe ſet together. It is a hardy Plant, and is encreaſed by Suckers.

The Syringa, or Pipetree is of ſeveral Sorts, but none very tall; the chief difference is in the Flowers, one putting forth blue Flowers, another white, and another a kind of a fair purple Flower, at the End of the ſmall Branches many together.

Chriſt's-Thorn, groweth about five or ſix Foot high, hath many ſlender Branches, ſet with broad and round Leaves veined, alſo thick ſet together on a long Stalk; This is that with which our Saviour was ſaid to be crowned. It is encreaſed by Layers.

The Myrtle-leav'd Sumach riſeth from the Root Yearly, with many ſmall Branches about four or five Foot high, and at the Top of the Branches come forth divers Flowers, which are ſucceeded by ſmall black Berries.

The Larch-tree is a very ſlow Grower, and not common; it beareth amongſt its green Leaves beautiful Crimſon coloured Flowers, very pleaſant to behold.

Periploca, a Plant that twiſts it ſelf about a Pole like a Hop, and lives over the Winter, and yearly puts forth ſmall blue Bloſſoms. 'Tis increaſed by Layers.

Sena-tree is of two Sorts, the Baſtard Sena and the Scorpion Sena; both yield a pleaſant Leaf and Flower: They grow but ſlender, and ſo need the Support of a Wall or Pales; but being tonſile, may be reduced to any other form; and raiſed by Layers or Seeds.

Spaniſh Broom is not much unlike the yellow Jeſſamine, only the Flowers are larger. It flowers in *May*, and is increaſed by Seeds or Suckers.

Spirea Frutex, a ſmall Tree bearing ſmall Peach coloured Bloſſoms about *Auguſt*. 'Tis a hardy Tree, and is increaſed by Layers.

Tamariſk, a Tree that grows tall and great, is increaſed by Suckers and Layers, and uſually planted by thoſe who reſpect Variety and Pleaſure. Its Wood is alſo Medicinal.

Virginian Climber, or Maracæ, comes out of the Ground in *May* with long round winding Stalks, more or leſs. From the Joints proceed the Leaves, and at each one, from the Middle to the Top, a Claſper like a Vine, and a Flower; the Leaves are of a whitiſh Colour, having towards the Bottom a Ring of a perfect Peach-colour, and above and beneath a white Circle: But the ſtronger part is the Umbrane, which riſes in the Middle, parting it ſelf into four or five crooked ſpotted Horns, from the Midſt whereof riſes another roundiſh Head that carries three Nails or Bars, biggeſt above and ſmall at the lower-end. It bears Fruit like a Pomegranate. It's beautiful Flowers ſhew themſelves in *Auguſt*, the Stalk dying to the Ground every Winter, ſpringing again from the Roots in *May*, which ſhould be covered and defended from hard Froſts in Winter. It ſhould be planted in a large Pot, and for houſing in Winter, and ſetting in the hot Sun in Summer; it muſt have the hotteſt Place that may be. The Pots may be ſet in the Spring in hot Beds to bring them forwards.

Yucca, an *American* Plant, but hardier than we take it to be, will ſuffer our ſharpeſt Winter without ſetting in Caſes. When it comes to ſome Age it bears a Flower of admirable Beauty; and being eaſily multiplied, might make one of the beſt and moſt ornamental Fences in the World for Gardens.

Laurus Tinus, a Shrub yielding ſweet-ſcented Tufts of white Bloſſoms in the Winter as well as Summer, is eaſily propagated from Suckers or Layers, and makes a fine Hedge.

Lentiſc, a beautiful ever-green, thrives abroad with us with a little Care and Shelter: It may be propagated by Suckers and Layers, and makes the beſt Tooth-pickers in the World; the Maſtick or Gum is of excellent uſe, eſpecially for the Teeth and Gums.

Maternus, a hardy Shrub, being ſomething of the Species of the Phyllyrea, and doth as well for Hedges, being as eaſily managed.

I ſhall conclude this Chapter with ſome Ever-green Trees, worth the taking notice of.

EVER-GREEN TREES. The Cypreſs-Tree groweth pyramidical, and is much uſed in Gardens; 'tis propt up by a Pole which runs up in the midſt, to which it is bound about with Wire, but being a Tree ſo common, is known to all.

The *Tree of Life* is a ſlow Grower, yet hath many hanging-down Branches, on the Tops of which in *May* are ſmall downy yellowiſh Flowers, with ſtanding ſmall ſcaly Heads. This Plant is encreaſed by Layers.

The *Ever-green Oak* is of a ſlow Growth, and not very large. It beareth ſmall moſſy yellowiſh Flowers in the Spring, and in ſome Places ſmall blackiſh Acorns. This is encreaſed by Layers.

Holly is common every where, but there is a Sort that hath green ſhining Leaves, variouſly mark'd with a yellowiſh Colour.

Box is of ſeveral Sorts, the common *Engliſh* Sort is known to all; the *Gilded Box*, whoſe Leaves are edged

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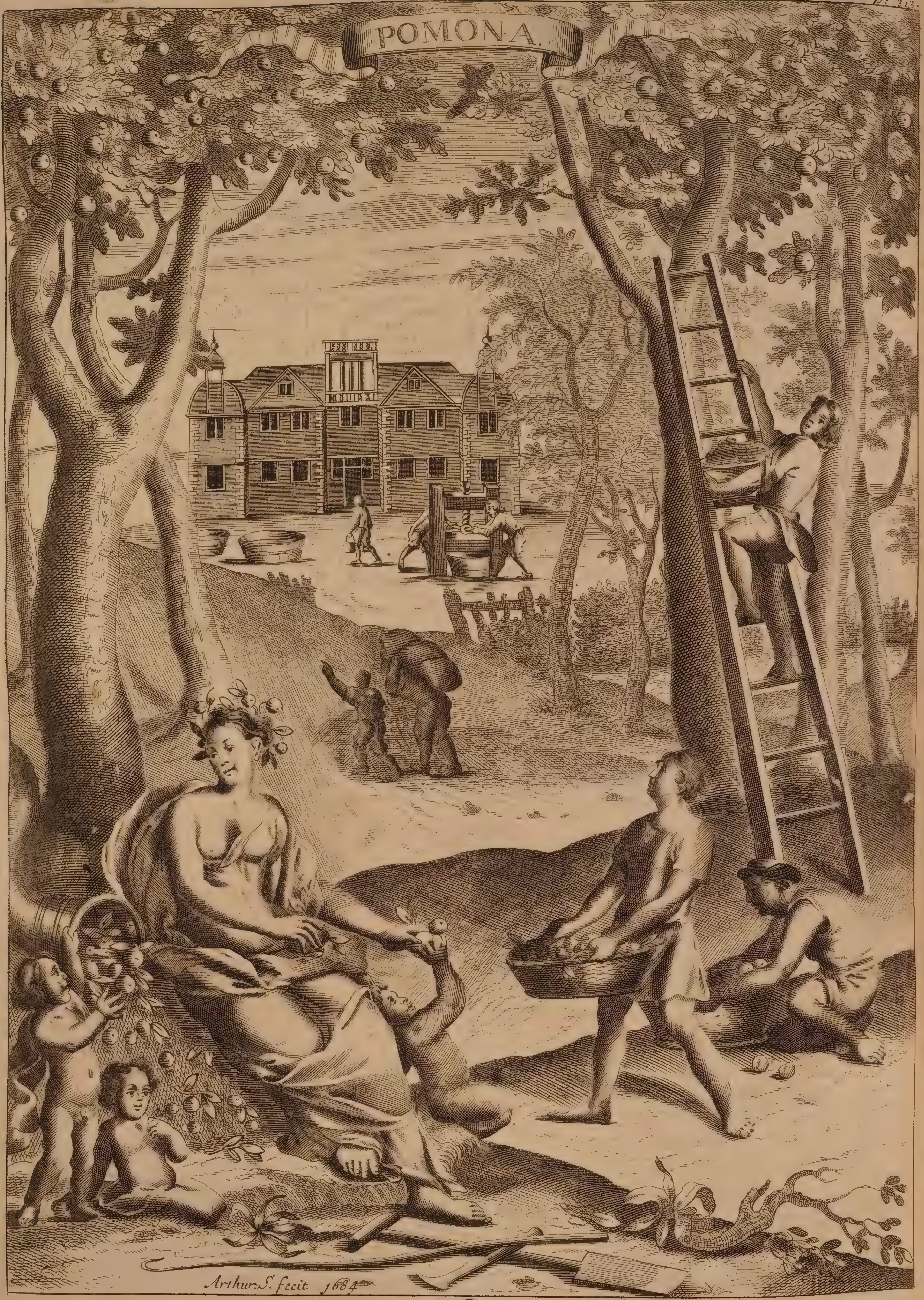

POMONA.
Arthur S. fecit 1684

To the R^{t} Worshipfull Sr Robert Clayton of
Marden in Surry and of the Citty of London Knight
and Lord Major there of Anno 1680.

This Plate is humbly dedicated by Richard Blome

edged with Yellow, and the *Dwarf Box*, which is much ſmaller than the former; and of this there is a gilded Kind eſteemed the beſt of all. All Sorts are eaſily raiſed; for every Slip ſet in *March* will take Root, and grow.

Pyracantha, or the *Ever-green Haw-thorn*, if permitted to grow, will be about ſix Foot high, full of Branches, beſet with Leaves, ſnipp'd about the Edges, and long ſharp Thorns. The Flowers come forth in the Spring in Cluſters together, as the Berries are that ſucceed, being of a bright Red. It is encreaſed by Suckers, Layers, and by ſowing the Berries like as you do Haws. This Green, with Phyllirea or Privet, makes a very good Ever-green Hedge.

The *Staff-Tree* is a ſmall Grower, and bears on a little Stalk four or five yellowiſh green Flowers, which turn into ſmall Berries like black Cherries. 'Tis of chief Uſe for Hedges, mix'd with *Pyracantha*, and is encreaſed by Layers.

The *Ever-green Privet* groweth low in a thick Buſh, full of Branches and Leaves. The Flowers come forth many of them together at the Joints, being ſmall and white, which are ſucceeded by little black Berries.

Phyllirea, or *Mock-Privet*, is of ſeveral Sorts, and all very good. The Flowers, which are many together, are of a greeniſh Yellow, after which come ſmall black Berries.

This Green, as alſo the *Ever-green Privet*, is excellent for Hedges in Gardens, by reaſon they may be cut, and brought to any Form by the Garden-Shears, and ſo kept in any Compaſs by Laths or Rods.

The *Lawrel* and the *Bay* are very common and well known, and much uſed for ſeveral Occaſions, the former being of much Eſteem for the Adornment of Houſes. They grow beſt againſt the Sides of Pales, or a Wall, or a Houſe, and in the Shade.

Bays are propagated by Suckers, Layers, Seeds, or Berries. *Pliny* would have the Berries to be gather'd in *February*, and ſpread till their Sweet be over, and then to be put in Dung, and ſown. Some ſteep them in Wine, but Water does as well: Others will waſh the Seeds from their Mucilage by breaking and bruiſing the glutinous Berries: But the beſt Way is to inter them as you furrow Peaſe, or rather to ſet them apart. Let them be defended from piercing Winds for the firſt two Years. This Tree loves the Shade, but thrives beſt in hotteſt Gravel, on which Soil it beſt endures the Froſt. Culture about the Roots wonderfully augments its Growth. Theſe Trees ſometimes grow thirty Foot high, and two in Diameter. They are fit both for Arbours and Paliſado-Work, if the Gardiner underſtands when to prune, and keep them from growing too woody. The Berries are emollient, and ſovereign in Diſtempers of the Nerves: They are uſed in Cholicks, Gargariſms, Baths, Salves and Perfumes; and ſome uſe the Leaves inſtead of Cloves.

CHAP. IX.

Of Fruit-Trees, *and how to propagate and manage them, as to Planting, Grafting, Inoculating, Pruning, &c. with an Account of each Sort of Fruit, and the Manner of Gathering, Tranſporting, and Keeping them.*

THERE is no greater Improvement to be made on Ground, than the planting it with Fruit-Trees, eſpecially if rightly ordered, and good Sorts of Fruit made choice of, which for the generality ſhould be thoſe that are durable, and will keep the Winter-Seaſon; and alſo ſuch as are moſt fit to make Cider and Perry of. The Charges and Trouble of Planting is inconſiderable to the great Profit accruing thereby. But the ruſtick People will not eaſily be perſwaded to go out of their old Way, nor be at one Penny Charge in Expectation of a future Gain; therefore it were to be wiſhed, that when any Landlord lets a Leaſe of any Ground, he would tie the Tenant by Covenant ſtrictly to plant ſuch a Quantity of Fruit-Trees on the Premiſes every Year in his Hedge-Rows, or ſuch like vacant Places, that will be no way prejudicial to the Management of his Crops, were it but four Trees to an Acre, which is but an inconſiderable Charge; and they are eaſily preſerv'd from the Injury of Cattle, by buſhing or railing them about, which may be done by his own Hands at ſpare Hours. But to proceed to the Ordering and Raiſing them.

How to propagate Fruit-Trees.

DIvers Ways may be uſed for the Raiſing of Fruit-Trees, as by Grafting, Inoculating, or Budding; alſo by Layers, Suckers, and Slips; and likewiſe from the Seed, Nut, or Kernel.

GRAFTING.] The Art of *Grafting*, as alſo Inoculating, doth preſerve the Species of the moſt curious Fruits, and meliorates their Guſts or Taſtes; for Fruits that are raiſed from the Kernels do produce moſt commonly a kind of wild Fruit ungrateful to the Palate, participating of the Wildneſs of the Stock on which the Tree was grafted.

Sometimes Apples and Pears may happen to be good, being raiſed from the Kernel; but for Cherries, Plumbs, Apricocks, Peaches, *&c.* produced from the Stone, or Kernel, unleſs grafted or inoculated, they are eſteem'd but of ſmall Value.

Things to be obſerved in Grafting.] Your firſt Buſineſs is to be provided with Stocks, which muſt be according to the Nature of the Tree you intend to graft. For Apples the Crab-ſtock is the beſt; alſo Stocks raiſed from every ſoure Fruit may do, for they bear the beſt and ſoundeſt Fruit, and the Tree will be the larger, and grow freer from the Canker.

If you would have *Dwarf-Trees*, make choice of the Paradiſe-Apples, either raiſed from the Kernels or Layers; for the Branches are as apt to take Root as thoſe of Codlins: But by reaſon the Paradiſe-Apple is a ſlow Grower, you may graft the Cyon thereof on a Crab-ſtock cloſe to the Ground, and when it is grown to the Bigneſs of one's Finger, graft about eight Inches higher thereon ſuch Fruit as you would have, which will quicken the Growth of the Paradice-Apple, and cauſe the Fruit to be better.

Pears are to be grafted on Stocks raiſed from the Kernel, the White Thorn commonly uſed is not good.

Plums are to be grafted on Plum-Stocks, raiſed from Suckers, or the Stones, of which Sort the great white Pear-plum is eſteem'd the beſt; and indeed any that have very large Leaves and Shoots are good either to graft any choice Plums upon, or for the Budding of Peaches and Appricocks.

Cherries are beſt to be grafted on black Cherry-Stocks; but Stocks of a better Nature may be raiſed from the Stones of the *Black-Heart*, the *Duke*, the *Amber*, and the *Morello Cherries*. For the Grafting the *May* and *Early Cherries*, the Stocks of the common *Engliſh Cherry* is ſaid to be the beſt; but it is not ſo good for a Wall as the *Morello*, or other Sorts, as growing too high.

Medlers are beſt to be grafted on Pear-Stocks.

Quinces are raiſed by Cuttings, or Suckers, which being ſet in good Earth, and kept watered if the Seaſon proves dry, will not fail to grow; and when they have taken Root in Winter, remove them into your Nurſery; and in a Year or two they will be fit to graft Pears on for Wall-fruit, being eſteem'd better than Pear-Stocks, as not growing ſo high.

Apricocks, *Peaches* and *Nectarines* are uſually inoculated in Plum-Stocks raiſed from Suckers, or the Stones; and thoſe of the white Pear-Plum, as aforeſaid is the beſt, as alſo for budding of *Apricocks* and *Peaches*; but for the *Nectarine* a Pear-Stock is moſt proper.

Goos-berries and *Currans*, as alſo *Services*, are inoculated on their own Kind.

Filberts are raiſed from Nuts of their own Kind, the like are Walnuts.

Of the Seminaries for Fruit-Trees, and raiſing of Stocks.

BEing provided with what Quantity of Stones and Kernels you deſign to ſow about *October*, (being then a good Seaſon) let there be a Bed of Earth well prepared and dreſſed, and therein ſow the Kernels of Crabs, or ſuch like Apples, and cover them with fine Mould ſifted over two or three Fingers thick. And for Fruit-ſtones, you may prick them down in Rows two or three Fingers deep, with the ſharp Ends downwards; and in Winter cover the Beds over with long Dung to preſerve them from the cold Froſts, which, when the Weather grows warm, as about *April*, muſt be taken off. You muſt keep them clean from Weeds, and in two Years they will be fit to remove into other Beds, to be planted at greater Diſtances for the Conveniency of Grafting.

Cherry-Stones are to be ſown and ordered as *Apple-Kernels*; but before you tranſplant any of theſe Stocks, you muſt cut off ſuch Roots as run down, as alſo the Tops and Side-Branches, placing them in Rows, cloſing well the Earth about them; and be ſure to ſet each Kind apart, for the knowing what Fruit it is. When they are grown to a ſufficient Bigneſs, of about an Inch in Diameter, they may be fit to graft in the Cleft; and ſet not the Roots too deep, as being more troubleſome to remove.

Crab or *Apple-Stocks* thus raiſed, are better than thoſe that come from the Wood, or any other Ways.

The Nurſery thus ſet may be ready after one Year to inoculate, and after two or three Years to graft.

Trees grafted on a *Gennet-Moyl*, or Cider-ſtock, preſerve beſt the Taſte of a delicate Apple, eſpecially the Pippin; but on a Crab-ſtock the Tree laſts longer, and hath a more tart palatable Reliſh. The ſame Rule may be obſerved in the Choice of Stocks for Pears, Plums, Cherries, Apricocks, *&c.* for the more acid the Stocks are, the more Life it gives the Fruit.

Although the Fruit doth generally take after the Graft, yet it is ſomewhat alter'd by the Stock, either for the better or worſe.

The Pear grafted on a Quince-ſtock produceth its Fruit better than the ſame Kind upon a wild Pear-ſtock, fairer and much better colour'd; and cauſeth the Trees to bear ſooner, and more Fruit.

The Soil of the Ground deſigned for the Nurſery ought to be conſidered, which ſhould be a light Mould, not too rich, nor too barren, and that which lieth warm will cauſe the Stocks to thrive the better.

Gather your Grafts of Plums, Pears and Cherries, from *Mid-January* to *Mid-February*; but thoſe of Apples may continue till *March*.

Chooſe ſuch as are of two Saps, that the old Wood to the Knot may be placed in the Stock. Thoſe of one Year's Shoot will ſerve in Default of the other; but ſuch will be longer before they come to bear. Make choice of ſuch Grafts that are ſtrongeſt, and from ſuch Branches that are fulleſt of Fruit-Buds, and apteſt to bear; and bind every ſort of Graft in Bundles by it ſelf, with the Name of the Fruit writ on a Parchment Label, leſt you ſhould forget the Sort; and, for your greater Care, a Book ſhould be kept, where each Sort is entred down. Theſe Grafts ſhould be put into the Earth by themſelves about half-ways, for preſerving them freſh until you ſhall uſe them.

Here you are to obſerve, with Mr. *Mortimer*, that a Graft cut ſome time before, and ſtuck in the Ground, then grafted at the Riſing up of the Sap, takes better than thoſe that are grafted as ſoon as cut.

As to the Succeſs of Grafting, the main Point is to join the Inſide of the Bark of the Cion and the Inſide of the Bark of the Stock together, that ſo the Sap that runs between the Bark and the Wood may be communicated from the one to the other, eſpecially towards the Bottom of the Cion. Chooſe the ſtreighteſt and ſmootheſt Part of the Stock for the Place where you intend to graft, but if the Stock be all knotty or crooked, rectifie it with the fitteſt Poſture of the Graft you can; and if ſmall, graft it about ſix Inches above the Ground; but if large, and where Cattle come, it is beſt to place it above their Reach; in which Way there is a great Advantage to ſome Sort of Apples, in that it cauſes them to partake more of the Sap of the Crab, which makes the Fruit of a ſharp briſk Taſte, and much helps ſweet Apples, and in particular the Golden-Pippins. If the Stock be remov'd, it ſhould ſtand at leaſt three Years before it is grafted, except it makes very large Shoots the Second Year.

Let the Cions be grafted on the South-weſt Side of the Stock, becauſe that is the moſt boiſterous Wind in Summer, whereby the Wind will blow it to the Stock, and not from it, which is the Way that the Graft will beſt bear its Force: But as to this, the Shelter that the Grafts have in their Standing is chiefly to be regarded. See that the Rain get not into the Cleft of the young grafted Stocks, but keep them clay'd till the Bark is grown over them, and leave not the Grafts above four or five Inches in Length above the Stock.

Only the *Gennet-Moil* is commonly propagated by cutting off the Branch a little below a Bur-knot, and ſetting it without any more Ceremony; but if they are grafted firſt as they grow on the Tree, and when they have cover'd the Head, are cut off below the Bur, and ſet, it is much the beſt Way; only in the Separation you ſhould cut a little below the Bur, and peel off or prick the Bark almoſt to the Knot. And thus if the Branch have more Knots than one, you may graft and cut off yearly till within half a Foot of the Stem, which you may graft likewiſe, and ſo let it ſtand.

To do this well, it is neceſſary to be provided with a good ſtrong Knife, with a thick Back, to cleave the Stocks with; a neat ſmall Hand-Saw, to cut off the Head of the large Stocks; a little Mallet, and a Grafting-Chiſel, and a ſharp Pen-knife to cut the Grafts. You muſt likewiſe have a Stock of Clay, well mixed with Horſe-dung, to prevent its freezing, and with Tanners Hair to prevent its cracking, Baſs-Strings or Wollen-Yarn to tie Grafts with, and a ſmall Hand-Baſket to carry them in, with ſuch other Inſtruments and Materials as you judge neceſſary, according to the Way and Manner of Grafting that you deſign to uſe.

The Time and Manner of Grafting.] The beſt time to graft is in *February* and *March*: but forward Fruits may be grafted in *January*; and ſome backward Fruits in the Beginning of *April*, provided the Spring be not too forward; for the Temperature of the Seaſon doth very much conduce to the Growth or Proof of the Graft, as mild Weather in *December* or *January* may be better than froſty Weather in *February*; and indeed ſuch kind of Weather is not fit to graft in.

Grafts of any Kind being cut before they begin to ſpring, may be kept many Days, and carry'd a good Diſtance, being bound up in Bundles in Moſs, and the Ends wrapt up in Clay, or ſtuck in a Turnip; and altho' they are a little wither'd, yet they will prove not the worſe.

Having your Stock or Grafts in Readineſs, as alſo all your Tools and Materials, as the Pruning-Knife, Pen-Knife, a fine Saw, a Mallet, and a Wedge; alſo Ruſhes, ſtrong ſoft Flags, or Woollen-Yarn, to bind the Graft and Stock together; and Clay well tempered with Horſe-dung, to keep it from chopping in dry Weather, or ſoft Wax for ſmaller Trees, you may proceed to your Work, which may be perform'd ſeveral Ways.

The firſt and moſt uſeful is grafting in the Cleft, eſpecially for the middle-ſized Stocks, and after this Manner: Firſt ſaw off the Head of the Stock in a ſmooth Place, which for Wall and Dwarf-Trees ſhould be within four Fingers of the Ground, and for Standards much higher according to the Growth of the Stock; then pare away with your Knife the Roughneſs that the Saw hath left on the Head of the Stock; which done, cleave the Head a little beſides the Pith, and put therein a long Wedge of hard Wood to keep the Cleft open; which cut ſmooth with the Point of your Knife, that the Sides may be even; then cut the Graft on both Sides from ſome Knot or Bud, in form of a Wedge, in Length proportionable to the Cleft with Shoulderings; which Graft being ſo cut, place exactly in the Cleft, that the inward Bark of the Cion may cloſly join to the inward Part of the Rind or Bark of the Stock, in which lies the principal Skill of the Grafter; then draw out the Wedge: But if the Stock pinch hard, leſt it ſhould endanger the dividing the Rind of the Graft from the Wood to the ſpoiling the Graft, let the inward Side of the Graft that is within the Wood of the Stock be left thicker, that ſo the woody Part of the Graft may bear the Streſs; or there may be a ſmall Wedge left, to keep it from pinching the Graft too hard; and likewiſe leave the Outſide of the Graft a little thicker; and in this Buſineſs great Care is require. The Graft being thus fixed into the Stock, your next and beſt Buſineſs is to cover the Head of the Stock with the temper'd Clay, or ſoft Wax for the ſmall Grafts, and leave not the Grafts too long.

There is another Way of Grafting much like the former, which is Grafting in the Bark or Rind of the greater Stocks, and differs only in this, that where you cleave the Stocks, and faſten the Grafts within the Cleft in the other Way, here with a ſmall Wedge, made of Ivory, Box, or ſome hard Wood cut taperwiſe, with a thin Point you force into the Stock between the Rind and the Wood, after the Head thereof is ſawn off, and the Roughneſs pared away. Then take the Graft, and at the Shoulder, or groſſeſt part thereof, cut it round with your ſmall Grafting-Knife, and take off the Rind wholly downwards, preſerving as much of the inward Rind as you can; then cut the Wood of the Graft about an Inch in Length, and take away Half thereof to the Pith, and the other Half taper it away, and ſet it in the Place you made with your Wedge, between the Bark of the Stock and the Wood, that the Shouldring of the Graft may join cloſe to the Bark or Rind of the Stock, and then cover it with Clay, as before directed. This way is beſt to be uſed when the Stock is too big to be cleft, and where the Bark or Rind is thick: And here you may ſet into one Stock many Grafts, and that of ſeveral Sorts, if you ſo think fit.

Your great Care muſt be to keep the Top of the Stocks cloſe covered for ſome time, until the Bark it ſelf hath covered it; for otherwiſe the Rain will hurt the Stock. And do not leave the Grafts above four or five Inches above the Stocks; for if too long, they draw more feeble, and are more expoſed to the Injuries of the Weather, neither do they proſper ſo well. And obſerve to graft your Cions on the Side of the Stock that may receive leaſt Damage from the South-weſt Wind, ſo that it may blow into the Stock, and not from it.

There is another way of Grafting, called *Shoulder*, or *Whip-Grafting*, fit only for ſmall Stocks, and to be perform'd ſomewhat later than the former; and this may be done two ſeveral Ways, firſt by cutting off the Head of the Stock, and ſmooth it as in Cleft-grafting; then cut the Graft from a Knot or Bud on one Side ſloping, about one Inch and a half long, with a Shouldering ſmooth and even, ſloping by degrees, that the lower End may be left thin; place the Shouldering of the Graft upon the Head of the Stock, and mark the Length of the cut Part of the Graft, and with your Knife cut away ſo much of the Bark as the cut Side of the Graft did cover, but touch not the Wood of the Stock; then place both together, that their Saps may exactly join; then bind them together with your Ruſhes, Flags, or Yarn, and cover the Heads over with Clay, as afore directed.

The other Way of *Whip-Grafting* is, where the Grafts and Stocks are of an equal Size, the Stock muſt be cut ſloping upwards from the one Side to the other; and the Graft after the ſame manner from the Shoulder downwards, that the Graft may exactly join with the Stock in every Part: Which done, bind them about with your Flags and Ruſhes, and put Clay about them, as aforeſaid.

This Way of *Whip-Grafting* is eſteem'd better than Grafting in the Cleft, and for theſe Reaſons, 1. This Way requires ſmaller Stocks. 2. It is leſs injurious to the Stock and Graft. 3. The Wound is ſooner healed, and is better defended from the Injuries of the Weather; and, 4. It is more eaſie to learn, and to be perform'd.

There is another Way of Grafting, called *Grafting by Approach*, or *Ablactation*; and this is done in *April*, ſooner or later, according to the State of the Spring. It is to be perform'd where the Stock you intend to graft on, and the Tree from which you take your Graft or Cion, ſtand ſo near together, that they may be conjoin'd; then take the Sprig or Branch you intend to graft, and pare away about three Inches in Length of the Rind and Wood near the Pith; cut alſo the Stock or Branch on which you intend to graft after the ſame Manner, that they may join exactly together, and that the Sap may meet; and ſo bind them about, and cover them with Clay, as aforeſaid.

So ſoon as you perceive the Graft and Stock to unite and incorporate together, cut off the Head of the Stock hitherto left on, about four Inches above the Binding; and in *March* following the remaining Stub alſo, together with the Graft or Cion underneath, cloſe to the grafted Place, that it may only ſubſiſt by the Stock.

Some uſe to cut off the Head of the Stock at firſt, then join the Cion thereunto, after the manner of *Shoulder-Grafting*, differing only in not ſevering the Cion from its own Stock: Both Ways are good, but the firſt moſt ſucceſsful.

This Manner of Grafting is chiefly uſed in ſuch nice and tender Plants, as are not apt to take any other Way, as, Lemmons, Oranges, Pomegranates, Vines, Jeſſamines, and the like.

You muſt remember, that thoſe Grafts that are bound, you muſt unbind about Midſummer, otherwiſe the Band will injure them.

Root-Grafting is perform'd thus: Take a Graft or Sprig of a Tree you deſign to propagate, and a ſmall Piece of the Root of another Tree of the ſame Kind, or very near it, and whip-graft them together, and bind them well, and plant it where you intend it ſhall ſtand, or elſe in your Nurſery; which Piece of Root will draw Sap, and feed the Graft, as doth the Stock after the other Ways.

Be ſure to untie the two But-ends of the Graft and the Root, and that the Rind of the Root join to the Rind of the Graff. By this means the Roots of one Crab or Apple-ſtock may ſerve for twenty or thirty Apple-Grafts. In like manner you may do for Cherries, Pears, or Plums.

And thus you may raiſe a Nurſery of Fruit-Trees, inſtead of Stocks; and it is eſteem'd better for the raiſing of tender Trees, that will hardly endure the Grafting in the Stock; for here they are not expoſed to the Injury of the Sun, Wind, or Rain: Alſo Trees thus grafted will bear ſooner, and the better for Dwarf-Trees.

The only Objection againſt *Root-Grafting* is, That the young Trees grow ſlowly at firſt, which is occaſion'd by the Smallneſs of the Root that feeds the Graft; yet it is eaſily perform'd, Roots being more plentiful than Stocks, and may be done in great Quantities in a little time within Doors, and then planted very eaſily with a ſlender Dibble in your Nurſery, and will in time ſufficiently recompence your Pains. Grafts may be carried with a little Care either by Sea or Land, and will keep good from *October* to *March*, provided they are buried in Earth, and kept moiſt, though without any thing put to them. They will keep a great while, ſo that Mr. *Mortimer* ſays, he himſelf had ſome Pear-Grafts which grew well, that were ſent from *Paris:* Only if you find them any thing dry, lay them, as ſoon as you receive them, in Water twenty four Hours, and afterwards in moiſt Earth; or ſtick the large Ends of them in Clay, tying a Rag about 'em to keep them from falling off, and to wrap the other End in Hay or Straw-Bands, which will ſecure them from the Wind and Bruiſes, and is a good Way for tranſporting them.

Of Inoculating, or Budding.

THis Way of Inoculating, or Budding, is by many preferr'd before Grafting, by which means ſeveral Sorts of delicate Fruits are propagated and meliorated, which cannot be done by Grafting in the Root; as the Peach, Apricock and Nectarine rarely thrive any other way than this, becauſe few Stocks can feed the Graft with Sap ſo early in the Spring as the Graft requires; but being rightly inoculated in the Fulneſs of the Sap, ſeldom fails.

The Stocks to inoculate on are to be the ſame Kinds as directed to graft on; but the Peach takes beſt on its own Kind, and the Nectarine on a Peach-ſtock.

The beſt Time for this Buſineſs is from *Midſummer* to *Mid-July*, when the Sap is ſtrongeſt in the Stock, and Bark eaſieſt to be raiſed; and 'tis beſt to be done in a dry Seaſon, and in the Evening; for Rain is very pernicious to the Buds: Alſo the Buds muſt not be too young nor tender, but ſufficiently grown. Thoſe of the Apricock are the ſooneſt ready, and muſt be taken from ſtrong and well-grown Shoots of the ſame Year.

The Tools or Inſtruments required in this curious Art are, the ſharp pointed Pen-knife, a Quill cut half away, and made ſharp and ſmooth at the End, to divide the Bud and Rind from the Stalk; and Woollen-Yarn, Flags, or the like, to bind them withal.

Having your Inſtruments and Buds in Readineſs, you may proceed to your Work after this manner: On ſome part of the Stock, either near, or further from, the Ground, according as you intend it, either for a Wall, Dwarf-Tree, or Standard, and from the Middle thereof gently ſlit the Bark or Rind about an Inch long, in Form of a *T*, not wounding the Stock; then nimbly prepare the Bud, by cutting off the Leaf, and leave only the Tail, about half an Inch from the Bud; then ſlit the Bark on each ſide the Bud, a little Diſtance from the Bud, and take away the Bark above and below the Bud, like a Shield, that it may the more eaſily go down, and unite between the Bark and the Stock; then with your Quill dexterouſly take off the Bark and Bud, that you leave not the Root behind; for if you ſee a Hole under the Bud on the Inſide, the Root is gone; caſt it away, and prepare another. When your Bud is ready, raiſe the Bark of the Stock on each Side in the Slit, (preſerving as carefully as you can the inner thin Rind of the Stock) put in with Care the Bud between the Bark and the Stock, thruſting it down until the Top join to the croſs Cut; then bind it cloſe with your Yarn or Flags, but not on the Bud it ſelf.

There is another Way of *Inoculating*, which is more eaſie and ſucceſsful than the former, from which it differs only that the Bark is ſlit upwards from the croſs Cut, and the Bud put upwards, leaving the lower End longer than may ſerve; and when it is in its Place, cut off that which is ſuperfluous, and join the Bark of the Bud to the Bark of the Stock, and bind it as before directed.

There is alſo another Way, which is to cut the Edges of the Bark about the Bud-Square, and cut the Bark of the Stock fit to receive it, binding it faſt, and this is a ſure and eaſie Way.

About three Weeks or a Month after Inoculating, unbind the Buds, and in the unbinding them you may ſee which are good by their lively Appearance. In *March* following cut off the Stock about three Fingers above the Bud, and the next Year cut it cloſe, that the Bud may cover the Stock, as Grafts uſually do.

The Ways and Methods uſed for raiſing Fruit-Trees.

THE *Apple* deſerves the Preheminence, both upon the Account of its Univerſality and Uſefulneſs, and becauſe it may be had at all times of the Year. They are commonly raiſed by Grafting upon the Crab: They take beſt when grafted in the Cleft or Bark, except the Gennet-Moyle, which will grow of Burs; and the *Codlin* may be raiſed of Suckers or Slips, though indeed moſt of our beſt Fruit has been produced from the Kernel; but it being very rare that any can be raiſed this way, moſt Kernels producing Fruit of a wild auſtere ſharp Taſte, tending rather to the Wildneſs of the Stock on which the Tree was grafted, than that of the Graft; though many of them may ſeem fair, yet they want that Briſkneſs of Spirit, and are more woody than the grafted Fruit, being alſo much longer before they bear, and are more unfruitful; for the often grafting of Trees upon the ſame Kind is eſteem'd a meliorating of them.

Pears would be much more uſeful than they are, were ſuch Care taken to improve the Juice of them as might be. In one Thing they are to be preferr'd, that they proſper in cold, moiſt, hungry, ſtony, and gravelly Land, where Apples will not bear ſo well. They are beſt grafted the ſame Way as the Apple, and upon wild Pear-ſtocks, raiſed of their Kernels for Standards; but for Dwarf or Wall-Trees the Quince-ſtock is beſt, if planted in moiſt Ground. They will grow likewiſe when grafted on the White Thorn; they may alſo be budded on their own Kind.

Cherries are of ſeveral Sorts, and do beſt grafted on the black Cherry-ſtock, or the Merry-ſtock, which may be raiſed in great Quantities from Cherry-ſtones; Suckers alſo from the Roots of the wild or red Cherry will do well, being commonly grafted about a Yard from the Ground by Whip-grafting: They may likewiſe be budded or inoculated on their own Kind.

Plums are commonly Cleft-grafted on any Stocks of their own Kind, except the Damaſcen; but the beſt Sort to graft on is the Pear-Plum, though they have often proved well, raiſed only from the Stones, eſpecially Damaſcens.

Medlars may be cleft, or ſtock-grafted on the White-Thorn; but prove beſt on the Pear or Quince-ſtock.

Filberts may be cleft-grafted on the common Nut, and *Serviſes* on their own kind, or propagated by Suckers, Layers or Seeds.

Quinces are cleft-grafted on their own kind, or raiſed of Slips or Layers, and of Cuttings; they delight in a moiſt Soil.

Apricocks are uſually inoculated in Plum-Stocks, raiſed either from Suckers that have not been grafted before, or Stones; thoſe of the White Pear-Plum are the beſt, and thoſe of any other great White or Red Plum that hath large Leaves and Shoots are very good for the budding of Apricocks or Peaches. Apricocks do well alſo in Standards.

Peaches of ſeveral Sorts, are raiſed the ſame way with Apricocks, and delight in the ſame Soil. *Nectarines* delight in the ſame Soil as Apricocks and Peaches; they are raiſed by Inoculation, the beſt Stock for which is that raiſed of the Peach-ſtone. *Figs* are multiply'd of Suckers, and delight in a warm moiſt Soil.

Orange and *Lemmon Trees* are raiſed by ſowing their Seeds in Boxes, and when two Years old tranſplant them in Caſes, every one by it ſelf filled with rich Melon-bed Mould mingled with Loam, refined and matured by one Winter Seaſon; and when they can well ſupport it, you may either inoculate or graft them by approach in the Spring. Secure them carefully from Cold, and commit them early to their Shelter; you may give them a gentle Stow, and attemper the Air with a Fire of Charcoal during the extream Rigour of the Winter, in caſe you ſuſpect the Froſt has at all invaded them. But as ſoon as the Spring appears, and the Froſt's gone, acquaint them with the Air by degrees. As theſe Trees grow big you may change and enlarge their Caſes, but be ſure to take them out Earth and all, raiſing the ſtringy and fibrous Roots a little with a Knife before you replace them. Some when they alter their Caſes denude them of all the Earth, conceiving it exhauſted and inſipid, but it is to the extream prejudice of the Tree.

You may gather the Flowers every Day to prevent their knotting into Fruit, ſparing only ſome of the faireſt and beſt placed for Fruit, and as many as you conceive the Tree can well nouriſh. Spiders extreamly affect to ſpread their Toiles among the Branches and Leaves of this Tree; to remedy this, uſe ſuch a Bruſh as is made to cleanſe Pictures with from Duſt, but treat them tenderly.

Mr. *Hartlib* condemns us much for neglecting the Propagation of *Almond-Trees*, which, he ſays, grow very well and bear good Fruit, he having ſeen divers Buſhels on one Tree in his Brother's Orchard; they grow large and upright, and need not the help of a Wall. The *Almonds* are in ſome ſweet, and in others a little bitter. They are raiſed by ſetting of the Nut in the Shell in the Month of *October*.

Of Tranſplanting and Fencing of Trees. The beſt Seaſon to tranſplant and ſet Trees is from Mid *October* to the End of *January*, if the Weather be open; and if the Spring is not too forward in *February*.

In taking them up out of your Nurſery be careful that the Roots be not cut, or broken, eſpecially the Spreading Roots, and let the Roots be left longer than the Heads, and the more ways they ſpread, the better; but ſuch Roots as run downwards may be taken off; likewiſe the Ends of thoſe that you find too long, as alſo moſt of the ſmall Threads where they grow too thick: You muſt likewiſe prune as well the Branches as the Roots.

The Ground being prepared where the Trees are to be ſet, raiſe a ſmall Hill in the Center of each Hole, which ſhould be wide made, and thereon ſet the Tree, opening and ſpreading the Roots round about it, and cover them with the beſt Earth, and ſhake the Tree, that the Roots lie not hollow, treading it down to faſten them.

Plant not too deep, eſpecially in ſuch Ground that is clayiſh, over-moiſt or ſpewy; as alſo Gravelly, or Chalky; but as near the ſurface as you can, or above it, raiſing the Earth about the Tree; which way Sir *Joſias Child* of *Wanſtead* in *Eſſex*, a great Planter, has obſerved (to the admiration of Beholders) his Ground lying upon a Gravel; for if Trees are too deep planted, they generally pine away.

It is very neceſſary to be obſerved that the Ground where you plant your Trees ſhould be of a richer, and higher Mould than the Nurſery from whence you take them; otherwiſe they will not thrive ſo well. It is alſo a great check to take them out of a warm Nurſery and tranſplant them in an open wide Field free from ſhelter.

As near as you can, chooſe young thriving Trees, rather than thoſe that are large, for an Orchard of ſuch young ones will ſoon overtake one planted with larger Trees at the ſame time.

The Mode of planting is now upon a Square, ſo that you have a Row, look which way you will; and for diſtance thirty or forty Foot is very well, for then you may make ſome benefit of the under Ground, either by Graſs or Tillage. Likewiſe the Trees will have more benefit of the Sun and Air than when planted too near or irregular, and by conſequence will thrive the better, and the Fruit will be the fairer and better taſted.

You may ſet your Apple-Trees at thirty Foot diſtance, and between every Tree ſet a Cherry-Tree, which Method is now much uſed; for by the time that the Apple-Trees will ſpread to require the Place of the Cherry-Trees, the Cherry Trees will have done bearing, which will be in about Twenty Years time; and then they may be cut down and grubbed up, ſo that you have then a fine Apple-Orchard. And be ſure let the Rows be of one intire ſort of Fruit and not mixed, which is very convenient for the gathering the Fruit, and laying them together in Sorts.

PEARS are to be ſet as Apple-Trees, with a Cherry betwixt; But for Plums they may be ſet in the Angles of the Ground, or in Hedge-rows.

FILBERTS are beſt to be ſet to make a Walk, the like may Walnuts; and Codlins are ſet at a cloſer diſtance, being good to make Hedge-rows.

WALL-FRUIT are to be planted at ſuch a diſtance as the Height of the Wall, and the Nature of the Fruit requires; for the higher the Wall the nearer together, and the lower the farther, that they may have room to ſpread in breadth, which they want in height.

But ſome taking occaſion to find fault with the common ſort of Walls for Fruits, Mr. *Mortimer* recommends the Propoſal made by Mr. *Fatio* for ſloping

Walls, which break the Wind, reflect the Sun-beams from one Wall to another, and muſt be of great advantage for the ripening of Fruit in our cold Climate; to which he adds an accidental Experiment made by a Friend of his, who had a Wall, the Foundation of which being bad obliged him on the planted ſide, between each Tree, to make Buttereſſes of about a Yard from the Wall, which cauſed his Fruit to ripen much ſooner than it did before: his Wall ſtood a little facing to the *Eaſtward* of the *South*.

The great Point to be taken care of about Fruit-Trees, is the Unfruitfulneſs of them, which Inconveniency proceeds,

Firſt, From Blaſts by Winds, as many times from the *Eaſt-wind* in the Spring, which after Rain, when the Bloſſoms are wet, and bringing Froſts with it, ſhrivels up the Leaves of the Bloſſoms and ſpoils them. If a *Weſt-wind* ſucceeds it commonly brings Caterpillars; the beſt Remedies againſt which are good Shelter, to prevent Froſts; and the burning of Straw, Hawm, *&c.* to kill the other; but a great means to have Fruit all Years, is to have the Conveniency of different Situations, that ſo when a Blaſt comes by one Wind, you may have another under ſhelter from it.

Secondly, Want of Rain juſt at Bloſſoming-time often occaſions the dropping off of the Bloſſoms for want of Sap to nouriſh them, eſpecially in dry Grounds; they ſhould keep their Trees watered at Bloſſoming-time.

Thirdly, The not ſuiting your Fruit and Soil together.

Fourthly, The Barrenneſs of the Soil they are planted on, for it's as neceſſary to dung Orchards as Plough'd Lands, that ſo the Dung may waſh to the Roots of the Trees to nouriſh them: 'Tis certain that for Fruit-trees no Dung is ſo good as Hogs-dung.

Fifthly, Moſs is very prejudicial to the Bearing of Fruit-trees; being commonly occaſioned by the Coldneſs of the Land the Trees grow on, whether it is wet or dry, or their being planted too deep; and if it proceed from the Coldneſs of the Land, lay Sea-coal-aſhes, Horſe-dung, *&c.* If from Moiſture, drain the Land well; but if from deep Planting, if they are ſmall, the beſt way in very moiſt Weather is to draw them up higher; but if too large, there is no remedy but replanting them, or to plant new in their Places. In *Staffordſhire*, they burn off the Moſs of their Trees about *December* with a wiſp of Straw; but the common way is, to rub it off of young Trees with a Hair-cloth, or to ſcrape it off with a wooden Inſtrument that may not hurt the Bark. But as Moſs is ſometimes cauſed from the want of Sap, which is the reaſon that old Trees are commonly more moſſy than young, it is good to lop off ſeveral of the Branches of ſuch, which will make them proſper the better, and be leſs moſſy; eſpecially where Trees are moſſy that grow on dry Ground.

Sixthly, Many Trees run altogether to Wood and Branches, and ſeldom bear any Fruit; to remedy which ſome propoſe hacking the Tree, or to cut Croſſes or other Stroaks upon the Bark to give ſome check to the Sap; others, to bore a Hole through the Body of it. The ſame reaſon may be for cleaving the Roots, putting Stones or Wedges in them; for Trees blown aſide by the Wind, or ſome other Accident, uſually bear great Quantities, and ſometimes more than when they ſtood firm and upright.

Seventhly, It is good to have Variety of Fruit in an Orchard, becauſe ſome Apples and Pears that bear in one Year will not do ſo in another.

Eighthly, Plant ſuch Fruit as will hang on the Trees till ripe, there being many Sorts that will ſhake off almoſt with any Wind; upon which account it is good always to have the S. W. ſide of the Orchard well ſhelter'd with high Trees.

As to the Fencing of Trees, Mr. *Evelyn* ſays, that ſingle Trees uſe to be done by Rails at great Charges, or by Hedges and Buſhes; but Mr. *Mortimer* recommends this Form of Planting and Fencing, which is more cheap and eaſie, and hath other Advantages in it not commonly known.

Set your Tree on the green Swarth, or rather five or ſix Inches under it, if the Soil be very healthy; if moiſt or weeping half a Foot above it: then cut a Trench round that Tree two Foot or more clear from it. Lay a rank of the Turfs, with the Graſs outward, on the inner-ſide of the Trench toward the Plant, and then a ſecond upon your former, and ſo a third and fourth, all orderly placed (as in a Fortification) and leaning towards the Tree after the form of a Pyramid or larger Hop-hill: Always as you place a Row of Turfs in compaſs, fill up the inner part of the Circle with the looſe Earth of the ſecond Spit which you dig out of the Trench, and which is to be two Foot and half wide, or more, as you deſign to mount the Hillock; that by this means you will have raiſed about your Plant near three Foot. At the Point it needs not be above two Foot or eighteen Inches diameter, where you may leave the Earth in form of a Diſh, to convey the Rain towards the Body of the Tree, and upon the Top of this Hillock prick up five or ſix ſmall Briars or Thorns, binding them lightly to the Body of the Plant, and ſo you have finiſhed the Work.

The Conveniencies of this kind of Planting, are, 1. That neither Swine, nor Sheep, nor any other ſort of Cattle can annoy your Trees. 2. You may adventure to ſet the ſmaller Plants, being thus raiſed and ſecured from the Reach of the Cattle. 3. The Trees are faſtned in the Hillock againſt the Violence of Winds without Stakes to fret and canker them. 4. If the Soil be wet, it is hereby made healthy. 5. If very dry, the Hillock defends them from the outward Heat. 6. It prevents the Couch-graſs, which for the firſt Years inſenſibly robs moſt Plants in ſandy Grounds, apt to Graze. And laſtly, The grazing Bank will recompence the niggardly Farmer for the waſt of his Ditch. In the ſecond or third Year, the Trench, if the Ground be moiſt or Seaſon wet, will be near filled up again by the treading of Cattel, for it needs not be cleanſed; but then you muſt renew your Thorns: Yet if the Planter be curious, he will caſt ſome ſmall Quantity of rich Mould into the Bottom of the Trench the ſecond Year, which may improve the Growth, and invite the Roots to ſpread.

In this manner of Planting where the Soil is not rich, the exact Planter ſhould add a little Quantity to each Root of Earth from a frequented High-way or Yard where Cattle are kept. One Load will ſuffice for ſix or ſeven Trees, this being much more proper than rotten Soil or looſe Earth, the fat Mould beſt agreeing with the Apple-Tree. The broader and deeper the Ditch, the higher will be the Bank, and the ſecurer the Fence, but then ſome good Earth muſt be added in the ſecond Year, as before.

He ſubjoins, that only Trees of an upright Growth be thus planted in open Grounds, becauſe ſpreading Trees will be ſtill within reach of Cattel as they encreaſe. Nor has he met with any Inconvenience in this kind of Tranſplanting, but that the Mole and the Ant may find ready Entertainment the firſt Year, and ſometimes impair a weak rooted Plant, otherwiſe it rarely miſcarries.

Of Pruning, Plaſhing, and Ordering of Trees. It is found by Experience, that the Pruning of Trees, and taking away their dead and unneceſſary Branches, doth much better their Growth.

If you would not have the Grafts and Twigs to mount up too high, you may pinch off their tender Tops, which will cauſe them to put forth ſide Branches.

In *March* is the beſt time to take away the ſmall and ſuperfluous Branches, giving them a Lance cloſe behind the Bud, which is much to be obſerved in Pruning.

The old Trees may be Pruned in *October*, and *November*; and thence forward until the riſing of the Sap.

Wall-Trees are to be pruned in Summer, taking away thoſe ſuperfluous Shoots of the ſame Year's growth, that hinder the ripening of the Fruit; and in the Winter after the Fall of the Leaf you may prune and take away the Reſidue of the Branches that are unneceſſary, placing thoſe that are fit to remain in order.

Some are of Opinion that the beſt Time for this Buſineſs, and to nail the Boughs to the Wall, is in *February*, after the great Froſts are paſt, except *Peaches* and *Nectarines*, which muſt be pruned when the Buds begin to put forth; for if ſooner, it will endanger the killing them.

In Pruning of Trees (eſpecially Wall-Trees) be ſure to leave the ſmall Twigs that are ſhort and knitted to bloſſom the ſucceeding Year; for if you obſerve ſuch Twigs have the moſt Fruit, being uſually of two Years Growth. But cut off all groſs Shoots that will not be eaſily brought to the Wall.

In pruning the *Vine* leave ſome new Branches every Year, and take away (if too many) ſome of the old, which will much further its bearing; And when you cut your Vine, leave two Knots, and cut at the next Interval; for uſually the two Buds yield a Bunch of Grapes, and when (through Ignorance) they are cloſe cut, as for Beauty ſake, they commonly bear few or no Grapes.

The Pruning of Trees doth much depend on the Diſcretion of the Perſon, who is to conſider the Growth of every Tree; and what may moſt conveniently be taken away without leaving the Walls bare.

Divers neceſſary things to be obſerved about Fruit-Trees.

THE Roots of ſuch Trees that thrive not, nor bear well, may be laid open about *November*; and if the Ground be poor in the Spring, lay thereto good fat Mould; but if the Ground be too rich, ſo that the Tree ſpends it ſelf in Leaves and Branches, and bears but little Fruit; then put to the Roots, Lime, Aſhes, or any Manure that is hot, ſalt and dry, being mixed with the Earth.

Digging about the Roots of the Trees, adds much to their Fertility, and prevents Moſs.

Stones laid in Heaps about the Roots, preſerve them cool and moiſt in Summer, and warm in Winter; and cauſe great Fertility.

If your Orchard is not naturally warm Seated, and defended from Winds by Woods, Hills, or the like; I would adviſe you when firſt you plant your Orchard, to raiſe about it a good White-Thorn Hedge, which in a few Years will be a good Shelter. Alſo at ſome diſtance beyond the Hedge plant a Row of Wal-nut, Cheſnut, Poplar or Lime-Trees, which growing higher than the Hedge, will the better break off the Wind; But plant the Trees at ſuch a diſtance from the Hedge, that the Droppings of the Leaves may not fall upon it, which will ſpoil its growing.

If a Tree be Bark-bound, and doth not thrive, ſlit the Bark down the Body of the Tree with your Knife in *April* or *May*, which will cure it.

If the Cleft where the Tree was Grafted, or any other wounded place be neglected, the Rain is apt to engender the Canker, which is hard to cure, if far gone; and if cutting off the Cankered Branches will not do (it being ſo much infected) the beſt way is to cut it down for the Fire, and plant another in its Room.

In Dunging of Fruit-Trees, the Soil ſhould be laid not cloſe to the Body, but at ſome diſtance where the Roots run; and ſtrong and hot Dung is not ſo good, as that well rotted and cold, eſpecially for hot Grounds, but the Soil of the Streets is far better.

For cauſing old decayed Trees to bear well again, about the End of *October*, or Beginning of *November*, prune the Trees from their decayed, bruiſed and ſuperfluous Branches; alſo ſcrape off the Moſs, which is as bad as Ivy is to the Oak; then dig the Earth about the Trees at leaſt a Yard round, and about a Spit deep; and let it lie open all the Winter until Mid *March*, then give the Trees a good Watering, at leaſt a Barrel to a Tree; then lay on ſome good rotten Dung, and cover it over with the Earth, then about the End of *May* give each Tree the like Watering, and this will cauſe them to bear to Admiration.

To prevent the Bliteing of Fruit, when you find there is an Eaſterly, or a Northeaſterly Wind, take three or four Armfuls of Muſty Straw, or Fern, and that Side of the Orchard that the Wind blows on, lay the ſaid ſtuff in three or four places, according to the bigneſs of the Orchard, and ſo ſet Fire to it; and the Wind will drive the Smoak and Smother through all the Trees; and thus do every Day ſo long as the Wind continues in that quarter; and it will prevent all Blites, and all manner of Flies and Caterpillers that theſe Winds bring.

Orchards that lie low, and near Rivers, have their Fruit wateriſh, puffy, and ſubject to periſh; to prevent which, in *October* or *November* lay open the Roots of the Trees about a Yard and a half in compaſs, and at leaſt a Spit deep; then fill up the Place with Chalk, and let it lie open all the Winter for the Froſt to chaſten it, and to incorporate the better with the Earth; and about the End of *March* throw the Earth upon the Chalk, and give each Tree a good Watering, and your Fruit will be of another Taſte for goodneſs; and will alſo be firm, and laſt as long as if grown on higher Ground.

Our Author being otherwiſe ſilent as to the manner of Cultivating Ground for an Orchard, we are thus inform'd by Mr. *Mortimer*, who ſays, that the natural Soil of an Orchard is more to be regarded than that of a Garden, becauſe the Garden-product roots but ſhallow, and ſo may eaſily be manured to the depth that is required; but Fruit-trees growing large and rooting deep, ought to have a deep and rich Soil where conveniency will allow of it. And if the Land to be planted be a Turf or Green-ſward, plough it two Years before you ſet the Trees, to mellow and looſen it; and the deeper you plough the better, and if you lay Dung or Manure on it, the ploughing will mix it the better with the natural Soil, and it will be better to dig if you deſign to ſet Beans, Peaſe or other Commodities with your Trees, which is the beſt way of advancing the Growth of them; you muſt take care they be not too near together, and that no ſort of Plants be near them, which may deprive them of their Nouriſhment, or any way hinder thoſe refreſhings and helps that they might otherwiſe receive by the Rain or Dew.

Keep the Earth about the Trees always light and clean, and often cultivated. Earth that is hot and dry muſt be dug or tilled in Summer, either a little before or whilſt it Rains, or ſoon after; at which time you can neither till it too often nor too deep; but cold ſtrong and moiſt Earth is beſt to be tilled in dry Weather, only there are ſome Grounds that will not work till Rain comes.

He proceeds and ſays, the frequent ſtirring of the Earth prevents its Goodneſs from being waſted by the

Growth and Nouriſhment of ill Plants; but that ſuch ſtirrings are not enough without pulling the Weeds up: But that at the time that the Trees bloſſom and the Vines ſhoot, the Earth is not to be meddled with.

That to dry Earth a large Culture or Tillage may be allowed the Beginning of Winter, and the like, as ſoon as it is paſt, that the Snow and Rain of the Winter and Spring may eaſily ſink into it; but that to ſtrong and moiſt Earth a ſmall Tillage in *October* only, to remove the Weeds, is beſt, and to give a large Tillage in Spring when the greateſt Rains are over.

But that if an Orchard is ſituated in a ſandy or dry Ground, you are to endeavour by the help of ſome Gutters to carry off all the Water that falls in haſty Showers to thoſe Places that are manured, but that if your Soil is ſtrong and fat, drain it off from the Orchard as much as you can. And if the Land lie flat, that Wet is apt to ſtand upon it, or if 'tis a ſhallow Soil, you may ſomething help it in ploughing, by gathering the Land always up in and near the place where you intend the Rows of Trees ſhall afterwards ſtand. You are deſired to take Notice that Rain-water ſinking not ſo deep into Land as Snow, it's a good way in moiſt Land to remove the Snow as much as you can from about the Trees.

Of Gathering Fruit. Having ſaid ſo much already concerning Fruit-trees, what remains is only to conſider the Methods to be uſed in Gathering, Tranſporting and Keeping of it. As to the firſt, care muſt be taken to do it without bruiſing, eſpecially of ſuch as you deſign to keep, and that when they are arrived at their due Maturity, at which time they are not only beſt for eating, but keeping too. Fruit ripens ſooner or later according as the Sort is, and the Seaſon of the Year falls out, or as they are ſituated and ſheltered, and as the Soil is either hot or cold. But the beſt time for gathering of Winter-Fruit, is about *Michaelmas* after the firſt Autumn-Rains come, when the Tree being ſobbed and wet ſwells the Wood and looſens the Fruit: Or when the Froſts advertiſe you that 'tis time to lay them up, beginning to gather the ſofteſt Fruit firſt, but mind never to gather Fruit in wet Weather.

For the Tranſportation of Fruit, or the carrying of it to Market, *&c.* Apricots, Peaches, Figs, Strawberries, Cherries, Raſberries, and the like, require Water-carriage or to be carried on Men's Backs; but for Peaches or Apricots, they ſhould be laid upon that part that the Stalks grow out of without touching one another, and to be laid upon a Bed of Moſs, Fern or Leaves, or to be wrapped up in Vine Leaves. And in Caſe ſeveral Beds be laid one upon another, a good Quantity of Moſs ought to be laid between them. More particularly, *Figs* are very tender, and therefore each Fig ſhould be wrapped in a Leaf, and ſmall Partitions made with Splinters, like the Bottom of Sieves, to part each Layer in the Basket, that ſo they may not lie one upon another. *Plumbs* may be put in a Basket without any other ceremony, than the laying Leaves at the Bottom and Top. *Strawberries* and *Raſberries* are commonly put into ſmall Baskets made on purpoſe for them, and the Leaves laid at Top and Bottom, and ſtuffed by the Sides. *Apples* and *Pears* are commonly packed in Baskets, with a good quantity of Straw at the Bottom and Top.

As to the Preſerving of Fruit, if it is Summer-Fruit (eſpecially *Peaches*) they muſt be laid in a dry Place on Shelves with the Windows always open, and upon dry Moſs or other ſoft things that have no ill Scent or Savour; for *Peaches* like *Melons* eat better for being gathered a Day or two before they are eaten. All Fruits muſt be viſited daily, and the rotten ones picked out, leſt they ſhould infect the other. *Pears* may be placed with their Eye downward, but lay neither them nor *Apples* upon Hay, Wheat or Rye Straw, which will give the firſt an ill flavour, and leave the other none; the beſt Straw is that of Oats, but Fern or Blankets much better. The beſt way to keep Grapes is to hang them up in the Air faſtned to a Packthread: But if any are deſirous to preſerve them till towards Spring, they muſt be gathered before they are perfectly ripe, and care taken conſtantly to pick out thoſe that are rotten. The beſt way with ſome is to hang them up in a Barrel, which muſt be headed up, ſo cloſe that no Air may come at them. Others lay them in a Cask in Oat-chaff.

But as *Apples* and *Pears* are of long duration, it will be neceſſary for thoſe that are curious in keeping them, to have a Conſervatory or Store-houſe made thus: Chooſe ſome place in your Houſe the moſt convenient for this purpoſe, which ſhould have the Windows and Overtures narrow, to prevent the Extremity both of Heat and Cold. Theſe ſhould always be kept ſhut except in very fine Weather. About the Room ſhould be Shelves made one above another, and the middle left to lay Fruit in on heaps, ſuch as are the moſt common, or that you deſign for Cyder; but if the Room be narrow, then only Shelves on one Side, and the two Ends will be enough. The Shelves ſhould be laid upon Brackets, being about two Foot wide, and edged with a ſmall Lath to keep the Fruit from rowling off, placing them about a Foot aſunder.

And as you gather your Fruit, ſeparate the faireſt and biggeſt from the middling, and ſuch as are fallen off of themſelves, or that were thrown down in gathering: And putting each Sort into Baskets, as faſt as you gather them, carry them into your Store-houſe, and range them upon your Shelves, ſo as that they may not touch one another, laying of Fern under them, and having a good Quantity more of Fern by you, cover them well up with it, and in caſe of Froſt you may lay Blankets and other things to ſecure them; but in very ſevere Froſt, ſome commend a wet Sheet to lay over them, as the beſt way to preſerve them. Be ſure your Fern is very dry, and let it be cut in Summer while the Sap is in it, and that it have contracted no ill ſavour or muſtineſs.

And every other Day look carefully to the *Apples* and *Pears*, and take out all that are ſpeckt or rotten, leſt they infect the others. *Mortimer.*

Of VINES and the ſeveral Sorts of Grapes, Fig-tree, Service, Mulberry, &c.

THE ſmall *Black Grape* is firſt ripe, 'tis well taſted, and ſet thick on the Bunches. The *White Muſcadine* bears large Bunches of great Grapes; both of a ſweet and pleaſant Taſt. Of this there are two Sorts; one more ſweet and pleaſant than the other. The *Canada Grape*, or *Parſley Vine*, is a *White Grape*, thinly ſet on Bunches, and late ripe. The *Blood-Red* is of ſeveral ſorts; the ſweet *Alicant* or *Spaniſh Tint Grape*, the great black *Orleance*, which is very harſh and reſtringent, and uſually mixt with the *White Grape*, to give its colour for the rough Claret. The *Red Muſcadine* requires much Sun, and is a large Grape. The *Rayſin of the Sun Grape* requires alſo much Sun, and when ripe, is a red, large, and good taſted Fruit, but hath little Juice; it is excellent to preſerve and pickle. The *Burſarobe* requires alſo very much Sun: It is an excellent large white and well taſted Grape. The *Frontiniack*, is a white musky ſweet Grape, and requires ſo much Sun with us, that it ſeldom comes to perfection. There is alſo the *Red Frontiniack* which is much of the nature of the white. The *Muſcat Grapes* are very good, and great Bearers, but require ſo much Sun that they ripen very late. *Vines* proſper well in a dry, gravelly, or ſtony Ground; but the ſandy light Soil is the beſt. They affect much Sun, and delight to be ſhltered from the cold Winds. Every Winter the Roots ſhould be opened, and Aſhes or good rotten Dung, put thereto, being well mixt with the Earth. From *Chriſtmaſs* to the End of *February* is the Seaſon to prune the Vines, but not until they have had two Years Growth. About the End of *Auguſt* clear the Vines from thoſe ſuperfluous Leaves and Branches that obſtruct the ripening of the Grapes. *Vines* are eaſily encreaſed by laying the new Branches in the Earth, or by Cuttings, which within a Year or two will be fit to tranſplant, as occaſion requires; and whilſt they ſtand unremoved, they muſt be yearly pruned, as the Vines.

As for the ordering of a *Vineyard*, which ſhould be on the Side of a Hill, expoſed to the South Sun, let the Ground be well digged, broken ſmall, and cleared from Weeds in the Summer before *Michaelmaſs*; then from *November* to *March*, when the Weather is fair and open, plant your rooted Vines of a Year's Root in ſtreight Rows, at about a Yard aſunder, and very ſhallow; yet ſo that the Roots be covered. The firſt Summer do not prune them, only keep them clean from Weeds, and ſet Stakes cloſe to each Root about a Foot high, to which faſten the ſtrongeſt Shoot, and let the other Branches fall down as they will. In *April*, or the Beginning of *May* following, juſt as they begin to bud forth their Leaves, bow the top of each Vine archwiſe to the next Stalk, and there faſten it, and from this bowed Branch will come out new Shoots, which will produce Grapes that will hang down to the Earth, which will be the ſweeteſt. And this is all that is done to them until pruning time, which is from the End of *January* till *March*; and then cut away the Branch that was tied the laſt Year to the Stalk, and arched down as low as an Eye, but one or two at the moſt, and tie up another of the ſtrongeſt Branches for the Stock, inſtead of the former, pruning away all the other Branches within an Eye or two of their Bottoms; for the fewer Branches you leave to the Root, the more Grapes you ſhall have the following Year.

Every Year the Ground in your *Vineyard* muſt be well digged, but not very deep, and caſt the freſh Mould in the Paths to the Roots of the Vines, laying all plain and even and free from Weeds: Alſo in Summer you muſt hoe up the Weeds, for the barer the Earth is kept in the Alleys, it is the better; but about the Roots the Earth muſt not be ſtirred in Summer, nor in the bearing time; but the elder the *Vineyard* is, the deeper it ſhould be digged, and turned up yearly, and old rotten Dung or Aſhes ſhould yearly in *February* or *March* be mixt with the Mould; but uſe not too great a Quantity of Dung.

When your *Vines* begin to decay through Age, plant Young ones in their rooms; but they will continue a great while before Age decays them.

Keep the *Vine-ſtocks* about a Foot high, from whence let the Shoots yearly come forth, pruning all the Branches, except one or two of the ſtrongeſt, within an Eye or two of the head of the old Stock; but prune not cloſe to the Stock, except ſuch Branches that you would have to ſhoot again; for too many Shoots from a Stock will hurt the Root; therefore leave but a few; and the beſt Cuttings are from a Branch that ſpreads moſt in the midſt of the Tree,and not from the loweſt or higheſt Branch, having five or ſix Joints from the old Stock.

In *Auguſt*, when the Fruit begins to ripen, break off ſuch Shoots as you find too thick, but only ſo as to let in the Sun for ripening the over-ſhadow'd Cluſters: Leave them not too bare, leſt you expoſe them too much to the ſcorching Heat by Day, and the moiſt Dews by Night. If you find a *Vine* to bleed, rub ſome Aſhes upon it; and if that will not do, ſome commend the Searing of it with an hot Iron. When you find your *Vineyard* poor, prune your *Vine*, and ſpread good rotten Dung, mix'd with Lime, over the whole Ground, letting it lie a whole Winter to waſh into the Ground, mixing about ten Buſhels of Lime with a Load of Dung; and if ſome Aſhes or Soot be likewiſe ſpread on it, it will do well; which Manure turn in about *February*, in a dry Seaſon, with a ſlight Digging, but not too deep. But to forward *Grapes* ripening, and to make them fruitful, the Blood of Beaſts, mix'd with Lime or Soot, is very good to lay to the Roots of *Vines* in *December* and in *July*; and if the Seaſon is very dry, the Watering of *Vines* in *Auguſt* is a great Advantage.

Gather the *Grapes* in a dry Day, when they are very plump and tranſparent, which is when the Seeds or Stones are black and clear, not viſcous or clammy, when the Stalks begin to ſhrivel at the Part next the Branch, which is a Sign it hath done Feeding; only take care, if Rain come, and Froſt immediately follow, to gather them as ſoon as you can. Cut the *Grapes* from the *Vine*, and put them in Baſkets, out of which empty them gently, and lay them on Heaps on a Floor to ſweat for four or five Days, or a Week's time, which will ripen them much.

If you would make Claret, let it remain with the Murck or Huſks till the Tincture be to your Liking, but the White-Wine may be preſs'd out immediately. When the White-Wine is tunn'd, ſome propoſe to ſtop it up immediately, and ſay that it will not hurt the Caſk, and leave half a Foot or more void; and for Claret leave ſome more, which they repleniſh at ten Days End (when the Fury of Working is over) with ſome proper Wine that will not provoke it to work again. This muſt be frequently repeated, for new Wine will ſpend and waſte ſomewhat till it is perfect.

But not to enter upon the Method they uſe in making Wine abroad, Mr. *Mortimer* propoſes the beſt Way to make *Engliſh* Wine, which is to preſs the *Grapes*, after they are pick'd from the Stalks, and to let the Juice ſtand 24 Hours in the Fat: Draw it off from the groſs Lees, and caſk it. Add a Pint or a Quart of ſtrong red or white Port to every Gallon of Juice, according as you would have it in Strength. Bung it up cloſe after it has done working together, and let it ſtand till *January*; bottle it then in dry Weather. There has been as good Wine made this way as any *French* Wine, without any Adulteration; and the ſame conſiſting of four Parts of our Product to one of Foreign, muſt be very advantagious for the promoting of *Engliſh Grapes*.

The *Fig-Tree* is of ſeveral Sorts, and all moſt fit to be planted againſt the Wall, where they may have the Benefit of the Sun. Theſe are the cheif Sorts; the *Great blue Fig*, the *Dwarf Blue*, the *Flowering Fig*, the *White Dwarf*, the *Languedoc*, and the *Marceilles Fig*; of all which the *Great Blue* is moſt fit for our Climate, and is eaſily encreaſed from Suckers and by Layers.

The common *Service-tree* grows wild in many Places. They are raiſed from the Berries, which muſt be ſown as *Haws* in Beds; they are alſo encreaſed by Suckers and Sets. They may likewiſe be either grafted or budded upon their own Kind to a great Improvement of their Fruit.

They delight in rich Clay, or the Hazel-brick Earth, where it is rather moiſt than dry. In dry Grounds they never bear well, though they will grow almoſt on any Soil, when they are raiſed of Seeds. They may be tranſplanted of any Bigneſs, it being a Tree that bears Tranſplantation well: If you head them, the Wound will quickly heal up.

The Timber is uſeful for the Joiner, Engraver of

Wooden-Cuts, Bows, Pullies, Screws, Mills, Spindles, Piſtols and Gun-ſtocks, being of a very fine Grain, and is very laſting, being rubb'd over with Linſeed-Oil well boil'd, and may be made to counterfeit Ebony, and moſt of the *Indian* Woods; it is alſo uſed to build with, yielding Beams of a conſiderable Subſtance, and the Shade is beautiful for Walks. They give an early Preſage of the Spring, and peep out in the ſevereſt Winters.

The *Mulberry* is of ſeveral Sorts; the Fruit or Berries being of three ſeveral Colours, *viz.* Black, White and Red.

Mr. *Evelyn* ſays, they raiſe them in the Countries where they cultivate them for Silk-worms by ſeparating the Seeds from the Berries, when gathered thorow ripe, by bruiſing them in their Hands, and waſhing them in ſeveral Waters, and the Seed, which is very ſmall, will ſink to the Bottom, while the Pulp ſwims on the Top; which muſt be carefully taken off, and the Seeds taken out, and laid on Linnen-cloth, and dry'd, for which an Hour is ſufficient; but the Sowing of the ripe *Mulberries* he prefers, which ſhould be a little bruiſed or ſquaſh'd, and ſow'd in rich black Garden-Mould, and ought to be well moiſten'd at firſt Sowing, though rarely water'd afterwards till they peep; they muſt be kept warm by being thinly cover'd with Straw to protect them from the Heat and the Birds. The Seaſon of Sowing is in *April* or *May*, though ſome forbear till *July* or *Auguſt*; and ſome ſow in *September*, which is the beſt Time. At firſt keep them moderately ſhelter'd, and clean weeded, and at two Years Growth, about *October* or *February* draw them up gently, and dipping the Roots in Water, tranſplant them into a warm Place in your Nurſery, cutting them within three Inches of the Ground, and giving 'em three Dreſſings or Half-diggings to kill the Weeds, in *April*, *June*, and *Auguſt*. The ſecond Year purge them of ſuperfluous Branches, reſerving the principal Stem: of which, if the Froſt injure any Part, cut it off. But, after all, the Way of raiſing them is by Layers from another Plant, or Suckers at the Roots of other Trees, which will take very readily. The propereſt Time is *February*, leaving not above two Buds out of the Ground, which muſt be carefully water'd, and they will be well rooted in two Years. Dr. *Beal* ſays, They may be grafted in the black *Mulberry* in Spring, or inoculated in *July*. The *Scions* are beſt to be taken off of an old Tree that bears broad even Leaves, which, being the moſt uſeful Part of the Tree, is chiefly to be conſider'd.

It is a Tree ſomething difficult to tranſplant, except planted in a rich Soil, and while young, and kept well watered. Do not cut off the Head in removing them, but trim up the Side-Branches, ſo as to leave but a ſmall Head on. The beſt time to tranſplant the white *Mulberry* is in *February*, it being a more tender Tree than the black. They delight in a light, dry, rich Mould, which, if it is well manured with Aſhes or Horſe-dung, will be the better; if they are expoſed to the Sun and Air, they thrive the better. The beſt time to tranſplant is at about five Years Growth, in *September* and *October*, in which Work ſpare cutting of the Roots as much as you can, and take great Care to ſave them in taking them up; and if you find any of the Branches dry, or hurt with the Froſt, cut them off, and where the Branches grow too thick, a little Thinning of them for the firſt Year or two after they are tranſplanted may do well, and likewiſe digging and ſtirring of the Earth about their Roots greatly improves them.

The white *Mulberry* is much the beſt, and a beautiful Tree for Walks and Avenues, giving a fine Ornament to the Silk Country, where they plant them in Walks, or regular Groves about their Fields. The Timber will laſt as long in Water as the moſt ſolid Oak, and the Bark makes good Baſt-Ropes: It will ſuffer no Catterpillar or Vermin to breed on it. The chief Value of the Tree are the Leaves for the Silk-worm, which ſhould be clipped off, and gathered dry.

The *Cornelian* hath its Flowers or Bloſſoms ſmall, yellow, and comes early; but the Fruit is late ripe, like an Olive, ſome of a ſhining Red, others Yellow, with red Sides, and ſome almoſt white.

The *Barberry* is a common Tree, but there are two Sorts ſomething rare; the firſt has many Branches of Berries without Stones, and ſome on the ſame Buſh with Stones. The other Berries are as large again, and far better for preſerving. Theſe Plants are exceeding great Encreaſers from the Suckers.

The *Medlar* is a Fruit of no great Eſteem; but the *Filbert* is a Tree well receiv'd among all. There are three Sorts, more rare than the common, known among us, *viz.* the *White Filbert* is the moſt common; the *Red Filbert*, alſo common; the *Filbert* of *Conſtantinople*, which is much like the White, but hath its Kernel larger and better.

As to the *Nut-Tree*, the great round *Nut* is thicker ſhell'd and bigger than any other Sort, the Kernel being as big as other *Nuts* with their Shells on. The great long ſoft-ſhell'd *Nut* hath its Kernel as big as an Almond, and very well taſted. All theſe Sorts of *Nuts* and *Filberts* are plentifully raiſed from Suckers, as well as ſown of *Nuts*.

CHAP. X.

Of the Uſe and Benefit of Fruits for the Making of Wines, Cyder, Perry, Mead, *&c.*

THE Planting of Fruit-Trees is, without doubt, one of the greateſt Improvements that can be made of the moſt part of our Ground, the Fruit ſerving both for Meat and Drink; eſpecially Apples for the making Cyder, which if well prepared, and rightly made of Cyder-Fruits, is a moſt delicate Liquor, not much inferior to Wine, and is more agreeable to the Conſtitutions of the *Engliſh* Bodies.

Cyder, next to Wine, may juſtly claim the Preheminence of other Liquors. There are divers Ways uſed for the Making it, and ſundry Sorts of Fruits of which it is made.

The Fruits moſt fit for this Drink may be comprehended under two Sorts or Kinds, *viz.* either curious Table-Fruits, as *Pippins*, *Pearmains*, *Codlins*, and the like; or the wild, harſh, and common *Apples*, fit only for *Cyder*, as the *Red-Streak*, the *White Muſt*, the *Green-Muſt*, the *Gennet-Moil*, *Fliots*, *Summer-Fillet*, *Winter-Fillet*, *Stocken-Apple*, &c. the greater part of which are ſo harſh and unſavoury, that Swine will ſcarce eat them, yet afford an excellent, tart, and winy Liquor, far exceeding the *Pippin* and *Pearmain*, and are alſo of ſo ſtrong a Body, that the *Cyder* will keep, being well preſerv'd, ſeven Years.

But there are ſome that prefer the *Pippin*, *Pearmain*, and the like curious Table-Fruit, to make the beſt *Cyder*, as having in them a more cordial and pleaſant Juice than the harſh *Apples*.

By Obſervation it is found, that the more Rediſh the Rind of an *Apple*, the better it is for *Cyder*, and the paler the worſe; and no ſweet *Apple*, that hath a tough Rind, is bad for *Cyder*.

For the Making of *Cyder*, let your *Apples* hang on the Trees until they be thoroughly ripe, gather them without Bruiſes, and before you make *Cyder* of them, lay them in Heaps in convenient Places, free from Rain or Dew, where they may ſweat for about a Fortnight; and the harſher and more ſolid the Fruit is, the longer they may lie. This Sweating takes forth their aqueous Humidity, which is injurious to the *Cyder*.

Such Fruit as are unripe, Wind-falls, or any ways injured or bruiſed, divide from the ſound; for it is better to have two Sorts, the one excellent, and the other indifferent, than both ordinary. And be ſure to take away all the Stalks, Leaves, and rotten Apples from either Sort; for the Stalks and Leaves will cauſe an ill Taſte, and the rotten *Apples* make it deadiſh.

Let ſuch *Apples* as fall before they are ripe be kept till the Time of the full Maturity of their Fruit, elſe the *Cyder* will not be worth drinking.

About 24 or 25 Buſhels of good *Cyder-Apples* thus ſweated will make a Hogſhead of *Cyder*; and if taken from the Tree, about 22 Buſhels.

Theſe *Apples* thus prepared may be either ground in a Horſe-mill, like as Tanners grind their Bark, or elſe beaten in a Trough with Beaters of Wood rather than Stone; and the more they are ground or beaten, the better; but the Grinding is preferr'd before the Beating them.

After the Grinding, the Pulp ſhould be put into a Hair-bag or Bags, and ſo put into the Preſs, of which there are ſeveral Sorts, but the Screw-Preſs is eſteem'd the beſt.

Being preſs'd, ſtrain it, and put it into your Veſſel, which muſt be ſo placed, that it may ſtand to ferment, allowing but a ſmall Vent-hole, that the Spirits waſte not. Fill not the Veſſel quite until it have done working, then fill it of the ſame Sort, which muſt be kept for that purpoſe, and ſtop it well, only with Caution at the firſt, leaſt it break the Veſſel.

The beſt Veſſels for the tunning up the *Cyder* and to preſerve it are theſe, the Barrel-boards ſtreight, the Veſſel broader at the one End than at the other, and to ſtand on the leſſer End, with the Bung-hole on the Top: The Reaſon is, that the drawing the *Cyder* thro' but ſlowly, the Skin and Cream contracted by its Fermentation, deſcends, and wholly covers the Liquor by the Tapering of the Veſſel, and thereby preſerves the Spirits of the *Cyder* to the laſt, which otherwiſe would waſte, and expend themſelves.

Some *Cyder* will bear a Mixture with Water, without Injury to its Preſervation, and others will not; ſo that you ought to underſtand the Nature of the Fruit before ſuch a Mixture is made; and be ſure let it be done in the Grinding, and not afterwards; for then it will better incorporate with the *Cyder*.

Some are of Opinion, that before you preſs the *Cyder*, after it is ground or beaten, the Liquor and Muſt ſhould ferment together in a Vat for that purpoſe, cloſe covered, for about 24 Hours, which is ſaid much to enrich the Liquor.

The other Sorts of Fruits for the Making the *Cyder*, as the *Pippin*, *Pearmain*, *Gilly-flower*, *Codlin*, and the like Summer or Table-Fruits, are very good palatable *Cyder* for a Year, but will not laſt good longer, as wanting the Strength of Body that the others have.

Mr. *Worlidge* ſays, The principal Cauſe that there has been ſo much bad *Cyder* made in moſt Parts of *England*, was the too early ſtopping it up; it being uſually preſcribed, and as uſually practiſed, that as ſoon as *Cyder* is preſs'd, ſtrain'd and fermented, they ſtop it cloſe with a very great Confidence, that unleſs it be cloſe ſtopp'd it will decay, and become of no Uſe; ſo that when theſe Cyderiſts have taken care for the beſt Fruit, and ordered them after the beſt Manner they could, yet hath their *Cyder* generally proved pale, ſharp, and ill-taſted, and all from the too early ſtopping of it. For the ſtopping of *Cyder* cloſe before it be fine, or with its Fœces in it (although precipitated) begets reiterated Fermentations, which Fermentations very much impoveriſh this Liquor, by precipitating thoſe Particles which enrich it with Tincture and Guſt.

Whilſt its groſs Fœces, or any Settling remain at the Bottom, every Change of Weather cauſes ſome Motion therein, which is uſually term'd *Fermentation*: This doth ſo attenuate this Liquor, that it eaſily letteth or ſuffereth thoſe Particles to ſubſide, and leaveth the *Cyder* thin, jejune, acid, and ill-taſted. It is thin and jejune, becauſe it hath loſt its Subſtance; acid becauſe it hath loſt its Sweetneſs; thoſe Particles being the Saccharine Subſtance, or part of the *Apple*; and of ill Savour and Guſt, becauſe thoſe Particles, when precipitated, being mix'd with the more groſs, do putrifie and heat, infecting the whole Maſs in the Veſſel: All which Effects are apparently obvious in *Cyder* made after the vulgar Method. Theſe Fœces are the Cauſe that the Corks fly out of the Bottle, or break the Bottles, or at leaſt at the Opening of them make the *Cyder* fly, and mixing with it, make the Reſidue unpleaſant.

To remedy theſe Things ſome have made uſe of many Ways to ferment it, and make it clear by reiterated Fermentations; others by Additions, as Iſing-Glaſs, *&c.* have enforced a Precipitation, and when they have ſo done, finding it to be thin, pale and acid, have by Moloſſes, Treacle, or coarſe Sugar, given it Body, Colour and Guſt: But this is not the moſt healthful Way.

After your *Cyder* hath ſtood open ſome reaſonable Time, till it is become indifferently fine, which it may be in three, four, or five Weeks, then will it be convenient to draw it into Bottles, if you have a ſufficient Stock, or into other Caſks, that it may there become more fine; for after it is ſeparated from its groſs Fœces, it will more eaſily remit the remaining Particles, or flying Lee, than it would have done while the groſſer Parts remain'd, renewing its Fermentation on every Change of Air, or other accidental Occaſion.

Its Fineneſs will ſometimes plainly appear, if you move the Scum aſide with a Spoon; but to be more exact, you may take a Glaſs-Pipe of a Foot or more in Length, open at both Ends, ſtop the upper End of the Pipe with your Thumb, and let the other End down into the *Cyder* as deep as you think fit, then open the upper End, by removing your Thumb, and the *Cyder* will riſe in the Pipe; then ſtop the upper End again with your Thumb, and take out the Pipe, and holding it over a Drinking-Glaſs, remove your Thumb, and you may there diſcern the State and Fineneſs of your *Cyder*.

If your Stock be not over-great, or that you are willing to preſerve your choiceſt Sorts, the beſt Way is to have large Glaſs-bottles, of one or two Gallons apiece, enough to receive the ſame, into which draw off or rack your *Cyder*, and let the Bottles ſtand open, or but barely covered, in your cooleſt Repoſitory for a Month or more, till you obſerve your *Cyder*, by your interpoſing it between a Candle and your Eye, to be very tranſparent, which then may be called *Superfine*, the remaining Particles, or flying Lee, being precipitated and ſettled in the Bottom of the Glaſs-bottle. But if the Quantity of your choiceſt *Cyder* be too great for your Bottles, you may inſtead of them make uſe of Stone-bottles or Jars, or Stounds of *Flanders* Earth, or glaz'd Earthen Veſſels, the larger the better. They may be placed in Rows in your Repoſitories, Cellars, or Vaults, and cover'd with Boards, or the like, to preſerve your *Cyder* from Duſt, *&c.* but not from the Air; but by reaſon that you cannot ſo eaſily diſcern the Fineneſs of your *Cyder* in theſe as in the tranſparent Veſſels, you may now make uſe of your Glaſs-pipe before-mention'd.

The Reaſon why Glaſs-bottles, or other Glazed or Stone-Veſſels, are more fit for this ſecond Fining than thoſe of Wood, is, for that the Coolneſs of the Veſſel very much contributes to the Precipitation of thoſe remaining Particles that would otherwiſe debaſe this Liquor. But if your Quantity of *Cyder* be ſo great, that theſe Veſſels cannot receive it, than may you rack it into other Veſſels made very clean, dry, and ſweet, and ſuffer'd to ſtand ſlightly cover'd till it be very fine, before you ſtop it up. If you find your *Cyder* does not fine in Wooden-Veſſels ſo ſoon as you deſire, for want of Coolneſs, as in glazed Veſſels, you may take Flints or Pebble-ſtones, clean and dry, and put them into your Caſk, which is ſaid to contribute much towards the nimble Precipitation of the Fœces; the like Effect hath the applying of a Bag of Salt to the Outſide of the Under-part of the Veſſel.

When your *Cyder* has attain'd its utmoſt Degree of Fineneſs, which, after this Way of ordering, it will do, if you have but Patience to let it ſtand open long enough, (although ſome will fine in half the time that other requires) then take your Glaſs-Syphon, or Crane, and draw it off from its laſt Fœces into ſmaller Bottles, wherein you intend to keep it for your Uſe. Thus being drawn off, and thoroughly depurated, you may cloſe cork all your Bottles, and place them in your cool Conſervatory, where, after a few Weeks ſtanding, your *Cyder* will acquire a fine Briſkneſs, and mantle in the Glaſs without any manner of Feculency, and retain its firſt Sweetneſs, and change from a Pale to a lively Canary or Malaga Colour; but if you have Occaſion to accelerate its Maturity, place ſo many of your Bottles as you think you may have ſudden Occaſion for, in ſome Place warmer than your uſual Conſervatory, and it will ſoon anſwer your Expectation.

Sometimes it will happen, that the next Summer after it is become ſo pure, ſome Rags, or flying Feculencies, may appear in your Bottles, which are occaſion'd by the Warmth of the Seaſon, begetting another Fermentation from the Fatneſs of the Body of the *Cyder* made of the ſweeter Sort of Fruit, which are not apt to appear in the thinner *Cyder*; but in ſome ſhort time theſe will ſubſide, and you may draw off the fine from the Fœces with your Syphon, without any great Prejudice to your *Cyder*. Theſe latter Fermentations in great Quantities of *Cyder* often ſpoil it for want of a timely Prevention, which cannot be ſo well done in Veſſels of Wood as thoſe of Glaſs, where you may eaſily perceive the various Changes that may happen in theſe Liquors.

Thus far you have Mr. *Worlidge*'s Opinion of this Liquor.

As for Mr. *Cook*, he ſays, Your Fruit having hung till thorough ripe, which is beſt known by the Brownneſs of the Kernels, or their Rattling in the Apple, or the Apples falling much in ſtill Weather; for if the Fruit be green, your *Cyder* will be ſoure; Gather the Apples dry, and reject ſuch as are bruiſed, becauſe they will rot, and ſpoil the Taſte of the *Cyder*, as already hinted. If you gather not by Hand, which is tedious, lay a Truſs of Straw beneath the Tree, and over that a Blanket, diſcreetly ſhaking them down, not too many at a time, but often carrying them where they are to ſweat, which ſhould be on dry boarded Floors; by no means on Earth, unleſs ſtore of ſweet Straw lie under it. In about ten or fourteen Days they will have done ſweating; then grind or beat them, keeping the Fruit ſeveral, in caſe you have enough to fill a Veſſel of one Kind; if not, put ſuch together as are near ripe, for its more uniformly fermenting. Winter-Fruit may lie three Weeks or a Month ere you grind them; the greener they are when gather'd let them lie the longer.

Being ground, let them continue 24 Hours before Preſſing; 'twill give it the more Amber bright Colour, and hinder its over-fermenting; and if the Fruit were very mellow, add to each twenty Buſhels of Stampings ſix Gallons of pure Water, pour'd on 'em ſo ſoon as beaten; the ſofter and mellower the more Water, to reſtrain its Over-working, and though the *Cyder* be weaker, it will prove the pleaſanter: For over-ripe and mellow Fruit let go ſo much of the looſe and fleſhy Subſtance thro' the Percolation, that with Difficulty you will ſeparate the Lee from the Liquor before it ferment, and then away goes the briſk and pleaſant Spirits, and leave a vapid or ſoure Drink, contracted from the remanent or groſs Lees: The *Cyder* made of ſuch Fruit had need be ſettling 24 Hours in a large Fat or Veſſel, that the Fœces may ſettle before you tun it up, and then draw it off, leaving as much of the thick Lee behind as you can, (which yet you may put among your Preſſings for a Water-Cyder:) If you conceive your *Cyder* ſtill ſo turbid, that it will work much; then draw it into another Veſſel by a Tap two or three Inches from the Bottom, and ſo let it ſettle ſo long as you think it is near ready to work; for if it work in your Tubs, but little of the groſs Lees will you be able to get from it. Note, That you muſt cover it all the time it is in your Tubs, and the finer you put it up in your Veſſels, the leſs it will ferment, and the better it will drink; but in caſe you chill the *Cyder*, (as it often happens in cold Winter-Weather) ſo as it doth not work when put into Caſks, caſt into it a Pint of the Juice of Alehoof, with half the Quantity of Iſinglaſs to refine it, which tho' it do not ſuddenly, at the Spring it will.

Theſe Directions obſerved, barrel it up, and when it ceaſes Working, bung it cloſe, and reſerve it ſo till it is fit to bottle, that is when fine, ſince till then it will endanger their Burſting; and if you would have it very briſk and cutting, put a little Lump of Loaf-Sugar into every Bottle.

Or you may obſerve the following Method, which is, That after your *Cyder* is preſs'd, to ſtrain it, and put it into a Tub or Fat, with a Tap to it, which cover cloſe with Sacks or Cloaths, by which means ſome of the Spirits will have Liberty to evaporate; whereas if you put it too ſoon into a Caſk, it will reverberate the Spirits too ſoon into the Liquor, and cauſe a Fermentation before any of the groſs Lees are ſeparated from it; for the great Thing to be taken care of in making of *Cyder* is, only to let ſo much of the Spirit evaporate as may prevent its fermenting before the groſs Lees are ſeparated from it, and yet to keep Spirits enough to cauſe a Fermentation when you would have it; for if it ferment too much, it will loſe its Sweetneſs, and become harſh and ſmall; and if it ferment not at all, it will become dead and ſoure; and therefore let it ſtand 24 Hours or more in the Fat, according as you find it inclined to work, ſo let it ſtand longer or ſhorter time; and when you draw it off, leave as much of the groſs Lees as you can behind; for Lees of *Cyder* are apt to put it into a new Ferment upon all Changes of Weather. After it hath ſtood its Time in the Fat, put it into the Caſk, which fill almoſt full; but if you find it begin to work much, rack it off again, and take out the groſs Lees; and if you find it ſtill upon a Fret, repeat the ſame Operation till you can ſettle it; for it is a very tickliſh Liquor, and very ſubject to ferment, eſpecially if the groſs Lees are not timely ſeparated from it, and therefore if unſettled or moiſt Weather happen at the Time of its Working, it will be ſo much the more difficult to manage, and will require the more Care to be taken of it.

When it hath done working, ſtop it up, only leaving a ſmall Vent-hole at your firſt ſtopping of it up, at which you may ſometimes try if it want Vent, leſt it break your Caſk. To ſuit the Fruit to the Soil is a great Advantage to the making of *Cyder*, it being certain that in many Places, even in the ſame County, there is much better *Cyder* made in one Place than another, though both are made the ſame way, and of the ſame Sort of Fruit. Mr. *Worlidge* commends very much brackiſh Lands, near the Sea-ſide, as excellent for Fruits, and for Winter laſting Fruit the ſtrong ſtiff Lands are by much the beſt of any.

But if your Fruit be unripe, or *Cyder* ſmall, to ſtrengthen it, eſpecially if you live in the North-Country, take *Pippins*, *Pearmains*, &c. and to every Gallon of Juice put two Pounds of Raiſins, which ſhred ſmall, cover the Fat, and let them ſtand two or three Days; draw off the Liquor by a Tap, preſs out the Raiſins, and put both Liquors into a Caſk, that they may ferment, and after a Fornight rack them off. Fill not the Caſk you draw it into, but leave ſome Room for it to ferment; after which ſtop it cloſe, only leaving a Foſſet-hole open, or looſely ſtopp'd; and when it hath done working, fill up the Veſſel, and when fine bottle it. Or, Secondly, Take your Apples when they reliſh beſt, not too green nor too mellow: They who have large Plantations may ſhake their Trees a little, and gather thoſe that fall off eaſily, and preſs them the ſame Day. Fill not your Caſk above three Quarters full, and let it ſtand till it grow clear, which is commonly within eight or ten Days, and then draw off only the clear, and fill up a clean Caſk almoſt to the Top, giving it Vent thrice a Day, leſt it ſhould burſt the Veſſel, and ſo continue to do for a Week.

Then for every ten Gallons of *Cyder* take one Pound of Raiſins of the Sun, and put them into Brandy for a Day or two, and then put only the Raiſins into the *Cyder*, letting it ſtand three or four Days more. Laſtly, Stop the Caſk very cloſe, but bottle it not till *March*, except it be of Codlings, which will not keep ſo long.

Another Improvement of that, call'd *Royal Sider*, mention'd by Sir *Jonas Moor*, is done by adding the Spirits to it, which corrects its Windineſs and Crudities, makes it very agreeable to the Stomach, and gives it the Strength of Wine, by adding the Goodneſs of two Hogſheads into one. To do this, put one Hogſhead of *Cyder* into a Still, and draw off all the Spirits; diſtil the ſaid Spirits a ſecond time, put the ſame into your other Hogſhead, and fill it up; ſtir it about well, and keep it cloſe ſtopp'd, except one Day in ten or twenty let it lie open five or ſix Hours, and within a Quarter of a Year this *Cyder* will be as ſtrong or ſtronger than the beſt *French* Wine.

But if you will have it drink like Canary, you muſt add more of the Spirits, and as much Sugar or Sweets as will beſt pleaſe your Palate. As the Proportion of one Pint of good Spirits to a Gallon will make it as ſtrong as *French* Wine, ſo one Pint and half will make it as ſtrong as *Spaniſh* Wine, and by this means, in like manner, *Perry*, the Juice of Cherries, Mulberries, Currants and Gooſeberries, may, by adding thereto their proper Spirits, or any other convenient Spirits, be made as ſtrong as Wine.

Stale and ſoure *Cyder*, ſcarce fit to drink, will make the greateſt Quantity of Spirits, and the beſt taſted, and the longer they are kept the leſs Taſte they will have of the Fire, which is the greateſt Inconveniency that attends this Way of making of Cyder; and therefore, when you deſign to be any thing curious, take only the firſt Running of your Spirits to mix with your Cyder, and let the ſmall Part only be diſtilled again, to which 'twill be beſt to allow as much Age as you can to take off the burnt Taſte: One Gallon of ſtrong Cyder will yield a Pint of Spirits. As to the time of putting your Spirits into your Cyder, the ſtaler your Cyder is, before the Spirits are added, the more time it will take to incorporate, and the ſooner they are put in the ſooner it will be fit for uſe, only be ſure that the Cyder has done working before you put it in.

The beſt way to order the Sugar before you put it into your Cyder is, to make it into a kind of Syrup or Sweets, by diſſolving it in Water; one hundred weight will make ſixteen Gallons, and ſo in proportion. But before you put your Sugar into the Kettle, take the Whites of thirty or forty Eggs, the more the better, which being well beaten with a thing like a Rod or a Whisk in eight or ten Gallons of Water; put four Gallons of this Egg-water ſo prepared into your Kettle, where your Sugar is to be diſſolved; then hang it over a gentle Fire, and ſtir it about till it is diſſolved: But be ſure when it boils put in more Egg-Water, to keep it from boiling too high, and ſo continue putting it in, one Quart after another, until all your Egg-Water be ſpent. But to prepare your Egg-water in parcels, *viz.* a Quart or two at a time, as you uſe it, is the better way. Theſe Eggs raiſe ſuch a Scum as will carry away not only all the Foulneſs and Groſsneſs of the Sugar, but all the Egg alſo. And when the Scum hath done riſing, and is clear taken off, fill your Kettle with as much Water as will make up your Quantity, and let it boil to the ſize of a Syrup, and being cold put it into your Cyder. But if you put in a little Coriander Seed bruiſed and tied up in a fine Linnen Rag whilſt it's boiling, it will give it a fine grateful Scent.

Of theſe Sweets you may put in two or three Gallons more or leſs, into an Hogſhead as your Palate invites you, or as the Tartneſs of your Cyder requires. But put them not in till your Cyder be rack'd the laſt time, and that it is paſt the Fermentation. Before you put your Sweets into the Caſk mix them, and the Spirits you intend to put in, together with a like Quantity of Cyder, and ſtir them well together; then put all into your Caſk of Cyder, and ſtir them with all your ſtrength with a ſtrong Staff in the Bung-hole for one half Quarter of an Hour; after that ſtop it cloſe, and draw none off till two, three or four Months, by which time it will be anſwerable to what hath been propoſed; only remember, that if you would have it reſemble Canary you muſt add the greater proportion of Spirits and Sweets; but if *French*-Wine, the leſs Sweets, or none at all.

As to the ſort of Sugar, if the Sweets be made with white Sugar, the Cyder will remain pale; if of brown it will give it a higher Colour: The latter is as good and the cheapeſt, and Sweets being thus made will coſt but five Pence *per* Quart.

The husky part of the Apples, after the Cyder is preſſed out, being ſteeped two or three Days in as much Water as will cover it, and then preſſed clean out and kept in a Veſſel until it hath well fermented, as alſo the Lees of all your Cyder will afford Spirit or Brandy, ſo much, that being added to the Cyder of the ſame Apples, will make it as ſtrong as *French* Wine, which is a thing of great advantage.

Mr. *Mortimer* ſays, Spirits being put into Bottles amongſt Cyder, or any of the aforeſaid Liquors will not drink well. That he was a long time troubled to find how to make this Drink as palatable and pleaſing as it was become ſtrong and chearing, until he put both Cyder and

Spirits into a Wooden Caſk. The firſt he compleated was in a Veſſel of ſix Gallons, into which he put two Quarts of the Sweets and three Quarts of the Spirits of Cyder, which after it had lain two or three Months he found to be as ſtrong and pleaſing as Canary.

You may make *Cyder-Royal*, as good and grateful to the Stomach, by adding Wormwood to it as you do to Wine, both for procuring Appetite, and cauſing Digeſtion, as the beſt Purl-Royal, or Wormwood-Wine.

This *Cyder-Royal*, or New Wine thus prepared, may be kept in the Caſk two or three Years, and be bettered thereby, provided you keep the Caſk full; which to do you muſt obſerve, that in two Months time the Liquor will waſte a Quart more or leſs, according to the Veſſel, which you ought to fill up again with Liquor of the ſame ſtrength, or ſtronger: And by this means it may be kept, and grow better and better ſome Years without putting into it *Stum*, or other unwholſome Ingredients. And,

Suppoſe by keeping *Cyder-Royal* too long it ſhould become unpleaſant, and as unfit to Bottle as *Old Hockamore*, take but one Hogſhead of that, and one of tart new Cyder, and before the latter be quite clear or fine, mix them together in two other Hogſheads well perfumed, and add of Spirits and Sweets, a due proportion to the Quantity of your new Cyder: Suppoſe it be in the Month of *October* or *November*, you may be ſure to have it full as good, if not better, than ever it was, and a moſt excellent *Cyder-Royal* to Drink or to Bottle, by or before *Chriſtmaſs*; and your new Cyder cannot be made half ſo good by that time of the Year.

The beſt ſort of *Cyder* for Boiling is that made of *Pippins*, *Harvey-Apple*, the *Bitter Sweet* (a *Dorſetſhire Apple*) whoſe Juice is much mended by Boiling, eſpecially when kept to two Years old: Boil it as ſoon as it is preſſed; for if it ferments, the boiling will cauſe the Spirits to fly away inſtead of ſtrengthning it; ſtrain the Juice as it comes from the Preſs, and in boiling let it continually be ſcum'd, and obſerve the colour of it as it boils; ſo as not to boil it longer than till it comes to the colour of Small-Beer: And as ſoon as it is cold, tun it, leaving only a ſmall Vent in the Caſk, the reſt being cloſe ſtopped; and when it begins to bubble out of the Vent, bottle it, only make it not of Fruit that hath been gathered long. To prevent an ill Flavour from the Veſſel it is boiled in, it is beſt done in Tin or an Earthen-pot that is wide and open at the Top, for the more expeditious waſting of the aqueous and phlegmatick Part of the Liquor.

PERRY, is a Liquor not ſo generally received as *Cyder*, nor indeed is it ſo grateful to the Palate.

The beſt Pears for this Liquor are ſuch that are not fit to be eaten for their Harſhneſs, and therefore are commonly planted in Hedge-rows, as the *Bosbury Pear*, the *Horſe Pear*, the *Bareland Pear*, and the *Choak Pear*; and the redder they are the better they are.

Pears muſt be through ripe ere gathered; they muſt be laid on Heaps to ſweat as the *Apples*; and for the grinding or Beating, Preſſing, and Tunning them up, you muſt obſerve the ſame Rules as for *Cyder*.

Crabs and *Pears* ground together make a good Liquor, for the *Crabs* help to preſerve the *Perry*.

Some Obſervations concerning Cyder *and* Perry.

P*Earmains* make but a ſmall *Cyder* of themſelves.

If the Veſſel be tainted, boil an Ounce of Pepper in Water, enough to fill the Veſſel, and let it ſtand therein two or three Days.

New Veſſels give the *Cyder* or *Perry* a deep Colour, and an ill Taſt; therefore Wine-Caſks are eſteemed the beſt: But for want of ſuch, put a little Muſtard-ſeed ground with ſome of the *Cyder* into the Veſſel, and it will help it; or ſcald your Caſk with Water wherein a good Quantity of Apple pumice hath been boiled, before you put your Cyder into them. Put not Cyder into a Veſſel wherein Strong-beer or Ale hath lately been, eſpecially Strong-beer; for it gives a very rank unpleaſant Taſte to Cyder, ſo doth a Cyder-Veſſel to Beer; therefore a Small-beer Veſſel is to be preferred.

If your Veſſel be tainted with any ill Savour, boil an Ounce of Pepper in Water enough to fill the Veſſel; put it in ſcalding hot, and let it ſtand therein two or three Days. Or take ſome quick Lime and put into the Caſk, which ſlack with Water, keeping it cloſe ſtopped, tumble it up and down till the Commotion ceaſe, and be ſure your Caſk be dry before you put your Cyder into it. But the moſt effectual Cure is to take them to pieces, and pare away the Film that is on the inſide, and when aired ſet them together again.

If your Veſſel, before the Cyder is tunn'd up into it, be fumed with Sulphur, it much conduces to the preſervation of this or any other ſort of Liquor; which may be done by dipping a Rag in melted Brimſtone, and by a Wire letting it down into a Caſk, and fired ſo as to fill it full of Smoak: Upon which pour in your Liquor, which will give it no ill Taſte, and is an excellent Preſerver of Health as well as of the Liquor, and will much help to fine it. Or you may give your Caſk a fine Scent by taking four Ounces of Brimſtone, of Burnt Allum one, of Aqua Vitæ two, melt theſe together in an Earthen Pan on hot Coals, and dip therein Pieces of new Canvas, and inſtantly ſprinkle thereon Powder of Nutmegs, Cloves, Coriander, and Anniſeeds: Set this Canvas on fire, and let it burn to fume the Veſſel.

But the better Way for this Operation is to have a little Earthen-pot to burn the Brimſtone in, to the Cover of which have a Pipe to go into the Caſk, and another to come into your Mouth, with which you may blow the Fume into the Caſk.

After you have cloſed up your Bung, you ought to leave open a ſmall Vent-hole, or but looſly put in the Peg, leſt the Cyder break your Caſk: In caſe the Liquor be unquiet, you may ſometimes try the ſtate of your Cyder by often opening of the Vent.

Cyder preſſed from pulpy, or thorough ripe, or mellow Fruit, having lain long in hoard, is not ſo apt to emit its Spirits as the other, and ſo is more eaſily preſerved.

Two or three Eggs put into a Hogſhead of Cyder that is ſharp, ſometimes helps it; and two or three rotten Apples put into the Caſk will clarify thick Cyder. Alſo thick Cyder or Perry by a ſecond Fermentation may be made good and clear; but that which is acid is ſeldom recovered.

If Cyder does not work well, a ſmall Quantity of Lime put into it will make it ferment; not only by reaſon of its Warmth, but of the quick Salt that is in it: The Powder of Calcin'd Flints, Roach-allum, Alabaſter, White Marble, *&c.* is alſo good, but the Cyder muſt be bottled or quickly drunk.

The Chips or Shavings of *Fir*, *Oak* or *Beech*, greatly promotes Fermentation, and therefore a new Caſk frequently occaſions Cyder to ferment too much.

Ginger helpeth Fermentation, promoteth its Duration, and gives a more brisk Spirit. A few Drops of dried Roſemary, Wormwood, Juice of Corinths, *&c.* tinge and add a pleaſant quickneſs: Juice of Mulberries, Black-berries, and above all Elder-berries preſſed among the Apples, if you add Clove-Gillyflowers dried and macerated thereunto; 'tis an excellent Cordial both for Tincture and Flavour; a ſmall Quantity of ſtampt Mallaga Raiſins, put into Milk, and ſuffered to percolate thro' an Hippocrates Sleeve, with a Spoonful or two of the Syrrup of Clove Gilliflowers to each Bottle, makes an incomparable Drink.

Boil Cyder immediately after the Preſs, before Fermentation.

The Cyder that runs from the ground or beaten Apples before they are in the Preſs, are much the beſt.

Fill not the Veſſels quite full, that there may be Room for the Cyder to gather a Head.

The Mildneſs and Temperature of the Weather is of much concernment in the Fermentation of Cyder.

Wheaten-Bran caſt in after Fermentation, thickens the Coat or Cream, and is a great Preſervation to it.

Cyder that is in danger of being ſpoiled, may be preſerved, or recovered by putting into a Hogſhead about a Gallon of unground Wheat, or ſome Muſtard-ſeed ground in about a Pint of Cyder, or Sack, which is better. Deadneſs or Flatneſs in Cyder, which is often occaſioned by the too free Admiſſion of Air into the Veſſel for want of right ſtopping, is remedied by grinding a ſmall Parcel of Apples and putting of them into it, ſtopping of it up cloſe, only you muſt ſometimes open the Vent that it force not the Veſſel; but then you muſt draw it off in a few Days either into Bottles or another Veſſel, leſt the Murc corrupt the whole Maſs; which may alſo be prevented in caſe you preſs your Apples, and only put in the Juice: The ſame may be done in Bottles, by adding about a Spoonful or two of new Muſt to each Bottle of dead Cyder, and ſtopping of it again. Cyder that is dead or flat will oftentimes revive again of it ſelf, if cloſe ſtopped, upon the Revolution of the Year and approaching Summer.

But Cyder that hath acquired a Deadneſs or Flatneſs by being kept in a Beer or Ale-Veſſel, is not to be revived again.

Wheat boiled till it begin to break, and when cold put into the Cyder, but not in too great a Quantity, and ſtirred well, will help it much; the like doth Cinamon: The Veſſel muſt be kept cloſe ſtopp'd.

But there is a Difference between ſharp or acid Cyder, and a Cyder that is eager or turned: The firſt hath its Spirits free and volatile, and may eaſily be retrieved by a ſmall Addition of new Spirits, or ſome edulcorating Matter; but the latter hath ſome of its Spirits waſted and decayed, ſo that all Additions are but vain Attempts to recover it.

Thick Cyder may, by a ſecond Fermentation, be made good and clear; but acid Cyder is rarely recovered.

Honey, or *Sugar*, mixed with ſome Spices, very much revives flat Cyder, let the Proportion be more or leſs, according to the Quantity of your Cyder.

Mixture of Fruits is of a great Advantage to Cyder, the meaneſt Apples being eſteemed to make as good Cyder as the beſt alone.

Stone Troughs are not good to beat or grind Cyder in, becauſe they bruiſe the Kernels too much, which gives an ill Taſte to the Cyder. And after they are ground or beaten, let them ſtand a Day or two before they are preſt, which will cauſe it to have a better Colour, and doth alſo cauſe it a little to ferment and maturate in the Pulp. Alſo after it is preſt 'tis good to let the Cyder ſtand in a Vat covered, to ferment about twenty four Hours, before it is tunned up, and then draw it by a Tap from the Vat within about two Inches from the Bottom, leaving the Feces or Dregs behind, which will not be loſt, if you put it upon the Chaff, for then it meliorates the Pur, or Water Cyder, if you make any.

How to make Water-Cyder. Boiled Water ſuffered to ſtand (till cooled) is beſt for *Water-Cyder*, as being more defecated. This ſmall Beveridge, or Cyderkin and Puree (as it is called) is made for the common Drinking of Servants, *&c.* ſupplying the place of Small-beer, and to many more agreeable. It is made by putting the Murc into a large Fat, adding what Quantity of Water you pleaſe, namely, about half the Quantity of the preſs'd Cyder, or more; as you deſire it ſtronger or ſmaller. Note, that the Water ſhould ſtand 48 Hours on it before you preſs it; when 'tis preſſed tunn it up immediately, and it will be fit to drink in a few Days, by clarifying of it ſelf. It is fortified by adding to it the Lees or Settling of better Cyder, putting it to the Pulp before Preſſure, or by ſome ſuperfluous Cyder which your Veſſels could not contain, or by grinding ſome fallen and refuſe Apples.

Cyderkin will be made to keep long by being boiled after Preſſure with ſuch a Proportion of Hops as is uſually added to Beer; in which caſe you need not to boil the Water before.

Some put in Ginger, Jamaica Pepper, and Bay Leaves, inſtead of Hops; which doth very well.

Your *Cyder*, or indeed *Perry*, being tunned up, leave a ſmall Vent open for ſome Days, until its windy Spirit is ſpent, which otherwiſe will break the Barrel, or find ſome other Vent that will always abide open, to the ſpoiling of the Cyder, if you find it not out and ſtop it.

If Cyder or Perry, proves thick and ſouriſh, put into the Cask at the Bung-hole ſome Apples, which will cauſe a new Fermentation, and very much quicken the Cyder, provided you draw it off into another Veſſel within a few Days after. But if it be only a little ſouriſh, or drawn off in another Veſſel, the way to correct or preſerve it, is to put about a Gallon of Blanched-Wheat into a Hogſhead, and ſo according to that proportion into a greater or leſſer Veſſel.

Let not your Apples be ground too ſmall, ſo as that too much of the Pulp may paſs with the Liquor, it being good to ſtrain it from the groſs Particles of the Apples before you put it into the Fat. Upon which Account 'tis that the Juice of ripe pulpy Apples, as *Pippins*, *Rennetings*, &c. that are of a ſyrupy tenacious Nature, do detain in 'em more of the diſperſed Particles of the Fruit that by the Preſſure comes out with the Liquor; which Particles or flying Lee being part of the Fleſh or Body of the Apple, is (equally with the Apple it ſelf when bruiſed) ſubject to Putrefaction, by which means by degrees the Cyder becomes hard or acid; whereas the Red-ſtreaks, Gennet-moyl, *&c.* that more eaſily part from their Liquor without the Adheſion of ſo much of the Pulp, are not ſo ſubject to reiterated Fermentation, nor to Acidity, as the other Sorts.

For Wine, Ale, Beer, and other Liquors, according as they tend more or leſs to Acidity, become clearer by the Precipitation of the groſs Lees, which being ſubject (as is ſaid) to Putrefaction, according as the corrupt Particles are more or leſs in it, the Liquor becomes ſo much the ſooner or later Vinegar. As for inſtance, in Beer, which when 'tis deſigned for Vinegar is never fermented, nor the Feces precipitated, as 'tis when preſerved for drinking.

And therefore if you intend your Cyder ſhall retain its full Strength, abſtract it from the groſs Parts. Alſo Cyder made of green immature Fruit will not fine kindly; and when it doth, it abides not long good, but ſuddenly becomes eager.

Generally the Cyder that is longeſt in Fining is the ſtrongeſt and moſt laſting, eſpecially if the Fruit hath been kept ſome time.

But Cyder, or any other Liquor, will be much longer in clearing in mild moiſt Weather, than cold dry Weather or Froſt. But if your Cyder or other Liquor doth not fine, you may take of Water-Glue, or Iſingglaſs, as 'tis commonly called, about the Proportion of three or four Ounces to a Hogſhead, beat it thin on ſome Anvil or Iron-wedge, and cut it in ſmall Pieces, laying it to ſteep in White-wine all Night; the next Day heat it ſome time over a gentle Fire till well diſſolved, then take a Part of your Cyder, as about one Gallon to twenty, wherein boil your diſſolved Glue, and put it into the whole Maſs of Liquor, ſtirring it well, and ſtopping it cloſe, ſo let it ſtand to ferment eight or ten Hours as you pleaſe; during this time the Glue being diſperſed through the whole Maſs, it will precipitate the Lee. When you obſerve it hath done working, you may draw it out gently at a Tap below the Scum, or you may firſt gently take off the Scum, as you pleaſe: Or you may ſteep your Iſing-glaſs in White-wine, enough to cover it; after 24 Hours, beat the Iſing-glaſs to Pieces, and add more Wine to it, and 4 times a Day ſqueeze it to a Jelly, and as it thickens add more Wine to it: When 'tis reduced to a perfect Jelly, take about a Pint or Quart to a Hogſhead, and add it to three or four Gallons of the Cyder you intend to fine, and mix well with the Jelly; putting it into your Veſſel of Cyder, ſtir it well with a Staff. This cold way is reckon'd much better than the other; for, boiling part of the Cyder makes it apt to decay the ſooner.

The beſt Way to preſerve Cyder long, is to bottle it; in doing which obſerve theſe Directions; You may bottle it in two or three Days after it is well ſettled, and before it hath throughly fermented; or you may bottle it in *March* following, which by the curious is adjudged the beſt time. After it has been bottled a Week, provided it be new, put into each Bottle a Piece of fine Loaf-Sugar, as big as a Nutmeg, which will make it briſk; but if you bottle it not till *March*, then you may put in the Sugar at the time of Bottling. Your great Care is required in the well Corking them, for if they take vent your Cyder or Perry (and indeed any ſort of Liquor whatſoever) will be dead, and by conſequence ſpoiled.

If your Bottles are in danger of the Froſt, cover them with Straw; and about *April* put them into the coldeſt Repoſitories.

If your Bottles are muſty, boil them in a Veſſel of Water, putting of them in whilſt the Water is cold to prevent their cracking; and then ſet them on Straw, and not on a cold Floor, when you take them out.

When your Cyder is thus bottled, if it were new at the bottling, and not abſolutely fine, it is good to let the Bottles ſtand a while before you ſtop them cloſe, or elſe open the Corks two or three Days after to give the Cyder Air, which will prevent the breaking of the Bottles againſt the next turning of the Wind into the South.

The meaner Cyder is more apt to break the Bottles than the richer, being of a more eager nature, and the Spirits more apt to fly, having not ſo ſolid a Body to detain them as the rich Cyders; and obſerve, that when any of the Bottles break through the Fermentation of the Cyder, to open your Corks, and give them vent, and ſtop them up again a while after, leſt you loſe many for want of this Caution.

Great Care is to be had in chooſing good Corks, much good Liquor being abſolutely ſpoil'd through the only Defect of the Cork; therefore ſome much commend Glaſs-ſtopples. If the Corks are ſteeped in ſcalding Water a-while before you uſe them, they will comply better with the Mouth of the Bottle than if forced in dry; alſo the moiſture of the Cork doth much help it to keep in the Spirits.

Therefore the laying of your Bottles ſide-ways where your Liquor is very fine, ſo as that the raiſing of them may not diſturb the Settling, nor the Lee beget any new Fermentation in them, is a great advantage to any Liquor.

In Summer you may keep them in cold Fountains, or in your Cellars covered over with Sand, and in Winter to prevent their breaking with the Froſt, cover them with Straw, and by this good ordering them you may keep them many Years, provided the Fruit be good, and of a ſtrong Body.

Of Wines made of the Juice of Fruits.

CHerries make a fine, cool and pleaſant Drink for the Summer Seaſon, but being of no ſtrong Body, it will not keep long; yet the *Morello Cherry* will keep, and for Brandy this doth far exceed the *Black Cherry*, being of a curious Taſte and a great Cordial; for the making this Wine gather ſuch Cherries that are ripe, and not rotten or bruiſed, and preſs them in a Hair Cloth as your *Apples* or *Pears*, after their grinding or Beating. Let the Liquor ſtand in the Vat to ſettle, and then draw it off into Bottles, which muſt be ordered as for *Cyder* and *Perry*, and well ſtopt with good Corks.

Plums make a good Wine, but not ſo briſk and fine as the Cherries; the Black Pear-Plum is the beſt. The Juice of the Plumb being of a thick ſubſtance, will eaſily bear Dilution; and the ſame is eaſily experimented, where Plumbs are in great plenty.

Mulberries make a rich, and high coloured Wine, and of a ſtrong Body; It is very good to put to ſmall or pale Wines to add a Tincture.

Rarsberries make an excellent pleaſant Wine; which if mixt with other Liquors, adds an excellent high Flavour and Guſt unto them. The uſual way to make this Wine, is to boil up the Juice with Sugar, and put it up in Bottles. Of this Juice two or three Spoonfuls are ſufficient to put into a Bottle of Claret, which will give it the Guſt of *Rasberry Wine*. The ſame way *Apricock*, and the Wine of other Fruit may be made.

Gooſberries extracted in their due time, being neither too ripe nor too green, and mixt with Water and Sugar, make a palatable Wine; it is uſually made without Boiling, becauſe that contracts a brown Colour, and Water is added to it, to mitigate the ſtrength. After prepare it thus; Let the *Gooſberries* be bruiſed, but not too much, which force from the Pulp through a Hair-cloth: The Juice that comes out put into an Earthen Pot, the which let ſtand for four or five Days to ſettle, then draw it clear off into Bottles, putting to each Bottle two Ounces of fine Sugar, and ſo bottle it up.

Currants are alſo a ſtrong Wine; it is to be mixt with ſome Water and Sugar, and is beſt to be boiled; when it is well ſettled, let it be put up into Bottles, and well corked. The *Red Dutch Currant*, or *Corinth*, yields a very rich and well-coloured Juice, and a vinous Liquor, which is to be diluted with an equal Quantity of Water boiled with refined Sugar, about the Proportion of one Pound to a Gallon of your Wine (when mix'd with the Water); and after the Water and Sugar ſo boiled together is cold, then mix it with the Juice of the Currants, and purifie it with Iſing-glaſs diſſolved in part of the ſame Liquor, or in White-wine, as before directed for purifying Cyder, after the rate of an Ounce to eight or ten Gallons, but boil it not in a Braſs Veſſel for the Reaſons before mentioned: This will raiſe a great Scum on it of a great Thickneſs, and leave your Wine indifferent clear, which you may draw out either at a Tap, or by your Siphon into a Barrel, where it will finiſh its Fermentation, and in three Weeks or a Month become ſo pure and limpid, that you may bottle it with a piece of Loaf-ſugar in each Bottle in bigneſs according to your Diſcretion, which will not only abate its quick Acidity that it may as yet retain, but make it briſk and lively.

At the time you bottle it, and for ſome time after, it will taſte a little ſweet ſoure, from the Sugar, and from the Currant; but after it hath ſtood in the Bottles ſix or eight Weeks, it will be ſo well united, that it will be a delicate, palatable, rich Wine, tranſparent as the Ruby, of a full Body, and in a Refrigeratory very durable; and the longer you keep it, the more vinous will your Liquor be.

The Currants ſhould hang on the Trees till they are thorough ripe, which is long after they are become red, to digeſt and mature their Juice, that it need not that large Addition of Sugar that otherwiſe it would do, in caſe the Fruit had been gathered when firſt they ſeem'd to be ripe, as is vulgarly uſed, and the common Receipts direct: Alſo it makes the Liquor more ſprituous and vinous, and more capable of Duration than otherwiſe it would be, if the Fruit had not received ſo great a Share of the Sun.

Quinces make a ſtrong and excellent Wine, which is thus made: Slice them, then preſs them in a Hair-cloth; the Juice muſt ſtand in a Fat or Veſſel, to ſettle as the other Liquors, before it is bottled up. If Sugar and ſome Aromatick Spices were put in, it would much add to the Pleaſantneſs of the Taſte.

Mead or *Metheglin*, being rightly ordered, is an excellent Liquor, the Pureneſs and Whiteneſs of the Honey is the chief Cauſe of its Clearneſs. It is made ſeveral Ways.

I ſhall give you Inſtructions for the Making it two or three Ways, which are adjudged the beſt.

Take one Part of clarified Honey, and eight Parts of pure, clear, running, or Spring-Water, (but for weak *Mead* a far leſs Quantity of Honey) boil them well together in a Copper, or other Veſſel, until good Part be conſumed; then take it off the Fire, and when it is almoſt cold, tun it up, and it will work of it ſelf; then ſo ſoon as it has done working, ſtop up the Veſſel very cloſe, and, if you have Conveniency, bury it under Ground for about two Months; if not, keep it in a low Place, and this will take away the Taſte and Smell of the Honey and Wax, and give it a Flavour like Wine.

If you would have it of an Aromatick Taſte, to about twelve Gallons you may add theſe Ingredients, *viz.* Flowers of Roſemary and Margeram, of each a ſmall Handful; a Handful of Mother of Thyme, one Ounce of Nutmegs and Cloves, half an Ounce of Cinamon, and of Ginger and Cardamom of each two Drams; ſlice the Nutmegs and Ginger, and bruiſe the Cloves.

Another Way is, To twelve Gallons of ſcum'd Muſt or Liquor, as aforeſaid, take one Ounce of Ginger, half an Ounce of Cinamon, of Cloves and Pepper of each two Drams: Let all theſe be groſs beaten, the one Half ſew'd in a Bag, and the other looſe, and let them boil in the Liquor about half an Hour.

Some mix their Honey and Water until it will bear an Egg, by which Rule you may make it ſtronger or weaker at your Pleaſure.

Another Way is, To fixteen Gallons of Muſt take one Ounce of Thyme, one Ounce of Eglantine, half an Ounce of Margeram, and as much of Roſemary; two Ounces of Ginger, one Ounce of Cinamon, and of Cloves and Pepper of each half an Ounce, all groſs beaten: Of theſe Ingredients let the one Half be boil'd in a Bag, and the other looſe, as aforeſaid.

Another Way, To about eight Gallons of Water, and one Gallon of Honey, as aforeſaid, add three or four Pounds of Reaſins of the Sun, ſtoned, without any other Ingredients or Spices.

Note, That all green Herbs are apt to make the Metheglin or Mead flat or dead, and the Cloves make it high-colour'd. The Scumming it in the Boiling is injurious; for that being of the Nature of Yeſt, helps it to ferment and purifie; but it is cuſtomary with moſt to take off the Scum in the Boiling, and for ſetting it to work, to uſe Yeſt, which is not ſo good.

Mr. *Mortimer* ſays, The fineſt Mead is that made of what they call *Live-Honey*, which is what naturally runs from the Combs, (but that from Swarms of the ſame Year is the beſt) and add ſo much Honey to clear Spring-water, as that when the Honey is diſſolved thoroughly, an Egg will not ſink to the Bottom, but eaſily ſwim up and down in it. Boil this Liquor in a Copper-Veſſel for about an Hour or more, and by that time the Egg will ſwim above the Liquor about the Breadth of a Groat; then let it cool. The next Morning you may barrel it up, adding to the Proportion of fifteen Gallons an Ounce of Ginger, half an Ounce of Cinamon, Cloves and Mace, of each an Ounce, all groſly beaten; for if you beat them fine they will always float in your Mead, and make it foul; and if you put them in whilſt it is hot, the Spices will loſe their Spirits. You may alſo add a Spoonful of Yeaſt at the Bung-hole to encreaſe its Fermentation; but let it not ſtand too cold at firſt, that being a principal Impediment to its Fermentation: As ſoon as it hath done Working, ſtop it up cloſe, and after a Month bottle it; and the longer it is kept, the better it will be. By the Floating of the Egg you may judge of its Strength, and you may make it more or leſs ſtrong, as you pleaſe, by adding of more Honey or more Water; and by long boiling of it, it is made more pleaſant and durable.

The Juice of the *Birch-Tree* may be extracted in very great Quantities: Where thoſe Trees are plentiful, many Gallons in a Day may be gathered from the Boughs of the Tree by cutting them off, leaving their Ends fit to go into the Mouth of a Bottle, and ſo by hanging many Bottles on ſeveral Boughs, the Liquor will diſtil into them very plentifully. The Seaſon for this Work is from the End of *February* to the End of *March*, whilſt the Sap riſes, and before the Leaves ſhoot out from the Tree; for when the Sap is forward, and the Leaves begin to appear, the Juice by a long Digeſtion in the Branch grows thick and colour'd, which before was thin and limpid. The Sap alſo diſtils not in cold Weather, whilſt the North and Eaſt Winds blow, nor in the Night-time, but very well and freely when the South or Weſt Winds blow, or the Sun ſhines warm.

That Liquor is beſt that proceeds from the Branches, having had a longer time in the Tree, and thereby being better digeſted, and acquiring more of its Flavour than if it had been extracted from the Trunk. Poor People (where Trees are plentiful) will draw it for two or three Pence the Gallon: To every Gallon whereof add a Pound of refined Sugar, and boil it about a Quarter or Half an Hour; then ſet it to cool, and add a very little Yeaſt to it, and it will ferment, and thereby purge it ſelf from that little Droſs that is in the Sugar and Liquor. Put it into a Barrel, and add thereto a ſmall Proportion of Cinamon and Mace bruiſed, about half an Ounce of both to ten Gallons, ſtop it very cloſe, and about a Month after bottle it. Its Spirits are ſo volatile, that they are apt to break the Bottles, unleſs placed in a cool Place, without which Conveniency it will not keep long. Inſtead of every Pound of Sugar, if you add a Quart of Honey, and boil it as before, adding Spice to it, and fermenting it as you do Mead, it makes an admirable Drink, both pleaſant and medicinal.

Ale alſo brew'd of this Juice or Sap, is eſteem'd very wholſome.

Mum, ſays Mr. *Mortimer*, being become a common Drink, very wholſome, and what may be made of our own Product, I ſhould hope it might be made a Home Commodity, inſtead of a Foreign; and therefore for our Encouragement to make it a Home Commodity, he gives us the following Receipt, as recorded in the Town-houſe in *Brunſwick:* Take 63 Gallons of Water, that has been boil'd to the Conſumption of a Third part, brew it according to Art with ſeven Buſhels of Wheat-Malt, one Buſhel of Oat-meal, one Buſhel of ground Beans; and when tunn'd, let not the Hogſhead be too full at firſt; and when it begins to work, put into it of the inner Rind of Fir three Pounds, Tops of Fir and Birch one Pound, Carduus Benedictus three Handfuls, Flowers of Roſa-Solis a Handful or two, Burnet, Betony, Marjoram, Avens, Penny-Royal, wild Thyme, of each a Handful and a half; of Elder-Flowers two Handfuls or more, Seeds of Cardamom bruiſed three Ounces, Barberries bruiſed one Ounce. Put the Herbs and Seeds into the Veſſel, when the Liquor hath wrought a while; and after they are added, let the Liquor work over the Veſſel as little as may be. Fill it up at laſt, and when 'tis ſtopp'd, put into the Hogſhead ten new-laid Eggs, unbroken or crack'd; ſtop it up cloſe, and drink it at two Years End.

But he adds, Our *Engliſh* Brewers uſe Cardamom, Ginger and Saſſafras, which ſerves inſtead of the inner Rind of Fir; alſo Walnut-Rinds, Madder, Red Sanders, and Enula Campana; and ſome make it of Strong-Beer and Spruce-Beer: And where 'tis deſign'd moſtly for its Phyſical Vertues, ſome add Water-creſſes, Brook-lime, and wild Parſley, with ſix Handfuls of Horſe-Raddiſh raſped to every Hogſhead, according to what their Inclinations and Fancy moſt lead them.

CHAP. XI.

Of Malt-making, *and the ſeveral Ways of it; Beer, Ale, &c.*

MALT, being an excellent Merchandiſe, and a Commodity of great Profit to the Huſbandman, and the making of good *Beer* depending much upon it, it may be of Uſe to the Farmer to know when his *Malt* is well made, if he doth not make it himſelf: And likewiſe for the Improvement of our *Engliſh* Liquors, to conſider ſome of the ſeveral Ways of making of *Malt*; in order to which, after you have, according to Mr. *Markham*, proportion'd the Quantity of Corn you mean to ſteep, which ſhould ever be anſwerable to the Content of your Ciſtern, and your Ciſterns to your Floors, let it run down from the upper Granary into your Ciſtern; or otherwiſe be carry'd into your Ciſtern, as you ſhall pleaſe, or your Occaſions require. This Barley ſhould by all means be very clean, and when your Ciſtern is filled, you ſhould from your Pump or Well convey the Water into the Ciſtern, till all the Corn be drench'd, and that the Water float above it. If there be any Corn that will not ſink, ſtir it about and wet it, and ſo let it reſt, and cover the Ciſtern; and thus, for the Space of three Nights, you ſhould let the Corn ſteep in the Water. After three Nights are expired, the next Morning pluck out the Bung-ſtick or Plug, which ſtops the Hole in the Bottom of the Ciſtern, and ſo drain the Watter clean from the Corn, and ſave the Water: For much light Corn and other things will come forth with it, which is very good Swines Meat. Having drain'd it, let the Ciſtern drop all that Day, and in the Evening with your Shovel empty the Corn from the Ciſtern into the Malt-Floor; and when all is out, and the Ciſtern cleanſed, lay all the wet Corn on a great Heap, round or long, and flat on the Top, and the Thickneſs of this Heap muſt be anſwerable to the Seaſon of the Year; for if the Weather be extream cold, then the Heat ſhall be made very thick, as three or four Foot or more, according to the Quantity of the Grain; but if temperate and warm, the Heap ſhall be made thinner, as two Foot, one Foot and an half, or one Foot: This is called by Maltſters a Couch or Bed of raw *Malt*.

Let the Corn lie three Nights more in this Couch without ſtirring, and if you find it begins but to ſprout, (which is called *Coming of Malt*) though never ſo little, break it open, and in the midſt, where the Corn lay neareſt, you will find the *Come* of a greater Largeneſs; then with your Shovel turn over all the outward Part of the Couch inward, and the inward outward, and make it at leaſt three or four times as big as it was at firſt, and ſo let it be all that Day and Night; and the next Day with your Shovel turn the whole Heap over again, encreaſing the Largeneſs, and making it of one indifferent Thickneſs over all the Floor, not above a Handful thick, not failing after, for the Space of fourteen Days, to turn it all over twice or thrice a Day, according to the Seaſon of the Weather; for if it be warm, the Malt muſt be turn'd oftner; if cool, it may lie looſer, thicker, and longer together.

Upon the Expiration of the three Weeks, (having bedded your Kiln, and ſpread a clean Hair-cloth thereon) lay the *Malt* as thin as may be, as about three Fingers Thickneſs, on the Hair-cloth, and ſo dry it with a gentle and ſoft Fire, ever and anon turning the *Malt* (as it dries on the Kiln) over and over with your Hand, till you find it ſufficiently well dried, which may be known both by the Taſte when you bite it in your Mouth, and alſo the falling off of the *Come* or Sprout, when it is thoroughly dried. As ſoon as you ſee the *Come* begin to ſhed, you muſt in the Turning of the *Malt* rub it betwixt your Hands, and ſcoure it to make the *Come* fall away; then finding it all ſufficiently dried, firſt put out your Fire, and let your *Malt* cool upon the Kiln for four or five Hours, and after the raiſing up the four Corners of the Hair-cloth, and gathering together the *Malt* on a Heap, empty it, with the *Come* and all, into your Garners, and there let it lie (if you have not preſent Occaſion for it) for a Month or two to ripen, but no longer. For as the *Come* or Duſt of the Kiln for ſuch a Space mellows and ripens the *Malt*, making it both better for Sale or Expence; ſo to lie too long in it doth engender Weevels, Worms and Vermin, which deſtroy the Grain.

For the Dreſſing and Cleanſing of *Malt*, you muſt winnow it with a good Wind, either from the Air or Fan, and before the Winnowing you muſt rub it well between your Hands to get the *Come* or Sprouting clean away: For the Beauty and Goodneſs of *Malt* is when it is moſt ſmug, clean, bright, and likeſt to Barley in the View; for then there is leaſt Waſte, and greateſt Profit: For Come and Duſt drinks up the Liquor, and gives an ill Taſte to the Drink. After it is well rubb'd and winnow'd, you muſt then ree it over in a fine Sieve, and if any of the *Malt* be uncleanſed, rub it again into the Sieve till pure, and the Rubbings will ariſe on the Top of the Sieve, which you may caſt off at Pleaſure; and both thoſe Rubbings, the Chaff and the Duſt which come from the Winnowings are very good Swines Meat, mix'd either with Whey or Swillings. And thus after the *Malt* is reed, either put it up in Sacks, or into a well cleanſed Garner.

The ſame Author proceeds on his Remarks about the Making of *Malt*, and ſays, *Firſt*, That there is Difference in Mens Opinions, as touching the conſtant Time for the Mellowing and Making of *Malt*, that is, from the firſt Steeping until the time of Drying; for ſome will allow both Fat and Floor hardly a Fortnight, ſome a Fortnight and two or three Days, for theſe Reaſons.

1. They ſay, it makes the Corn look whiter and brighter, and gets not ſo much of the Sullying and Foulneſs of the Floor, as that which lies three Weeks, which makes it a great deal more beautiful and ſaleable: Next it does not come or ſhoot out ſo much Sprout as that which lieth a longer time, and ſo preſerveth more Heart in the Grain, makes it bold and fuller, and ſo conſequently more full of Subſtance, and able to make more of a little, than the other of much more.

Mr. *Markham* owns, that Corn which lieth leaſt time on the Floor muſt be the whiteſt and brighteſt; but yet that which wants any of the due Time can neither ripen, mellow, or come to true Perfection. Leſs than three Weeks, cannot ripen Barley; for what Time it hath to ſwell and ſprout, it muſt have full that Time to flouriſh, and as much Time to decay; in leſs than a Week it cannot do the firſt, and ſo in a Week the ſecond, and in another the third; ſo that in leſs than three a Man cannot perfect *Malt*. Again, he confeſſes, that *Malt* which hath the leaſt Come muſt have the greateſt Kernel, and ſo be moſt ſubſtantial; yet the *Malt* which puts not out its full Sprout, but has that Moiſture (with too much Heart) driven in, which ſhould be expell'd, can never be *Malt* of any laſting, becauſe it has ſo much moiſt Subſtance, as makes it both apt to corrupt and breed Worms. That it is true, that this Haſte-made *Malt* is faireſt to the Eye, and being ſpent as ſoon as bought, little or no Loſs is to be perceived; but that yet if it be kept three or four Months longer, unleſs the Place where it is kept be like a Hot-houſe it will ſo give again, that it will be little better than raw *Malt*, and ſo good for no Service without a ſecond Drying.

Beſides, *Malt* that is not ſuffer'd to ſprout to the Full kindly, but is ſtopp'd as ſoon as it begins to peep, much of that *Malt* cannot come at all; for the moiſteſt Grains do ſprout firſt, and the hardeſt are longer in breaking the Huſk. Now if you ſtop the Grain on its firſt Sprouts, and do not give all Leiſure to come on one after another, you will have Half *Malt*, and Half *Barley*.

Next that there ought great Care to be taken in the well turning of *Malt*, or elſe ſome will come too much, and ſome too little: And likewiſe in the Coming or Sprouting of *Malt*, which as it muſt not come too little, ſo it muſt not come too much, and that which is called *Comed* or *Sprouted* too much, is when either by Negligence, for want of looking to the Couch, and not opening of it, or for want of turning when the *Malt* is ſpread on the Floor, it comes and ſprouts at both Ends, which is called *Acroſpired*, and is fit only for Swine: Therefore you muſt be ſure to have a ſpecial Care in ordering the Couch, to heap the hardeſt Grain inward and warmeſt, to make it all come very indifferently together. And if it happens that your Barley is ſome old and ſome new Corn mixed together, you may be aſſured this Grain can never ſprout equally together, by reaſon the one exceeds the other in Moiſture. In this Caſe obſerve which comes firſt, which will be in the Heart of the Couch, and with your Hand gather it by it ſelf into a ſeparate Place, and then heap the other together again, and ſo continue to do till all the other is ſprouted. Mind alſo, that if your *Malt* be hard to come or ſprout, and that the Fault conſiſts more in the Coldneſs of the Seaſon, than any Defect of the Corn, you may cover the Couch over with thick Woollen-cloths, *&c.* the Warmth whereof will make it come preſently, which once perceived, forthwith uncloath it.

Of Scotch Malt.

IF the Reader would be inform'd how *Malt* is made in *North-Britain*, Sir *Robert Murrey* gives this Account; That 'tis made there of no other Grain but Barley, whereof there are two Kinds; one which hath four Rows of Grain in the Ear, commonly called *Big*, and the other two. The firſt is the more commonly uſed; but the other makes the beſt *Malt*. That the ſooner Barley hath been thraſh'd, it makes the better *Malt*: But if it hath been thraſh'd ſix Weeks or upward, it proves not good *Malt*, unleſs it be kept in one equal Temper; whereof it eaſily fails, eſpecially if it be kept againſt a Wall: For that which lies in the middle of the Heap is freſheſt, that at the Outſides and at Top is over-dried, that next the Wall ſhoots forth, and that at the Bottom rots: So that when it comes to be made into *Malt*, that which is ſpoil'd does not come well, (as they call it) that is, never gets that right mellow Temper *Malt* ought to have, and ſo ſpoils all the reſt. For thus ſome Grains come well, ſome not at all, ſome half, and ſome too much. That the beſt Way to preſerve thraſh'd Barley long in good Temper, is not to ſeparate the Chaff from it; but as long as it is unthraſh'd it is always good. That Brewers uſe to keep their Barley in large Rooms, on boarded Floors, laid about one Foot in Depth, and ſo turned over now and then with Scoops. That the Barley that has been overheated in the Stack or Barns before it is ſeparated from the Straw, will never prove good for *Malt*, nor any other Uſe. But though it heat a little after it is thraſh'd, and kept in the Chaff, it will not be the worſe, but rather the better for it; for then it will come the ſooner, and more equally. That a Mixture of Barley, that grew on ſeveral Grounds, never proves good *Malt*, becauſe it comes not equally: So that the beſt Barley to make *Malt* of is that which grows in one Field, and is kept and thraſh'd together.

You are to take good Barley, newly thraſh'd, and well purged from the Chaff, and put thereof eight Boles, that is about ſix *Engliſh* Quarters, in a Stone-Trough, where let it infuſe, till the Water be of a bright reddiſh Colour, which will be about three Days more or leſs, according to the Moiſtneſs or Drineſs, Smalneſs or Bigneſs of the Grain, Seaſon of the Year, or Temper of the Weather. In Summer *Malt* never makes well, in Winter it will need longer Infuſion than in the Spring or Autumn. That it may be known when ſteep'd enough by other Marks, beſides the Colour of the Water, as the exceſſive Swelling of the Grain; or if over-ſteeped, by too much Softneſs, being, when in the right Temper, like that Barley which is prepared to make Broth of, or the Barley, called by ſome *Urgewonder*.

That when the Barley is ſufficiently ſteep'd, they take it out of the Trough, and lay it in Heaps, ſo let the Water drain from it; then after two or three Hours turn it over with a Scoop, and lay it in a new Heap about 24 Inches deep. This they call the *Coming Heap*, and in the Management of it aright lies the greateſt Skill. It will lie forty Hours more or leſs, according to the fore-mention'd Qualities of the Grain, *&c.* before it come to the right Temper of *Malt*, which that it may do equally is moſt to be deſired. It's carefully to be look'd unto, being in the Heap, after the firſt fifteen or ſixteen Hours. For about that time the Grains will begin to put forth the Root, which when they have equally and fully done, the *Malt* muſt within an Hour after be turn'd over with a Scoop, otherwiſe the Grains will begin to put forth the Blade or Spire alſo, which by all means muſt be prevented; for hereby the *Malt* will be utterly ſpoiled, both as to Pleaſantneſs of Taſte and Strength.

That if all the *Malt* come not equally, becauſe that which lies in the middle being warmeſt, will uſually come firſt, turn it over, ſo as the outmoſt may lie inmoſt, and ſo leave it till all become alike. That as ſoon as the *Malt* is ſufficiently come, turn it over to a Depth not exceeding five or ſix Inches, and by that time it is all ſpread out, begin and turn it over and over again three or four times. Afterwards turn it over in like manner once in four or five Hours, making the Heap thicker by Degrees, and continuing ſo to do conſtantly for the Space of 48 Hours at leaſt. This frequent Turning of it over, cools, dries and deads the Grain, whereby it becomes mellow, melts eaſily in brewing, and ſeparates entirely from the Huſk.

They then throw up the *Malt* into a Heap as high as they can, where they let it lie till it grows all as hot as your Hand can endure it, which uſually comes to paſs in ſome thirty Hours Space; and this perfects the Sweetneſs and Mellowneſs of the *Malt*. That after the *Malt* is ſufficiently heated, they throw it abroad to cool, and turn it over again about ſix or eight Hours after, and then dry it upon the Kiln, where after one Fire, which muſt ſerve for 24 Hours, they give it another more ſlow; and if need be, a third. For if the *Malt* be not thoroughly dried, it cannot be well ground, neither will it diſſolve well in Brewing, and the *Ale* it makes will be red, bitter, and will not keep.

The beſt Fuel is Peat, the next Char-coal, made of Pit-coal or Cinders: Heath, Broom and Furzes are naught. If there be not enough of one Kind, burn the beſt firſt, for that gives the ſtrongeſt Impreſſion as to the Taſte.

Of Derby-ſhire Malt.

D*Erby-Ale*, being a Liquor much eſteem'd and drank, it will not be unſeaſonable to add here an Account of the Preparation of *Malt* for it in the County of *Derby* it ſelf, where the true Liquor is brew'd. The Corn or Barley of which it is made is either *Sprat* or *Long-ear'd*, ſo called from the Length of it; or *Battledoor Barley* from the Fatneſs of the Ear. Chuſe bold, dry, ſweet Barley, of a fair Colour, thin Skin, clean falter'd from Hains, and dreſs'd from Foulneſs, Seeds and Oats. When you have put what Quantity of Barley you think fit into Ciſterns, cover it with Water, eſteeming that drawn from the Brook, by reaſon of its Fatneſs, much better than that from the Spring: Let it ſteep therein till cruſhing the Corn, ſet end-ways betwixt your Fingers, the Huſk will riſe and ſhoot a little from it, then draw off the Water, and let it lie ſix, eight, ten, or twelve Hours to drain.

Note, That Barley bought about *Michaelmas* takes much leſs time in the Water, than afterwards when it has had the Sweat in the Mow; and the moſt experienced Maltſters judge it fit to give the Barley ſomething too little rather than too much Water, becauſe having imbibed too much, many Corns will ſmilt, or have their Pulp turn'd into a Subſtance like thick Cream, which cruſhes out in ſtirring; others will have the Sprit drowned, and moſt of thoſe which come without extraordinary Pains will ſend forth their Subſtance in an Acroſpire.

The Barley being ſteep'd enough, and the Water well drain'd, throw it out upon the Couch-Floor: If the Weather be immoderately warm, immediately couch it about a Foot thick; but if you find it hath taken much Water, or a hotter Seaſon require it, ſpread it on the Floor much thinner; yet if the Weather be moderately cold, let it lie twelve Hours on a Heap, the Edges being only ſwept cloſe up; after which, or a longer time in a Froſt, they ſpread it in ſuch a Thickneſs as the Weather and Water it ſeems to have taken may require.

It is ſtirr'd with the broad Caſting-Shovel uſually thrice a Day in moderate Weather, but in cold only twice; and in hard Froſt, when the Outſides of the Couch are apt to freeze, ſome have couched it up a Yard thick covered with an Hair-cloth, and ſtirred only once a Day, the Maltſter being always careful to throw the frozen Outſides into the Middle till the Corn begin to fork, and warm in the Couch, after which, if it be not laid too thin, it will not eaſily freeze. Sometimes in the hot Months of *May*, *June*, &c. the Maltſter will ſtir his Barley-couches till the Sprit begins to fork five or ſix times a Day or more, it being always his Care to keep them from drying too much on the Outſides, leſt they be parch'd again into Barley.

Barley, after it has been couch'd four or five Days in cold Weather will ſweat a little, and begin to ſhew the Chit or Sprit at the Root-End of the Corn, and in four or five Days more (during which time it continues ſweating, as is eaſily ſeen by ſtroaking of the drier Top of the Couch) it will become long enough; but now, except the Weather grow cold, it muſt ſtill be laid thinner, and ſtirr'd three or four times a Day: When the Come is long enough, at leaſt in Summer, it has chitted in 24 Hours after it has been thrown forth of the Ciſtern, and within three Days come enough, the Maltſter being forced to ſtir it ſix, ſeven, or eight times a Day, to keep it from running out, or the Sprit from coming too long. It is the chief Art of the Maltſter to make the Barley come even in the Couch, when in the Heat of Summer, the Chit peeps before the Ciſtern is empty.

It is a laborious Time to the Maltſter when Barley begins to grow in the Fields in the Spring; for that in the Couch, by ſome kind of Sympathy, will be ſo active, that it will require extraordinary much ſtirring to keep it from coming too long, or emptying the Pulp of the Corn in Sprits, which it is his Care to prevent, not only leſt it ſhrink the Corn in meaſure, which it will do ſomething, but alſo leſt it leave him only the Huſk of the Corn inſtead of *Malt*.

When the *Malt* is come enough, throw it thinner on the Floor to wither, and ſtir it once or twice that Day extraordinary. Being once ſtopt with ordinary Care and Stirring, it will be kept from coming. The Corn is uſually come enough when the Sprits are about half an Inch long, but in Summer let them be a little longer than in Winter, to make the *Malt* raſh. If it be come too much, it will look rugged, and be apt to ſtick together, and when ſtirr'd will fall uneven, or on Heaps: Then being ſtay'd from coming, remove it into your upper Floors, where keep it with ſtirring in hot Weather three, four or five times a Day, to wither it as Neceſſity requires. When the Sprits come forth at the Root-end of the Corn, another Sprit, called the *Acroſpire* begins to ſtir at the ſame End, and as the exterior Sprits run faſt out, it moves ſlowly backward under the Skin unſeen; and when they are come long enough, it is ſeldom gone further back than the Middle of the Corn; but if the *Malt* afterwards be not cooled too haſtily, or caſt over thin on the withering Floor, this will run back to the End of the Corn, to which if it reach not, the Part of the Corn which it paſſeth not will remain unmalted, the reſt will be perfect *Malt*. But if for want of ſtirring the *Malt*, or giving the Barley too much Water in the Ciſtern, the Acroſpire come out, it carries forth with it the Heart of the Corn, and leaves little but Huſk.

After the Malt has lain on the withering Floors about twelve or fourteen Days, it will be fit for the Kiln, or ſooner, if it begin to Acroſpire; yet in ſharp Froſts it will ſcarce be ready in three Weeks. In Summer and hot

Plate. 2.

Malt Kiln
Fig: 1

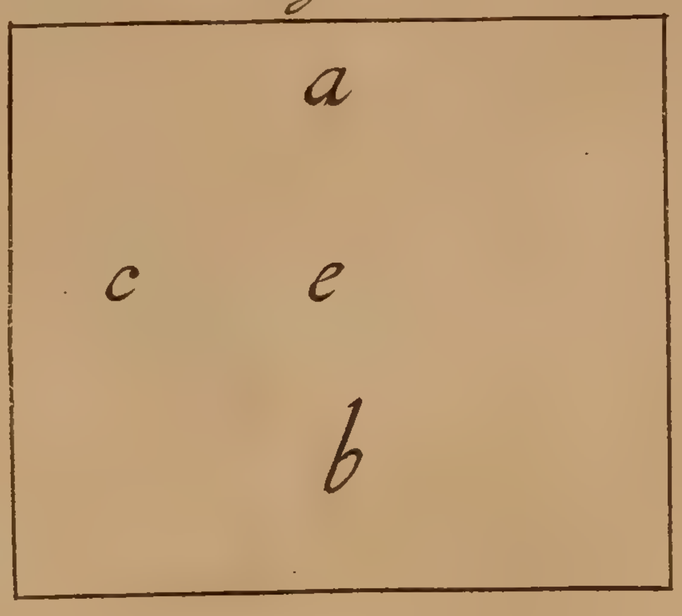
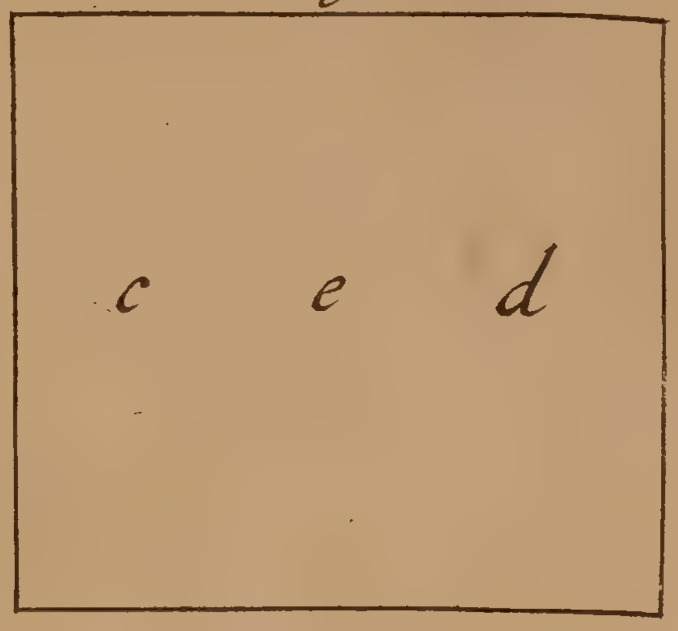
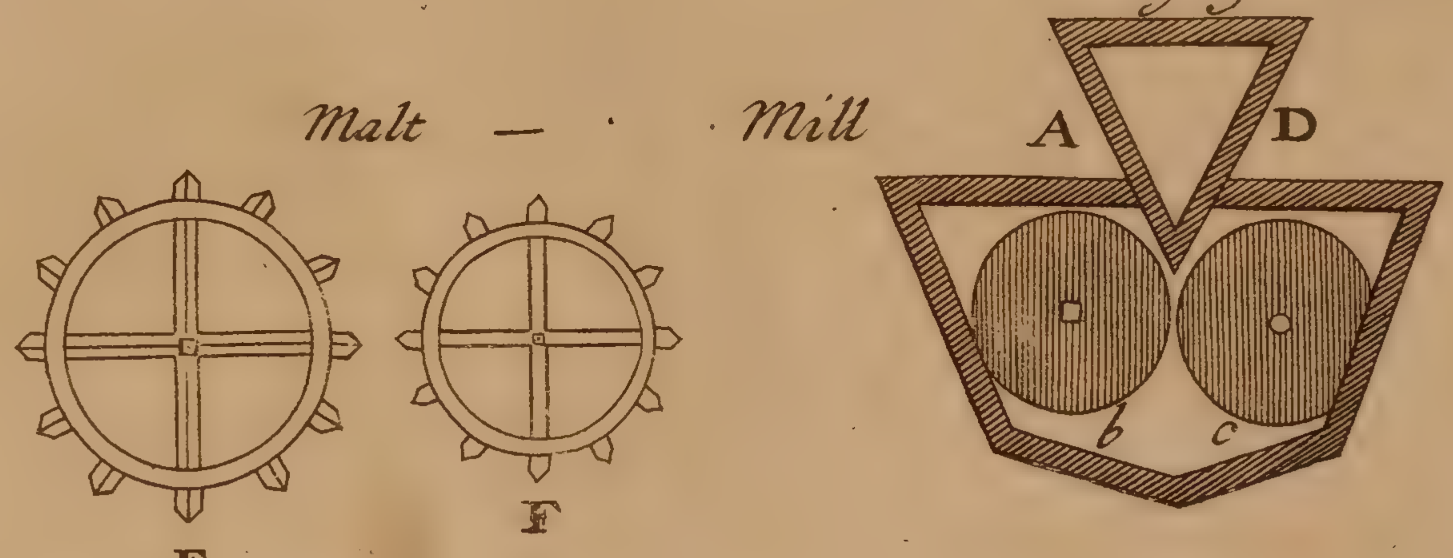


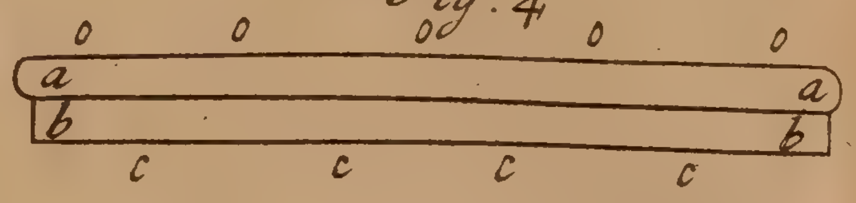
Fig: 2



Malt — Mill
Fig: 3



Hedge – Row
Fig: 4


o
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Grubbing Engine
Fig: 5

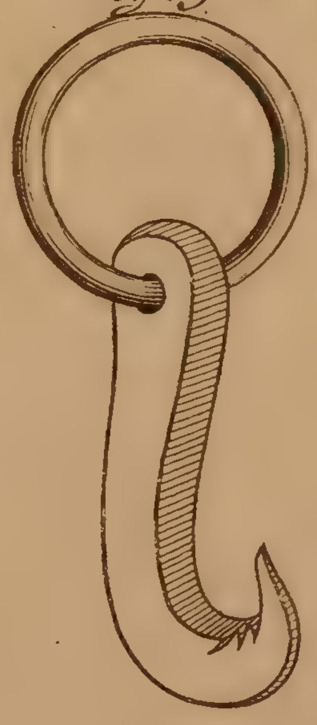


Fig: 6

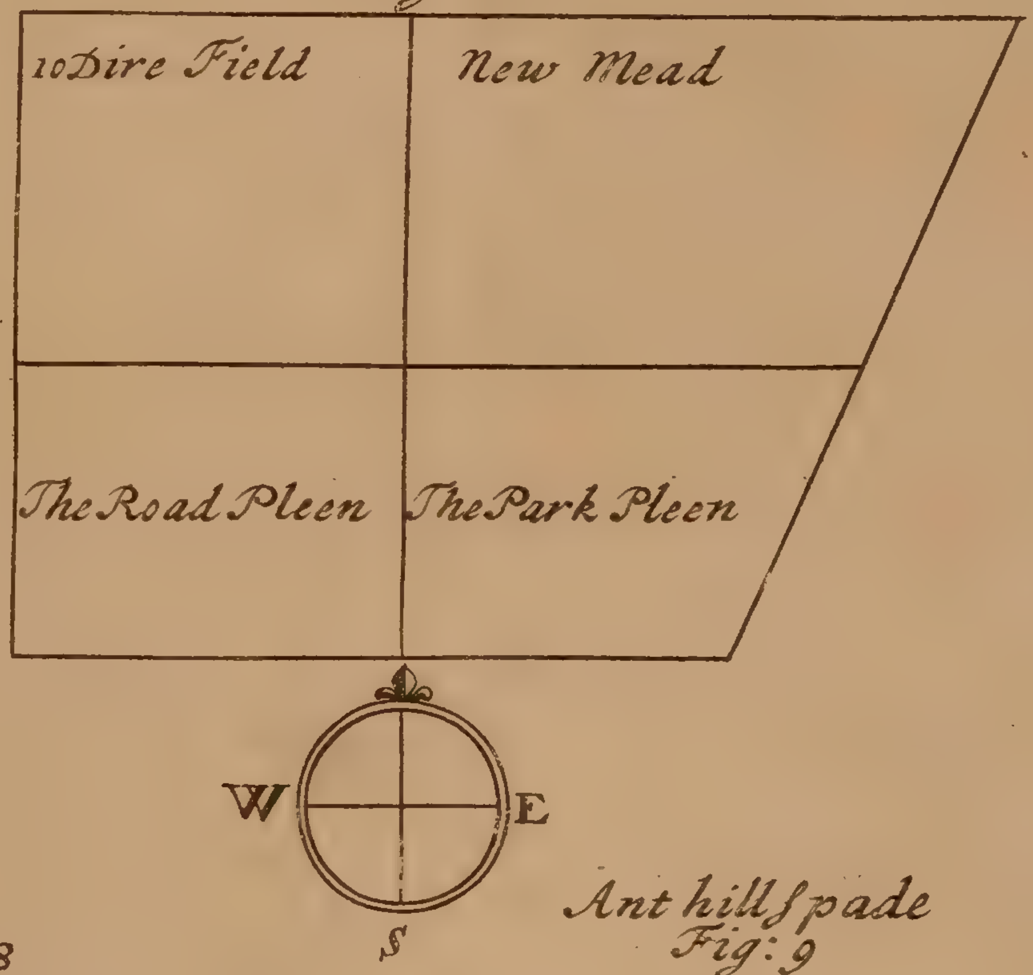
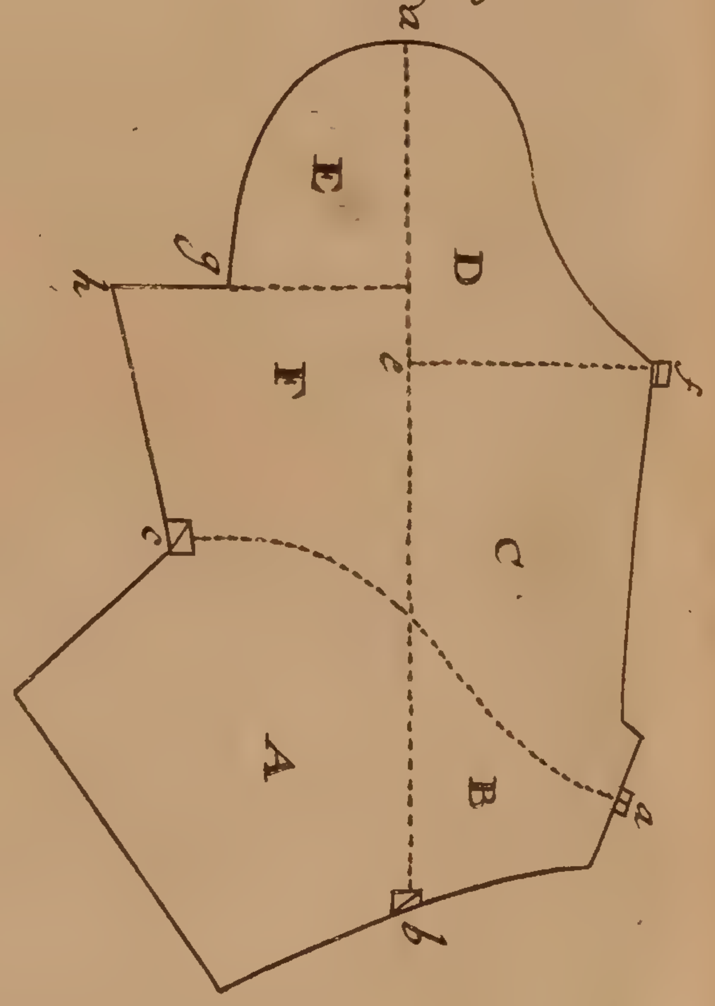

10Dire Field
New Mead
The Road Pleen
The Park Pleen
W
E
S

Fig: 7


a
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d
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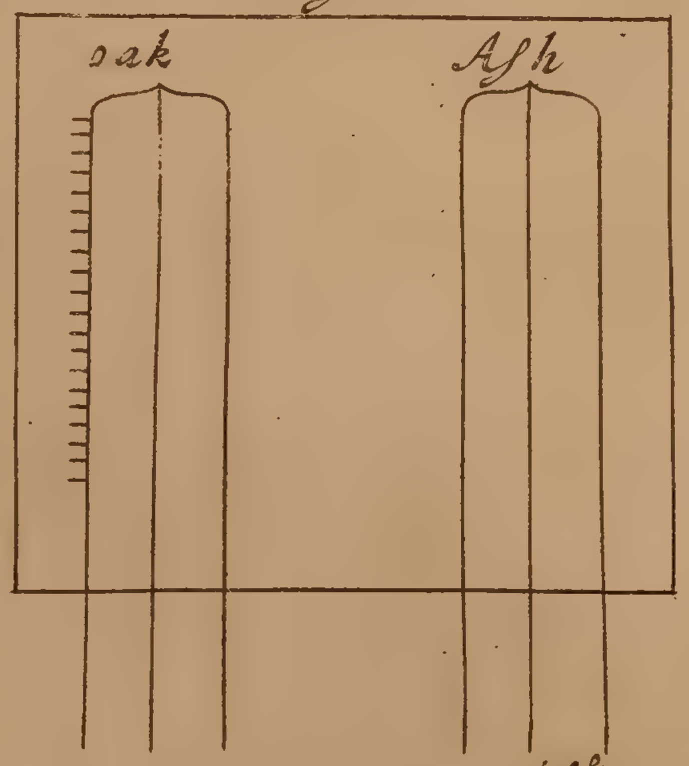
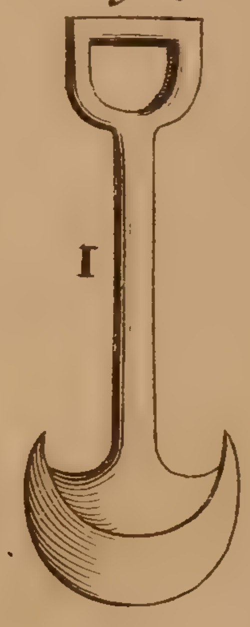
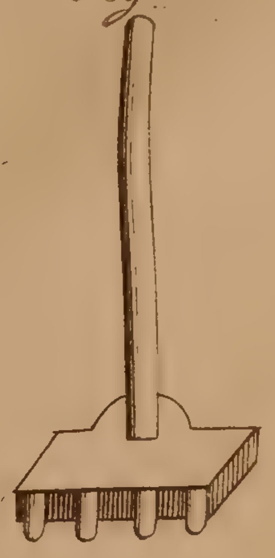
Fig: 8



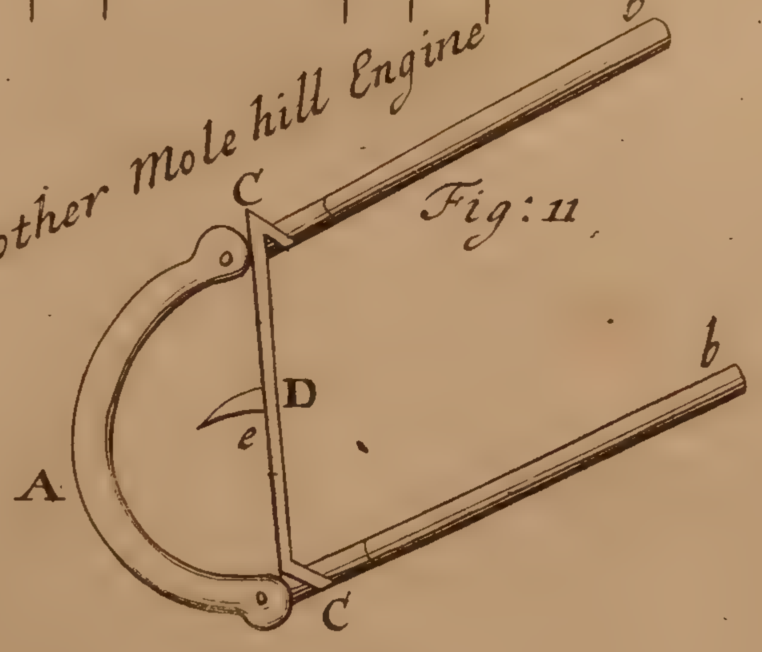
Ant hill spade
Fig: 9



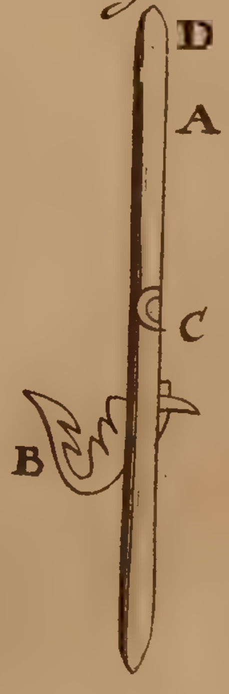
Mole hill Engine
Fig: 10



Another Mole hill Engine
Fig: 11



Shrub Instrument
Fig: 12



hot Weather the Corns that are bruiſed by the Maltſters Feet or Shovel in ſtirring, will be apt to mould, and the Malt if kept but a little too thick, or omitted when it ought to be ſtirred, will acroſpire; and if to prevent the acroſpiring it be thrown thin, many Corns will dry and parch into Barly again. Again, the acroſpire in thoſe that Come, will ſcarce run back to the middle of the Corn, ſo that one half of it will be left Barley, which is the Cauſe why the Summer made Malt brews ill, and is diſliked by moſt People. The Malt made in the hot Weather of the Summer will not abide to lie above ſeven Days on the Floor after it is come enough, before it be convey'd to the Kiln, by reaſon it is apt to contract Mould, which has a bitter Taſte, and gives Drink an ill Reliſh; but when the Weather is cool, in Summer, as good Malt may be made as after *Michaelmas*.

The Malt is laid on the Kiln to dry ſomething thicker than it lay on the withering Floor, where when it has lain five Hours, with conſtant Fire under it, the Maltſter gives it the firſt Turn; about four Hours after, the ſecond, and ſome three Hours after that, the third. And if the Kiln dry well in three Hours more with a moderate Fire (for fear of fire-fanging) it will be dry'd enough: Thus it lies about fifteen Hours on the Kiln, ſometimes more, and ſometimes leſs, according to the Goodneſs of the Kiln and Greenneſs of the Malt, which if it be not well withered before it be laid on the Kiln will require a longer time to dry, and one Turn on the Kiln extraordinary. But the Brick-kiln will dry a greater Quantity in four, than is uſually laid on one of the ſame Capacity of the common Make in twelve Hours. The Ways of turning the Malt on the Kiln are various, the beſt eſteemed, tho' troubleſome, is this:

The Kilns being all of them four-ſquare, they begin at any Side, and with the broad Shovel caſt up all the green Malt on it into two Heaps in the oppoſite Corners, the drieſt next the Hair-cloth into the middle ſpace betwixt them: As if they began at the middle *e*, which ſee in *Plate* 2. *Fig.* 1. *Pag.* 333. they throw all the green Malt into two heaps in the oppoſite ſides *a* and *b*, but the dry next the Hair-cloth betwixt them to *c*; then having ſhaken up the Hair-cloth ſo that no looſe Corns may ſtick to it, and again laid it down very ſtreight, they remove the green Heaps to the oppoſite Sides *d*, *c*, as in *Plate* 2. *Fig.* 2. *Pag.* 333. but the little middle Heap, with the dry under the other two, the ſhakings of the Cloth, after they are removed to the Space betwixt them *e*; then again compoſing the Hair-cloth, they firſt caſt down the two green Heaps all over it of an uneven thickneſs, and the dry Heap all over them, thus the greeneſt is turned to the Bottom, and the dry lies on the Top. Afterwards the Maltſter rakes it all over with a wooden Rake, to leave it every where of as even a Thickneſs as poſſible.

But the moſt uſual way, tho' not the beſt, is for the Maltſter to throw all the Malt on the Kiln on one cloſe Heap, in the Middle of it, then to ſhake up his Hair-cloth, which being laid down again very even, to caſt the ſaid Heap abroad again round the Kiln, clearing the Hair-cloth all that breadth where it lay, or ſomething wider, which place he ſweeps clean with a Broom, leſt any Corns ſticking to it, ſhould be fire-fanged, then he fills up the ſaid ſwept Place with Malt caſt into a Round from the Sides, and raking it very even, leaves it.

His Malt being dry'd enough he removes from the Kiln, and laying it about a Foot thick, treads it round three or four times, beginning at the Out-ſides, and winding himſelf round till he has trod up to the Middle of the Heap, and ſo back to the Out-ſides again. The Malt, if well dry, by going two or three ſuch Courſes, will be trod enough; that is, all the Come will be rubbed off: Then if the Malt be to be long kept, he throws it upon a Heap in the Duſt; but if to be ſold two or three Months after, he dreſſes the Duſt from it, by running it through a Fan or Fry; that ſo it may mellow the better in the Heap: And 'tis beſt when Malt is to be uſed to have it ground ten or twelve Days before it be brew'd.

CHAP. XII.

Of the Benefit by Raiſing and Planting of Timber-Trees, and other Trees uſeful for Building, Fewel, and other Mechanick Uſes.

WIthout premiſing any thing that to ſome might ſeem too long, or unneceſſary, concerning the general Scope and Advantage of this Subject; All that ſhall be offer'd is: That we ſhall not confine our ſelves to the Common Sort of Trees, but add ſomething for the Improvement of ſuch kind of Trees, as may be of Uſe, tho' not commonly known amongſt us, that ſo there may be an Improvement of the Species, as well as of the way of ordering them. Neither ſhall we recommend the waiting for a ſpontaneous Product, except where the Ground is very full of Roots and young Wood, becauſe of the Length of Time that ſuch Production requires, and becauſe that neither Planting nor Sowing are any Hindrance to it.

Though Trees will many times thrive on coarſe Land; yet the beſt Sort for moſt Trees is the deepeſt and richeſt Soil, which always produces the talleſt Trees, all Trees commonly growing ſhrubby, unfruitful or ſpreading of their Tops, where the Soil is either dry or ſhallow: And tho' ſome Trees covet to run juſt under the Surface, 'tis generally occaſion'd from a Want of Depth of Earth: And where that is not ſufficient to cool the Roots and keep them moiſt, they are neither laſting nor proſperous, though ſome Trees, as Beech, Hazel, Holly, *&c.* affect gravel and ſandy Land, and Aquaticks moiſt and boggy; yet for the moſt profitable and uſeful Timber, 'tis neceſſary to have a deep Soil, and in ſuch Places Trees do no hurt to the Land by ſucking of the Heart away from any thing that ſhall be ſown upon it. But it muſt not be imagined that Land worth twenty or thirty Shillings an Acre ſhould be unplough'd for this uſe, farther than by planting of the Hedge-rows, becauſe many ſorts of Lands not worth above five or ten are near as good; nay, there are ſome Sorts that are not very good for either Corn or Graſs, that will bear very good Trees, as hazelly Brick-earths, and ſome ſorts of heathy Lands. Some Earths have a good Soil above, and underneath Gravel, Sand, Stones, Slate, cold barren Clays, and cold Springs, *&c.* A Planter or Raiſer of Trees ought to conſider the under Soil, as well as the Superficies, and obſerve that the worſe the Land, the worſe it will be for tranſplanting; and therefore the raiſing of Trees by Seed on barren Lands is much to be preferred, becauſe it allies them to it, and makes both the Plant and the Soil the more natural to each other; but ſeeing all Sorts of Land ſhew what they are inclined to by their natural Product, and what the Profit will be by the Growth of the Trees, and the Shoots they make, it will be beſt to ſuit the Seeds, and your Soil one to another, and likewiſe to calculate the Profit by the ſame Rule.

Of Seeds. Take ſuch Seeds as are mature, ponderous and ſound, and that eaſily ſhake from the Boughs, being taken from the Tops of the youngeſt and moſt thriving Trees, and gathered when they are ready to fall, which for the moſt part directs the beſt time for ſowing them (which for moſt Sorts is about *November*) except your Land is very cold or moiſt, in which caſe, a vernal a vernal Sowing may be better; Acorns, Maſt, and other Seeds, being what may be kept well for the Spring Seaſon, by being barrelled or potted up with moiſt Sand or Earth, and laid S. S. S. during the Winter, at the End of which, you will find them ſprouted, which being committed to the Earth by a careful hand, will be as apt to take, as if ſown earlier; and ſo better eſcape the Vermin, greedy of ſpoiling the Winter ſown Seed, and are not ſo eaſily damaged by the increaſing Heat, as thoſe ſown in the Beginning of Winter, eſpecially in looſe hot Grounds; therefore, if you have occaſion to preſerve much Seed, chuſe a fit Piece of Ground, and with Boards raiſe it three Foot high, and lay the firſt Lay with fine Earth about a Foot thick, and another Lay of Seeds, Acorns, Maſts, Keys, Nuts, Haws, &c. promiſcuouſly or ſeparated with a little Mould ſprinkled amongſt them, and let the third, or upper Lay be of Earth or Sand: or you may bury the Seeds in dry Sand or pulveriz'd Earth, either barrelled or laid in Heaps in ſome deep Cellar to preſerve them from the Rigour of the Winter. If your Seeds be gathered in moiſt Weather, lay them a drying, and ſo keep them till you ſow them, which may be as ſoon after *Chriſtmas* as you pleaſe; but if they ſpire out before you ſow them, be ſure to commit them to the Earth before the Sprouts grow dry. If you lay them twenty four Hours in Milk or Water, only impregnated with a little Cow-dung, it may do well to forward their ſprouting. The Shape and Weight of the Seeds indicate which are the beſt, and how they may be ſet, moſt of them, when they fall, lying on one ſide with their ſmall End to the Earth, from which part they put forth the Root firſt, which, when it hath laid hold of the Ground, from the ſame place ſends forth the Shoot for the Tree; and if they be heavy Seeds, ſow them the deeper, as Acorns, Cheſnuts, about two or three Inches deep: But if light, as Elm, Lime, &c. cover them only with a little Mould about half an Inch deep.

Being provided with Seeds of all kinds, you may raiſe Woods or Groves immediately from them, which is the beſt way, where you deſign a large Plantation, and reſolve to imploy the Land for no other uſe, and to keep it well fenced, becauſe they take ſooneſt; make the ſtreighteſt and moſt uniform Shoot; will neither require Staking nor Watering; and laſtly, for that all Tranſplanting, unleſs they are taken up the firſt Year or two, is a conſiderable Impediment to the Growth of Foreſt-trees, unleſs where they are removed from a very barren Soil to a rich, and meet with a very moiſt Summer; but if you deſign a Tranſplantation of Trees, it is beſt to raiſe them in your Seminaries and Nurſeries firſt; by which means you may tranſplant them as you pleaſe, for Coppice-ground, Walks, Hedges, Rows, &c.

Of the Seminary and Nurſery of Foreſt-trees.

Having made choice of your Seeds, pitch upon ſome fit Piece of Ground well fenced, reſpecting the South Eaſt, rather than the South, and well ſheltered from the North and Weſt. Clear it of all Trumpery, and if large, it may be plough'd up firſt, becauſe it will make it dig the eaſier, and after that, dig it up two Spits deep, and all the upper part or Surface of the Earth caſt undermoſt, and the under Spit laid above, where the Soil is deep enough to bear it; which tho' it may be a Charge at firſt, will abundantly anſwer in the Growth of Trees afterwards, becauſe they will every where have looſe Earth to root in, and the beſt of the Soil under them, all Trees ſhooting their Roots moſt downwards, which is the only way to advance Trees in their Growth in Nurſeries, and not by Dung, &c. becauſe of the difficulty to make ſuch Trees grow, if you ſhould have occaſion to remove them to a worſe Soil: And if the Nurſery be dug up the Winter before you ſow or plant it, ſo as to give a Winter and Summer Fallowing to make it mellow and fine, it will do well. At one End or Side of which, make ſome ſmall Beds about a yard wide, leaving a ſmall Path between them for the Seminary; croſs the Beds, make ſome ſmall Trenches at about a Foot diſtance, into which throw the Seeds, but not too thick, covering them with a Rake, according to the Depth before directed; but if you deſign the raiſing of Oaks, &c. the beſt way is to ſet them as they do Beans, and at about a Foot diſtance, which is to be done about the latter End of *October* for the autumnal Sowing, and in *February* for the Vernal; ſix Buſhels of Acorns will ſow or plant an Acre of Land at a Foot diſtance. Earth up the Plants when they begin to peep, eſpecially after great Froſts, when the ſwelling Earth is apt to ſpue them out, and when they are about an Inch above Ground, you may in a moiſt Seaſon draw them up where you find them too thick, and ſet them in ſuch Places as you have occaſion to beſtow them in.

Your Seedlings having ſtood till *June*, beſtow a Weeding or a ſlight Hoeing upon them, and ſcatter a little mungy Straw, Fern, rotten Beans, &c. amongſt them, to prevent the Roots from ſcorching, and to receive the Moiſture that falls; and in *March* following, by which time it will be rotten, chop it to Pieces, and mix it with the Earth, which continue to do for two or three Years ſucceſſively, for till then, the Subſtance of the Kernel will hardly be ſpent in the Plant: After which you may tranſplant them as you pleaſe, only the younger they are removed after they are three Years old, the better they will grow. But then ſee that the Place you deſign them for be ſecure to keep Cattle from them while young; but if not, and you deſign to plant them where Cattle come, it will be beſt firſt to remove them into your Nurſery, where you plant them in Rows three Foot diſtant, and the Trees in the Rows to be at leaſt two diſtant from each other, otherwiſe you will be apt to cut the Roots in taking them up; let them ſtand in the Rows till big enough to plant out, ſo as by the help of ſome Stakes or Buſhes put about them, they may in a ſhort time be able to defend themſelves from Cattle. Some at the firſt tranſplanting of their Trees out of their Seminaries cut them off about an Inch from the Ground, and plant them like Quick; but it's not a good way for any Sort of Trees that have a large Pith, or that you deſign for Timber-trees; and therefore 'tis beſt only to prune up the ſide Boughs; and obſerve, that having tranſplanted your Seedlings into a Nurſery, they ought ſtill to be kept clean from Weeds, and alſo the Ground to be kept looſe, that the Roots may ſpread the better, and therefore in the Autumn following, before the Leaf is off, your Nurſery ought to be digged a ſmall Spit deep once a Year only: In Spring or Summer pull or hoe up the Weeds; about the Digging Part be not too early in the Seaſon, nor yet too careleſs of the Roots; between the Rows you may plant Beans, Peaſe, or ſow them with Turneps to prevent Weeds from coming up, which if any do, they ſhould be hoed in *June*, and laid about the Roots of the Trees to rot and keep them moiſt.

Many Trees may alſo be propagated by Layers, the Ever-greens about *Bartholomew* Tide, and others about *February*, which is done by ſlitting the Branches a little way, and laying of it half a Foot under Mould, with which, if ſome of the Earth that is in hollow Trees be mixed, or ſome Pigeons Dung, or if you water the Layers (where 'tis Plants that you are curious of) with the Grounds of Beer or Ale, it will make them ſtrike Root the better; and if it comply not well, peg it down with a Hook or two, and when you find it compleatly rooted, the next Winter cut it off from the main Plant, and plant it in your Seminary or Nurſery, as before; others twiſt the Branch or bare the Rind, and if 'tis out of the Reach of the Ground they faſten a Tub or Baſket near the Branch, which they fill with good Mould, and lay the Branch in it.

Some Trees are raiſed of Cuttings taken from the young Shoots, the beſt are thoſe Suckers that ſpring from the Roots; (except 'tis a grafted Tree you deſign to have Cuttings from;) the Cuttings muſt be ſet a Foot deep in the Earth in a moiſt ſhady Place, and ſtand near a Foot out; but if they are ſoft, as Willow, Poplar, Alder, *&c.* to take large Truncheons, ſo tall as that they may head above the Reach of Cattle; but if you raiſe your Trees of ſuch Sorts as bear a Knur or burry Swelling, ſet that Part into the Ground, and make the Hole wide, pointing the End of the Cutting ſo ſmooth that no part of the Bark may be ſtripp'd up in ſetting; and keeping the Ground moiſt about it, it will ſeldom fail of putting out Roots and growing. As for Suckers many Sorts of Trees may be propagated from them, growing from the Roots of other Trees, to do this, dig about their Roots early in the Spring, and finding ſuch as with a little cutting may be bent upwards, raiſe them above Ground three or four Inches, and in a ſhort time they will ſend forth Suckers fit for tranſplantation; or you may ſplit ſome of the Roots with Wedges, or break them, *&c.* and covering them with freſh Mould they will quickly ſprout out.

Timber-Trees.] The Trees reckoned for Timber are the *Oak*, the *Elm*, *Aſh*, *Beech*, *Walnut*, and *Cheſnut*.

The *Oak* hath the Preheminence of all others, for its Strength and Durableneſs; and for that reaſon is made uſe of for building of Ships, for which the *Engliſh Oak* excels all other Nations. It is a Tree that will grow and proſper in any Sort of Land, either good or bad, as on claiey, ſandy, or gravelly Ground, whether dry or moiſt, warm or cold; but that which is moſt agreeable, is the black, deep and faſt Mold, and rather dry, and on a riſing Ground, than low and moiſt. They will alſo grow on hilly and ſtony Ground, tho' but ſlowly.

For the Propagation, you may ſow Acorns in Beds well dug and prepared; the Seaſon for which is ſoon after they are full ripe; for they muſt not lie long after they are gathered, for the withering ſpoils them. The Spring following they will come up and be fit to tranſplant into your Nurſery at convenient Diſtances, until they are fit to plant into your Grounds: But it is, and hath been the common Opinion, eſpecially amongſt the Country People, whoſe Cuſtom is to follow their Predeceſſors Foot-ſteps, right or wrong, that the *Oak* of all other Trees will not grow, if ſet; but 'tis a vulgar Error, for they will grow and thrive as well as any other Sorts of Trees, as hath experimentally been found, not only by thoſe raiſed from the *Acorn*, as aforeſaid, but alſo by Sets drawn up in Hedg-rows, or other Places, and tranſplanted, but theſe prove generally crooked, ſo that you ſhould cut off the Shoot cloſe to the Ground when you plant it, and in the place thereof will ſhoot up another that will grow ſtreight.

Mr. *Mortimer* ſays, they may be propagated by Layers, but not to that Advantage of Bulk and Stature as from the Seed; nor can it be ſo well tranſplanted as it may be raiſed from the Acorn: But where you deſign tranſplanting them for Walks, Groves, or into Hedgerows, or other Places where Cattle come, they ſhould be often tranſplanted; and the beſt way to make them bear, is to raiſe them firſt from Acorns in your Seminaries, and after three Years Growth to tranſplant them into your Nurſery, where you may let them ſtand ſeven or eight Years, or till they are about ſeven or eight Foot high according to their Bigneſs and Growth, and then remove them, as you have occaſion, without which Care, moſt Trees are very difficult to remove that are raiſed of Seed; becauſe 'tis the Nature of all ſuch Trees to put forth one down-right Root firſt, and not the ſide Roots till the Tap-root is got near the Bottom of the Soil, eſpecially in a looſe hollow Ground, and ſo the main Roots going deep, the ſmall Roots, which are the chief Nouriſhers of the Tree, lie ſo deep that you cannot come at them to take them up, but, if you take them up young, while the Tap-root is ſmall and not ſhot too far down, you may by cutting off the Tap-root about a Foot long, cauſe it to branch near the Top of the Earth, which will give you the advantage of taking it up with ſmall Roots when 'tis removed again. To prevent this Inconveniency, ſome put under all the Trees they raiſe of Seed about three or four Inches below the Place where they ſow their Seeds, a ſmall piece of Tile to ſtop the running down of the Tap-root, which occaſions it to branch when it comes to the Tile, which is a very good Way.

The beſt Time for removing Oaks and all other Trees that ſhed their Leaves in Winter, is in *October* as ſoon as the Leaf begins to fall, or in *February* juſt before the Sap begins to riſe, and take care in planting not to ſet them deeper than they ſtood before. The Poſition likewiſe of the Tree ought to be carefully obſerved, for the Southern Side of the Tree being more dilated and the Pores more expoſed to the Heat of the Sun by a ſudden Tranſpoſition of the Tree in a cold Time of the Year, the Tree will be much prejudiced.

If you would propagate them for Timber, do not cut off their Heads, nor be too buſie in lopping them, except it be of ſear and unthrifty Branches, or that you are to remove them from a good Soil to a bad, in which Caſe 'tis neceſſary to have as much Root and as little Top as you can, or that you deſire them for Shade, bearing of Maſt, or for Fuel.

The *Oak*, eſpecially the *Engliſh* one, is doubtleſs of all Timber hitherto known the moſt univerſally uſeful and ſtrong; for tho' ſome Trees be harder, as Box, Cornus, Ebony, and divers *Indian* Woods, yet we find them more fragil, and not ſo well qualify'd for the Support of great Weights, nor any Timber ſo laſting where 'tis to lie ſometimes wet and ſometimes dry. The fine clear grained Oak, if it be of a tough Kind, is beſt for the Support of Burdens, as for Columns, Summers, *&c.* and the more tender Sort of a fine clear Bark, as being the beſt to cleave, is the moſt uſeful for Pales, Laths, Coopers Ware, Shingles, Wainſcot, Wheel-ſpoakes, Pins, *&c.* as the knottieſt and coarſeſt is beſt for Water-works and Piles, becauſe it laſts longeſt and drives beſt; and the crooked Oak, if firm, is beſt for Knee-timber in Ships, for Mill-wheels, *&c.* And if the planting of Oak were more in uſe for Woods it would ſpoil the Coopers Trade for the making of Hoops either of Haſle or Aſh, becauſe one Hoop made of the young Shoots of a Ground-Oak would out-laſt ſix of the beſt Aſh. The ſmaller Truncheons and Spray make Billet, Bavine and Coals, and the Bark is of price with the *Tanner* and *Dyer*, to whom the very Saw-duſt is of uſe, and the *Uvæ Fungus*'s to make Tinder of. Oaks bear alſo a kind of a Knur of a cottony Matter which was us'd of old for Wicks of Lamps and Candles. *Tanners* cannot dreſs their Leather without the Bark; likewiſe the Maſt, that is, the Acorns, are of great advantage for the fatning of Swine, and that Bacon ſo fed (eſpecially if they are fed with Peaſe ſome time after) is of a delicate ſweet Taſte; and if ſalted with Salt-petre inſtead of Bay-Salt, will be little inferior to the *Weſtphalia Bacon*, ſo highly eſteemed. *Acorns* are alſo very good Food for *Rabbets*.

The *Elm* is a Tree eaſily propagated, growing in moſt Sorts of Ground; but it moſt delights in light, looſe, and moiſt Land, and on the Banks of ſuch level, and fertile Grounds, whether gravelly or chalky, it proſpers well,

There are ſeveral ſorts of *Elms* which differ much according to the Soil and Climate. Thoſe moſt worth our Care and Culture are, 1. The common *Elm*, with a very rough Bark and Leaf, ſome of which are of a rounder Form than others. It grows to a very great Height and Bigneſs, eſpecially that which has the roundeſt Sort of Leaves. 2. That they call the *Witch-Elm*, in Bigneſs and Height is like to the firſt Sort, only a much ſmoother Bark, and in many places puts forth Burrs and Knobs, the Leaf being alſo ſmooth and long, and varies much for Breadth and Length according to the Soil it grows in. The third, by ſome called the *Witch-haſle*, or *broad-leav'd Elm*, it's Body and Boughs have a ſmooth Bark like the *Witch-elm*, and the Shoot and Leaf much like that of the *Haſle*: The Leaves in ſome Soils are of a very large Size, and where it thrives it will make very large Shoots. It's the quickeſt Grower of any Kind of *Elm*, but not ſo apt to ſpire up as the other Sorts, being more inclined to branch into Arms. *Elms* may be propagated by Seeds, which are ripe about the latter End of *March* or Beginning of *April*; gather and lay them in a Room to dry a Day or two, and then ſprinkle them in Beds prepared with good freſh Earth, ſifting ſome of the fineſt Mould thinly over them, and water them as need requires. When they are come an Inch above the Ground, which they may do in four or five Months time, ſift ſome more fine Earth about, to eſtabliſh them, keep them clean weeded for the two firſt Years, and the ſide Boughs trimm'd up till fit to remove into the Nurſery to be placed at wider Diſtances, and from thence to be removed to ſuch Places as you have occaſion to plant them in. But the taking of ſuch up as are of a plantable Size from Hedge-rows and Woods is much more eaſie and expeditious; their not being apt to run down with a Tap-root, like an Oak, makes them more eaſie to tranſplant; only thoſe you take out of Woods, as they ſtand there very warm, will not thrive ſo well if they are planted directly in an open Place, as if you plant them firſt into your Nurſery for two or three Years, and from thence tranſplant them to Avenues, Hedge-rows, *&c.*

Elms may likewiſe be produced of Layers from a Mother-plant, or from Suckers taken off from the Mother-roots of great Trees after the Earth hath been well looſened from them. Or if ſuch Stubs as have been felled be fenced in ſo far as the Roots extend, they will furniſh Plenty of young Plants, which may be tranſplanted from the firſt Year or ſecond ſucceſſively, by ſlipping them from the old Roots. Sometimes ſome of the ſmalleſt Suckers, when the Sap is newly ſtirring in them, if they are ſlipt off from the Tree, will grow, tho' not rooted.

There is another Way, of ſinking Trenches at ten or twenty Foot diſtance from *Elms* that ſtand in Hedge-rows in ſuch order as you would have them grow; and where theſe Gutters are, many young *Elms* will ſpring from the ſmall Roots of the adjoining Trees, which after one Year being cut off from the Mother-roots with a ſharp Spade, if you tranſplant them they will prove good Trees without doing any injury to the old one's. It's as expeditious and ſucceſsful, to bare ſome of the chief Roots of a thriving Tree within a Foot of the Trunk, and chopping the ſame with an Ax, or making ſome ſmall Clefts in them with Wedges, put in ſome Stones to prevent the Clefts cloſing and to give Acceſs to the Wet, which cover three or four Inches thick with good Mould; and one ſingle Elm thus managed will be a good Nurſery, whoſe Suckers after two or three Years you may ſeparate and plant out as you pleaſe.

October or *February* is the beſt time for the Tranſplanting of *Elms*: There is none that better ſuffers Tranſplantation, ſince you may remove them of what Bigneſs you will, even of twenty or thirty Years Growth. You muſt totally diſbranch them, leaving only the Summit entire, unleſs the Soil be very good; it may be neceſſary to head them too, but then it will be convenient, to leave a leading Branch near the Top to ſpire up and cover the Wound of this ſoft Wood. They muſt be taken up with much Earth and Roots, and have a great deal of watering; and the ſooner they are removed after the taking of them up the better. They ſhould be planted on the Surface of the Earth, it being a very great Error, in any Soil, to plant Trees deep, and let the Roots be handſomely ſpread, and the Trees well ſtaked and defended from Cattel: They delight to grow the neareſt together of any Trees, which cauſes them to run up ſpiring, and protects them from the Winds.

It is a Tree very fit for Avenues or Walks, by reaſon of its growing ſo ſtreight, upright, and high, over-topping all others, as alſo ſo near together; and is of that Flexibleneſs, that it may be brought to grow in any Shape. This Sort of Tree, by reaſon of its aſpiring and tapering Growth, (unleſs it be topp'd to enlarge the Branches, and to make them ſpread low) is the leaſt offenſive to Corn, Paſture and Hedges of any, to which, and the Cattle, they afford a good Shade, Defence, and agreeable Ornament.

Let them be fell'd about *November*, *December*, or *January*, after the Froſt hath well nipp'd 'em, and that the Sap is fall'n into the Root, which will cauſe all Sorts of Timber to be more durable and laſting; and if you find them any way unthriving, fell them, and rather truſt to their Succeſſors. If you uſe them for Firing, rather ſhred up the Boughs than lop them. The beſt Time is in *February*; always take care to preſerve the Top, by which means they will not only yield more Firing than if lopp'd, but Timber too, eſpecially if you take care to ſhred them up once in ten Years, and that you cut the Boughs cloſe to the Body, or elſe the remaining Stubs will immediately grow hollow, and ſerve as ſo many Conduits or Pipes to hold and convey the Rain to the Body of the Tree. You may form the *Witch-Elm* into Hedge-rows by plaſhing and thickening of them to the higheſt Twig, which will afford a magnificent Fence, and be a good Shelter againſt the Winds and the Sun.

Elm is a Timber of extraordinary Uſe, eſpecially in Extreams, where it may be continually wet or dry, and therefore proper for Water-works, Mills, Soles of Wheels, Pipes, Aqueducts, Ship-keels and Planks beneath the Water-line; and alſo the *Witch-Elm*, eſpecially if knotty, is good for Wheel-naves, becauſe of their being the tougheſt Timber, and the ſtreight ſmooth *Elms* for Axle-trees, Kerbs for Coppers, Boards, Chopping-blocks, Trunks, Coffins, Dreſſers; alſo for Carvers-work, Shovel-boards of a great Length and fine Colour; and the Roots of the knotty curled Sort are near as good as Walnut for Cabinets, and often ſold for it. They colour them by laying them in a wet Saw-pit that hath Oak Saw-duſt in it, where they let it ſoak for a Month, which gives the Grain of it a black Colour, like that of the Walnut-tree; and if *Elm-Timber*, as ſoon as it is ſawn, be put into Water, and lie three Weeks, and after the taking it out be kept dry, it will prevent the Worms eating it, and cauſe it to laſt as long as Oak, nay, ſome *Elm-Trees* found buried in

Bogs have turn'd like the moſt poliſhed and hardeſt Ebony, as Mr. *Evelyn* ſaith, and were only diſcernable by the Grain. They make likewiſe very good Eſpaliers if made to comply well with the Frames, and kept conſtantly clipp'd. Beſides which ſeveral Uſes, it makes the ſecond Sort of Char-coal, and the very Leaves of it are not to be deſpiſed; for being gather'd green, and ſuffer'd to dry in the Sun upon the Branches, and the Spray ſtripp'd off in *Auguſt*, will prove a great Relief to Cattle in Winter, or in hot Summers, ſeeing they will eat them before Oats, and thrive exceedingly. The Boughs to prevent muſting ſhould be laid in ſome dry Place. Some ſay, they are noxious to Bees.

The *Aſh* is a quick growing Tree, thriving in any Sort of barren, mountainous and dry Ground, but not ſo well for Timber as in Coppice-woods; nor will it thrive ſo well as on good Ground, or ſuch that is of a chalky and white Soil.

'Tis raiſed from the Seed or Keys, which muſt be gather'd when they begin to fall about *October*, and ſo ſown in Beds, as you do your Acorns or Haws, and the next Spring come Twelve-month they will appear, and thrive very well; but they muſt be removed, and ſet thinner whilſt they are ſmall, by reaſon of their ſpeedy deep Rooting. You muſt not cut off the Tops of the young ſmall Aſhes, by reaſon it is a ſappy Plant; but for the greater Sets it is good to cut them near the Ground; for then they will ſend forth new Shoots that will be better and larger. You may alſo have Plants drawn by thoſe that draw Quick-ſets, which will prove very good; but not like unto thoſe that are raiſed in a Nurſery, as aforeſaid.

The beſt Time to remove Aſhes is in *October* and *November*; tranſplant them young, becauſe of their deep Rooting; but if you would tranſplant them large, raiſe them firſt in your Seminary, and then remove them into your Nurſery, and from thence to the Places where you deſign to plant them out, which will be a great Advantage, in that it will enable you to take them up with good Roots; but as it is a Tree that hath a large Pith, you muſt avoid heading of them, if you can, and content your ſelf only with cutting off the Side-Boughs, which will be better for the Timber, and be likewiſe ſparing of the Roots, except the down-right Tap-root, which you may abate as you ſee convenient. Some cut the young Aſhes off about an Inch above the Ground, which cauſes them to make very large ſtreight Shoots, which they call *Ground-Aſh*; and 'tis a very good Way where you deſign them for Under-wood. Young *Aſhes* are ſometimes in Winter Froſt-burnt, which makes them look as black as a Coal; you may in ſuch Caſes uſe the Knife, but they commonly recover of themſelves, though it is but ſlowly.

'Tis no way convenient to plant *Aſh* in plow'd Lands; eſpecially where the Soil is flete. In Hedge-rows and Plumps they will thrive very well, where they may be ſet at ten or twenty Foot Diſtance. In planting of a Wood of ſeveral Kinds of Trees for Timber, every third Set at leaſt ſhould be an *Aſh*, it being a Timber that is ſaleable at any Size.

If you would raiſe theſe Trees on Hills, or open Grounds, the beſt Way is to ſow the Seeds in the Place, either before or after the Plough; and if in Coppices, or in ſuch Places where the Plough cannot paſs, then to prick it amongſt the Ridges of Hazel, or the like ſhrubby Stuff, which will defend it from Cattle until the Trees are grown up.

This Tree is felled when the Sap is at Reſt from *November* to *January*; but being a ſoft Wood, when you lop Pollards, do it not till the Spring, that the Wound may be ſoon covered by the Bark. The Boughs, for the ſame Reaſon, muſt not be let to grow big. The Keys of the *Aſh* white, young, and tender, are a good Pickle, and are good to preſerve Beer or Ale, when gathered near ripe about the Beginning of *Auguſt*.

The *Aſh* is of general Uſe for Carpenters, Joiners, Wheel-wrights, Coopers, Turners, and other Artificers, and is alſo much uſed by Gardiners for Arbours, Paliſado-Hedges, Hop-poles, *&c.* and for Firing no Wood is comparable to it, either green or dry.

The *Beech* delights much to grow in gravelly, ſtony, ſandy and warm Ground, and on the Sides and Tops of high Hills, and chalky Mountains. Whilſt it is very young it grows but ſlowly, but when it is gotten out of the Way, no Tree thrives better; and altho' it be crooked, knotty, and ill-ſhapen whilſt it is young, yet it will be otherwiſe when it comes to its full Growth. Both Sorts are raiſed from the Seeds, and to be managed like the Oak, which is the beſt Way of Raiſing a Wood unleſs you will make a Nurſery of them, and manage them as is directed for the Management of Aſhes. Sow them in Autumn, or later, or rather nearer the Spring, to preſerve them from Vermin, which are great Devourers of them. They may likewiſe be planted of young Seedlings drawn out of ſuch Places as the Seed falling from the Trees doth propagate. In Tranſplanting, cut off only the Boughs and bruiſed Parts two Inches from the Stem, within a Yard of the Top; but be very ſparing of the Roots, that is, for ſuch Trees as are of Stature. They make ſpreading Trees, and a fine Shade.

It is a Wood of a fine, clean and white Grain, and not apt to ſlit or rend, which occaſions it to be ſo much uſed by Turners, Joiners, Upholſterers, and the like Handi-crafts. The Maſt is very good and ſweet Food for Swine, Deer, Pheaſants, *&c.*

The Aſhes of it, with proper Mixtures, are good to make Glaſs. If the Timber lies all together under Water, 'tis little inferior to Elm. Bees delight in the Cavities of theſe Trees. It is much ſubject to the Worm, and therefore as ſoon as the Timber is cut, lay it for a Fortnight or three Weeks in Water.

Beech, when prun'd, is not apt to put forth Side-Boughs again, and immediately heals the Scars; Swine and Deer fatten apace upon its Maſt, and Hogs are drove to them about the End of *Auguſt*. The Seed of this Tree affords a ſweet Oil, and has ſerved for Bread in Caſes of Neceſſity. The Leaves are very good Mattreſſes to lay under Quilts, inſtead of Straw, continuing ſweet ſeven or eight Years without being muſty, as Straw will be.

As for the *Walnut*, there are the large ſoft Shell and ſmall hard Shell *Walnut-Trees*, whoſe Wood likewiſe differs, ſome of which is of a whiter, and ſome of a blacker Grain than the other; the black-grain'd bears the ſmalleſt hardeſt Nut, and the Timber is much to be preferr'd, the beſt Sort of which are thoſe that grow in *Virginia*, which bear a kind of a ſquare Nut, from whence we might eaſily procure them. Next unto theſe are thoſe of *Grenoble*, which are much priz'd by the Cabinet-makers. The beſt Way to raiſe this Tree is of the Nut, ſet like Beans. Gather them from a young thriving Tree, bearing a full plump Kernel, and beſt to be beaten off the Tree ſome Days before they fall from the Branches of themſelves, and kept in their Huſk, or without, till Spring; or by bedding them (being dry) in Sand, or good Earth. Theſe ſet about the latter End of *February*, Beginning of *March*, or earlier, but beſt with the Huſk on, becauſe the Bitterneſs of it is a good Preſervative againſt the Worms; and if you chop ſome Furz, and ſtrew about them under Ground, it will be a good Defence for them againſt the Rats and Mice.

It is a Tree that bears Tranſplantation but ill, and therefore does much better to ſtand where it is raiſed of the Nut; but, if you have Occaſion, let not your Trees be above four Years old when you remove them; and if they be once before removed from your Seminary to your Nurſery, it may do well; which firſt Tranſplantation may be perform'd at two Years old; and obſerve, as near as you can, to remove them to the ſame Sort of Land that they were raiſed on; for it is very difficult to make them either grow, or proſper on a different Soil; but in the Removal of them by no means cut the Head, only ſhred up the Side-Branches, becauſe of the hollow Pith, which is apt to let in the Water, and be as ſparing of the Roots: Any thing of Bruiſes is very prejudicial to them. You may likewiſe put a Tile-ſherd under them, to occaſion the ſpreading of the Tap-Roots, and they may be grafted or budded, which will improve the Largeneſs of their Fruit. The Time to remove them is in *November* and *February*, and the beſt Compoſt for them Aſhes. They ſhould be planted at 40 foot Diſtance at the leaſt, becauſe they love to ſpread both their Roots and Branches, though they will grow amongſt other Wood, provided you ſhred up the Side-Boughs.

The *Walnut* delights moſt in a dry, ſound, rich Mould, eſpecially if they have Chalk or Marle underneath them, and will grow well on any Land that is dry, where they are raiſed from the Nut, and where they are protected from the Cold, tho' they affect Cold moſt, and grow in Pits, Valleys, High-way-ſides; alſo in Lime-ſtone Ground, if loomy, and on Hills that are chalky; and they are ſo far from prejudicing Land, that in *France* they plant them in their Corn-fields, eſteeming them a Help to their Corn in preſerving it from the Cold; nor are the Roots any Hindrance to the Plough, it being a Tree that will root deep enough where they have a Soil that will allow it. It's the moſt beneficial Tree that can be planted, not only for the Value of the Timber, but the conſtant Profit they bring by their Fruit. They make fine Avenues, and do excellently near Hedge-rows. It is of a peculiar Eſteem with the Joiner for the beſt colour'd and grain'd Wainſcot, with the Gun-ſmith for Stocks, and excellent for the Bodies and Wheels of Coaches. In *New-England* they make Hoops and Bows with it, and the Drum-maker uſes it for Rimbs, the Cabinet-maker for Inlaying, eſpecially the Part about the Roots when it is curled and knotty, which ſells often at very great Prices; but to render it the better colour'd, the Joiner puts the Boards into Ovens after the Batch is drawn, or lays them in a warm Stable; and when they work them, they poliſh them over with its own Oil very hot, which makes them look black and ſlick; but as it is ſubject to ſhrink, it ought to be well ſeaſon'd before it is work'd. It is not good to uſe for Beams and Joiſts, becauſe of the Brittleneſs of it.

Beſides the Uſes of the Wood, the Fruit, with the Huſk, when tender and very young, makes a very good Preſerve, and is uſed to Pickle like Mangoes, and when ripe they are very good Food, afford a very uſeful Oil for Painters, and for Gold-Size and Varniſh to poliſh Walking-ſtaves and other Works with, which is wrought in with Burning. One Buſhel of Nuts will yield about ſeven Pounds of Oil, which in *France* is much uſed to burn in Lamps inſtead of Candles; from whence, in Times of Peace we are ſupplied with great Quantities, when it might, with much more Advantage, be made a Home Commodity. The young Timber is held to make the better colour'd Work, but the older, being more firm and cloſe, is the beſt for Cabinets. That the Huſk may open, lay them up in a dry Room, turning them with a Broom, but without waſhing, for fear of Mouldineſs, and thoſe that come not eaſily out of their Huſk ſhould be laid to mellow in Heaps, and the reſt in the Sun till the Shells dry, elſe they will be apt to deſtroy the Kernel; but the beſt way to keep 'em is to bury them in the Ground in a Leaden or Earthen-Pot cloſe cover'd, that the Vermin may not come at them, and they will keep plump all the Year. The very Huſk and Leaves being macerated in warm Water, and the Liquor pour'd on Walks or Bowling-greens, will kill the Worms without hurting the Graſs; and the green Huſks boil'd makes a good Colour to dye a dark Yellow without any Mixture; and if they, or the firſt peeping red Buds and Leaves be reduced to Powder, it will ſerve inſtead of Pepper to ſeaſon Meat, or for Sauce; and the Kernel being rubb'd upon the Cracks or Chinks of a leaky Veſſel, ſtops it better than any Pitch, Wax, or Clay. After the Nuts are beaten down, the Leaves ſhould be ſwept into Heaps, and carry'd away, becauſe their Bitterneſs impairs the Ground, and injures the Trees.

The *Cheſnut* is a Tree, of which we have but one Sort common in *England*. We have Nuts from ſeveral Parts, the largeſt and faireſt from *Portugal* and *Bayonne*; our own being very ſmall, and not ſo ſweet as the former, but the Way to have fair Fruit is to graft them. They may be raiſed by Layers, but the beſt Way to produce them is by the Nut; for which Uſe chuſe the largeſt brown, and moſt ponderous for Fruit, and the leſſer ones for Timber. The beſt Way of Planting 'em is like Beans. Let the Nuts be firſt ſpread on a Floor to ſweat, then cover them with Sand, and, after a Month's Time, take them out, and plunge them in Water, and the Swimmers reject. Dry them again for thirty Days more, and then ſand them as before; after which try them again in Water, and repeat the ſame Courſe with them till Spring; at which Time, or in *November*, you may ſet them; but if you ſet them in Winter or Autumn, it is beſt to do it with the Huſk on, a good Preſervative againſt the Mice: Keep them alſo from Hogs, who will find them if poſſible. Some ſow them confuſedly in Furrows like Acorns, and govern them like the Oak; but then the Ground ought to be well plough'd and fallow'd the Summer before, and when they ſpring, be cleanſed at two Foot Diſtance, after two Years Growth: Likewiſe Coppices of *Cheſnuts* may be wonderfully thicken'd and encreas'd by laying the tender Branches. Such as ſpring from the Nut are beſt, and will thrive exceedingly if the Ground is ſtirr'd and looſen'd about the Roots for two or three of the firſt Years of their Growth, and the ſuperfluous Wood prun'd away, which you may eſteem moſt of the Side-Branches to be: They alſo ſhoot into fine Poles from a fell'd Stem, uſeful for many Purpoſes.

They thrive beſt unremoved, but when you deſign to tranſplant, raiſe 'em not in a Seminary, but at firſt in your Nurſery, where you deſign to let them ſtand till you can plant them out into your Grounds; for they do not much run down with Tap-Roots, but may be taken up at any time with good Roots. In the Removal of them rather cut only the Side-Boughs off, than head them. The beſt Time for removing is in *November* and *February*: They may be planted at twenty or thirty Foot Diſtance for Timber, and for bearing Fruit at forty; but for other Uſes a great deal nearer.

The *Horſe-Cheſnut*, which is eaſily encreaſed by Layers, grows into a goodly Standard, bearing a fine Flower, and is now all the Mode for Walks and Avenues in *France*. It grows in *England* very ſpeedily to a large Stature, eſpecially if planted in a rich Soil near Water.

The *Cheſnut* delights moſt in a light hazel Brick-Earth, or black Mould, or moiſt Gravel, and will grow well on Clays, Sand, or any mix'd Soil, eſpecially if raiſed from the Nut without Tranſplantation, and upon expoſed bleak Places, and the pendant Declivities of Hills to the North, in dry airy Places, and ſometimes near Marſhes and Waters, where the Water doth not touch the Roots, which is very prejudicial both to the Timber and Fruit; but they affect no other Compoſt ſave their own Leaves, the Dropping of which makes them injurious to what grows under them. They bear Cold better than Heat.

Next unto the *Oak*, the *Cheſnut* is the moſt ſought after by the Carpenter and Joiner for Building; and, before the Uſe of *Fir*, was much made uſe of; many of the ancient Houſes in *London* having been built of it. It affords the beſt Stakes and Poles for Paliſadoes and Hops, good Props for Vines, and makes extraordinary Hoops, for which Uſe only they keep ſeveral Coppices in *Kent* all of *Cheſnut*, near the Water-ſide, of which they make great Advantage, by ſending them to *London*. The Timber is likewiſe good for Mill and Water-works, and the Trees are very good Shelter, being ſet on the North-ſide of other Plantations, and for Walks and Avenues. The Timber does alſo well for Columns, Tables, Cheſts, Chairs, Stools, Bedſteads, Tubs, and Wine-caſks, which it preſerves with the leaſt Tincture of any Wood whatſoever. It is very apt to decay within when it ſhews fair to the Eye. The Coals are excellent for the Smith, being ſoon kindled, and ſoon extinct; but the Aſhes are not good for Lee, becauſe they are apt to ſtain Linnen.

It is beſt to beat down the Fruit from the Trees ſome little time before they fall of themſelves, becauſe they will keep the better, or elſe you muſt ſmoak-dry them, but not if you deſign to plant them. And though here in *England* they are Food for Swine, yet in other Countries they are much eſteem'd. In *Italy* they boil them with Bacon, and alſo in Wine, and roaſt them on Embers; ſome grind them to Meal, and make Bread and Fritters of them; and the *French* Cooks uſe them in ſtew'd Meats, Beatil, Pies, *&c.* The beſt Way to preſerve them, is to keep them in Earthen-Veſſels in cool Places; but ſome keep them in a Smoak-Loft, others in dry Barley-Straw, and others in Sand, *&c.*

Of Trees for Fewel, and other Uſes.

THE *Birch* is a Tree that will grow and thrive in any Place, as well on the hot, gravelly, and ſandy Ground, as on the cold, wet, and mooriſh. 'Tis raiſed from Suckers, planted at convenient Diſtances, five or ſix Foot aſunder, which ſoon will grow up to Trees. After the firſt Year they ſhould be cut within an Inch of the Ground, which will cauſe them to ſhoot out the ſtronger.

The Wood, eſpecially the Roots, is uſeful for Turners, and makes good Charcoal.

This Tree yields the beſt Sap, and moſt in Quantity of any in the Kingdom, which being prepared, either with Sugar or Honey, makes a pleaſant Liquor, which now bears the Name of *Birch-Wine*. It is thus to be drawn from the Tree: Cut off ſome of the ſmall Branches, and hang Bottles with the Ends of the Branches ſo cut put into their Mouths, into which the Chryſtallin Liquor will diſtil. You may alſo bore a Hole into the Body of the Tree, putting therein a Tap, to which hang a Bottle to receive the ſaid Liquor. And by either of theſe Ways good Quantities thereof may be extracted in the Months of *February* and *March*, when the Sap aſcends, and before the Spring of the Leaf. It will run beſt when the Sun ſhines warm, or when the Wind is South or Weſt. This Liquor thus extracted, and well prepared, makes a very good and palatable Wine.

The Maple.] There is no great Difference to be found in the ſeveral Sorts of *Maple* that grow in *England*; thoſe that are kept ſhred up to run to Standards, have a fine clear Grain; and ſuch as are pollarded grow the moſt knotty, and full of Burs, it being a Tree very ſubject to put out Side-Branches, which fills it with Knots; but it is prejudicial to let it grow tall where there is any Wood or Trees under it, becauſe of a clammy Dew that ſticks to the Leaves, which, when waſh'd off by the Rain, glues up the Buds of what Trees or Buſhes grow underneath, and ſo kills them; and therefore they are not fit to grow in Hedges, or amongſt Wood. It is produced, and doth produce it ſelf by the Seed, Layers, and from the Roots of old Trees, like the *Elm*, and by Suckers, which occaſions their being ſo plentiful. The Seeds will lie, like the *Aſh*, till the next Year after they are ſow'd before they come up, and therefore they may be order'd the ſame way.

They may be tranſplanted almoſt of any Size, and eaſily removed; 'tis beſt in *October* or *February*. They affect a ſound dry Mould, eſpecially Banks, and deſire rather to grow on Hills than Bottoms, tho' they hardly refuſe any Sort of Soil. The Timber is very uſeful for Diſhes, Cups, Trays, Trenchers, *&c.* and when it is clean, and without Knots, it makes excellent Board, and for its Lightneſs is often employ'd by the Muſical Inſtrument-maker, under the Name of *Aier*; but that which is fulleſt of Knots and Burs is of greateſt Value, being much priz'd by the Cabinet-maker.

The *Quick-Beam* delights in a light Ground, in Mountains and Woods. 'Tis a quick growing Wood, and is raiſed from the Sets, but beſt of the Berries which are ripe in *October*, when it is the beſt Time to ſow them. They muſt be covered but ſhallow, an Inch being deep enough to lay them. Tranſplant and order them as the *Aſh*.

It is a very tough Wood, and all Heart, being good for the Wheel-wright, and all Sorts of Huſbandman's Tools. If large, 'twill make good Plank-boards and Timber. Mr. *Evelyn* ſays, it is commended by our Fletchers for Bows, next unto *Yew*; that the Berries fermented by themſelves, if well preſerved, make an excellent Drink againſt the Spleen and Scurvy; and that Ale or Beer brew'd with them, makes an incomparable Drink, which, he ſays, is much uſed in *Wales*.

The *Horn-Beam* agrees beſt with barren, cold, and hilly Grounds; 'tis to be raiſed by Sets, which when ſet, muſt be cut within half a Foot of the Ground, and from the Seeds ſown in *October*, which are ripe in *Auguſt*. It is a very hard Wood, and fit for Mill-wrights. If planted at about a Foot, or eighteen Inches aſunder in a ſingle Row, it makes a fine Hedge; for it grows tall, with Leaves to the Foot of the Stems.

The *Haſel* groweth in any kind of Ground, and chiefly in Coppices; 'tis raiſed from the Nut, or from Sets, as the Filbeard, and is of principal uſe for Fewel.

There are ſeveral Kinds of this Tree, whoſe Growth is much prejudiced by Froſts: They are commonly tranſplanted ſmall, being ſeldom removed but to fill up or thicken Woods with, or for Hedges, being cut like Quick-ſet, about ſix or ſeven Inches long.

The common Sort of *Alder* only affects moiſt Ground, and the blacker thrives better on drier Lands. It's propagated by Truncheons, and, ſome ſay, may be raiſed by Seeds; but large Roots or ſmall Suckers, which they put forth very plentifully, are the beſt to raiſe them of. They delight moſt in the moiſteſt boggy Places, where nothing elſe will grow, and are a great Improvement of ſuch Lands, and will grow on the Sides of Rivers and Springs.

The beſt Way of removing them, is to tranſplant the Suckers, which trim up to one Branch; and after they have ſtruck Root, cut them within three or four Inches of the Ground, which will cauſe them to ſpring in Clumps, and to increaſe their Roots and Suckers; or elſe tranſplant their Roots which will ſpring into Branches; and if you raiſe them of Truncheons, ſteep one End of them in Water ſome time before you plant them, making Holes for them, and not forcing them into the Ground to ſtrip up their Bark; the beſt Time of doing this is in *February*: It will be good to plant them deep, that the Streams may not waſh away the Roots, and to preſerve them ſteady from the Violence of the Winds. Cut or prune them in *February*, the beſt time for all Aquaticks or ſoft Woods, becauſe they will be the leſs time expoſed to the Wet of the Winter. It is excellent Timber for Water-works where it may conſtantly lie covered. It will grow as hard as a Stone. The Coal is good for Gun-powder, and the Wood for Piles, Pumps, Hop-poles, Water-pipes, Troughs of Sluces, Wheels, *&c.* The Bark is uſeful to the *Dyer*, and ſome *Tanners*, and mixed with the Fruit, or macerated in Water with a little ruſty Iron, makes a black Dye, and may be uſed for Ink. Faggots made of it, thrown upon Flints, Brick-bats and other Rubbiſh laid in Drains, and Earth thrown on them, will laſt a great many Ages.

Of Aquaticks.] The *Poplar* thrives beſt on the Banks of Rivers, or Ditches, but not in the Water, as the *Willow*. 'Tis raiſed from the Branches cut off, and thruſt into the Ground; but cut not off the Top, until they have ſtood two or three Years, and then they may be headed at eight, ten, fifteen, or twenty Foot high; or you may let them run up without topping, which is more ornamental, but not ſo profitable. They may be planted at three or four Foot aſunder, and will grow very well.

The Wood is good for *Turners*, as well as for Fewel, being very profitable, and a great Grower.

The *Aſpen-Tree* little differs from the *Poplar*; only it will grow in dry Places, and not in wet; it is raiſed by Suckers, and muſt be ordered as the *Poplar*, not cutting off the Head, the firſt or ſecond Year.

The *Abele-Tree* is a kind of white *Poplar*, but of a finer Grain; 'tis raiſed of Slips from the Roots, as alſo from Layers, and Cuttings; 'tis a ſpeedy Grower, and therefore very profitable to plant.

The *Willow* delights in wet and mooriſh Grounds, being commonly ſet on the Sides of Ditches, or Rivers to receive the Benefit of the Water to nouriſh them. They are raiſed of Sets, or Loppings, the greateſt Care being to chooſe thoſe that are ſmooth, and of a fine green, which ſhews them to be kindly, and free from the Canker. They are to be cut taperwiſe, at the lower part, which is to be thruſt into the Ground, a deep Hole being made in the Ground by an Iron Crow, and the Set being thruſt down therein, great Care muſt be that the Earth is well cloſed about it, otherwiſe it will not draw Root ſo well; and alſo be careful that you raiſe not the Bark, or Rind, from the Wood. Your Sets being thus ordered, let them be buſht about to be preſerved from the rubbing of Cattle, to looſen them, for two or three Years, and afterwards they are paſt all danger: You muſt alſo keep them clean from Suckers, which draw away the Sap that ſhould aſcend to the Branches for their Nouriſhment, and at four or five Years of Age the Heads ſhould be lopped, which will make them grow the better.

The *Willow* is of great Profit, and uſeful for divers Occaſions, beſides for Fewel; ſo that 'tis obſerved that a *Willow will buy a Horſe, before an Oak will buy a Saddle.*

The *Withy* is a large Tree, and ſhould be planted on high Banks, by reaſon their Roots run very deep in the Earth.

The *Sally* is a very quick Grower, and delights in mooriſh Grounds, as the *Willow*.

The *Oſier* requires conſtant Moiſture, and therefore muſt be planted in ſuch Places that are ſubject to frequent Overflowings. They are raiſed from the Shoots or Sets that ſhould be cut about *February*, and thruſt into the Ground, much after the way as the *Willow-Sets*. They are very profitable, and uſed by *Basket-makers*, *Gardiners*, &c. an Acre being eſteemed to be worth as much as an Acre of Wheat.

Of Trees for Fencing.] Fencing and encloſing of Ground being of ſuch great Benefit as already hath been diſcourſed, it will be neceſſary to treat of ſuch Trees as are requiſite for the ſame, with Directions how to raiſe, and order them; and firſt of the *White-Thorn*.

The *White-thorn* is eſteemed the beſt for Fencing, being a ſtrong and durable Hedge; to be raiſed from Plants, or by ſowing the Haws in Beds and from thence (when ſprung up) to be tranſplanted, which is the ſureſt and beſt Way; for the *Garden-Quick* (being that which is ſown) is eſteemed far before the Plants drawn up in Hedge-rows and Fields, and will thrive much better, as being young and not ſtunted. The beſt way to ſet your Quick-ſets is on the flat, the Ground being well dug and finely ordered, and let the Bordure conſiſt of three Rows, and your Sets planted at about nine Inches diſtance, which will make a ſtout Hedge; If you are not well ſtored with Quick-ſets, two Rows may ſerve. Be ſure to keep the Bordure clean Weeded, and hoed. After two Seaſons you may cut them, which will cauſe them to ſhoot out the better, and thicker; and if the Seaſon is dry, forget not to water them, and to preſerve them from the Injuries of Cattle. The common way to plant Quick is on the Bank, and a Hedge on the Top, which is not ſo good.

The *Black-Thorn* is a good Fence, and raiſed as the *White-Thorn*.

The *Holly*, for Sight, Ornament and Defence, is by many preferred before the *White-Thorn*, being always green, and ſo thick that it is not to be ſeen through; the only Fault is, 'tis very ſlow in growing. It is raiſed of the Berries, and of Sets, as the *White-Thorn*; but the Sets are more difficult to grow, unleſs they are planted late in the Spring, and well watered.

The *Pyracantha* is an excellent Fence, having ſtrong prickly Branches, and the Leaves are always green. It is quick of Growth, and eaſie to be raiſed, either from the bright *Coralline-Berries*, which hang moſt part of the Winter on the Trees, or from Suckers or Slips. The Berries lie in the Ground as long as thoſe of the *White-Thorn*.

The *Elder* makes a good Fence for a Shelter, but not for Security, as not being ſo thick: The Cuttings ſet will grow, being kept watered.

The *Furzes*, called *Devonſhire Furzes*, make a ſtout Fence, and ſo ſtrong, that nothing can enter it. The beſt way for raiſing this Fence, is to dig the Ground where you intend your Fence, and ſow the Seeds in Rows, made with a Rill-plough, or with a Hoe; three or four Rows are ſufficient. This will grow upon a dry Bank, and be far better than any dead Hedge.

If you have any barren Ground, not worth Ploughing and Sowing, it is good Improvement to plough and ſow it with *Furz-ſeed* for Fewelling, as for Brewing, Baking, or the like Uſes.

All theſe Sorts of Hedges are to be ordered and kept, as before directed for the *White-Thorn*.

Of Trees for Ornament, &c.] The *Lime* is of all Trees the moſt beautiful for Walks, and moſt uniform both as to its height and ſpreading Branches; and if ſet near together,

ther, affords a pleaſant dark Shade; Its Bloſſoms in *June* and *July* are very fragrant and pleaſing to the Scent. 'Tis raiſed from Seeds or Berries that drop from the Trees in Autumn, as alſo from Suckers, as the *Elm-Tree* is. The Seeds when ripe, may be known by their being plump and full under the Husk, and the Body white when bit or cut in two; they are ripe in *October*, gather them in a dry Day, let them dry about a Week in an open Room, then put them into a Bed of Sand indifferent moiſt, and ſo keep them till about the Middle of *February*, ſowing them under ſome Wall or other Shelter, that may preſerve them from the North and North-weſt Winds; and if the Spring and Summer be dry, keep them indifferent moiſt, and ſtick ſome Boughs over to ſhade them; let them be kept clean from Weeds, where let them ſtand two Summers, and then tranſplant them into your Nurſery.

They will grow almoſt in any Soil, but delight moſt in a freſh, rich, dry Mould, and will grow well on a loamy Ground, that is rather ſtrong than light; But they ſhould be well water'd the firſt Year of Planting, if the Spring is any thing dry. They will grow any where in Cities and Towns amongſt the Smoak of Houſes, which choaks other Trees.

You may tranſplant them very large, as about the Bigneſs of your Leg, but when they are about two Inches Diameter and eight or ten Foot high is the beſt Size; but if it never was tranſplanted before, it is better to remove it while ſmaller. It bears Removing well, eſpecially if once or twice removed in the Nurſery before you plant it out into Walks or Hedge-rows.

It is a Tree that loves pruning, and heals the Wound the ſooneſt of any, it naturally delighting to grow tall; and therefore if in your Nurſery it ſhoots much, leave ſome Side-Boughs to check the Sap, leſt by forcing it too much up into the Head, it make the Head too large for the Body to bear it, which many times in high Winds is apt to break off the Top; and therefore when ever you plant them for Walks or in Hedge-rows, a diſcreet thinning of the Boughs is neceſſary to let the Wind through; for being a large Leaf and a light Wood, the Wind is very apt to damage them. If you plant them for Walks, ſet them at about twenty or thirty Foot diſtance.

It is a noble Tree for Walks and Avenues. The Timber is fit for any Uſe that the Willow is good for, and much to be preferr'd both for its Strength and Lightneſs, being of a fine white Colour, and works eaſily without being ſubject to ſplit, and is much uſed by *Carvers*; the Coal is eſteemed for Gun-Powder better than that of *Alder*.

The *Sycamore* is a Tree that delights in any indifferent or light Ground, but rather in a moiſt than dry. It is raiſed of the Keys, and ſown in Autumn, when they fall from the Trees, which will come up the next Spring, being of a ſpeedy Growth. Alſo Sets cut from the Trees will grow, if ſet in moiſt Ground, and kept watered. This Tree however is not eſteemed ſo good for Walks, or near fine Gardens, becauſe of the falling of the Leaf, which is apt to foul them, and the Leaf hangs on it the ſhorteſt time of any: Beſides, Honey-dew hangs upon them and breeds Inſects: But both their Dew and Flowers are very advantageous for *Bees*.

The *Fir*, *Pine*, *Pinaſter* and *Pitch-Tree*, delight in cold, high, and rocky Mountains; but Ground that is hot, dry and ſandy, is not good; they are raiſed of the Kernels taken out of the Cones, which being laid in Water ſome Days, and then laid before ſome gentle Fire, will open ſo that you may get out the Seeds, which muſt be ſown in Beds, as before directed for other Sorts. The beſt time to ſow the Seed of *Fir* is in *March*; they ſhould be very carefully kept from the Mice before they get up, which are very deſirous of them; and when they begin to peep, ſhelter them with Furz, or ſuch ſort of Fence, from the Birds, which are very apt to pull them up by taking hold of the Cap, which they commonly bear upon their Tops when they firſt ſpring. The Beds wherein you ſow them, had need be ſheltred from Southern Aſpects. Sow them in ſhallow Rills, not above half an Inch deep, and cover them with light Mould. They will peep in about five or ſix Weeks time, and being riſen two Inches high, eſtabliſh their weak Stalks by ſifting ſome more Earth about them, for being heavy they are apt to ſwag ſo as often to blow out of the Ground. When they are of two or three Years Growth, you may tranſplant them where you pleaſe; and when they have got good Root they will make very large Shoots, but not for the firſt three or four Years. They will grow on any dry Soil, but refuſe not moiſt barren-Gravel, or any ſort of poor or rocky Grounds or Clays, except they are too moiſt and ſpuey.

Tranſplant them from the Middle to the latter End of *Auguſt* and *March*. Remove them with as much Earth about the Roots as you can, tho' the Fir will bear a naked Tranſplantation better than the Pine. You may tranſplant them from the Place where they are raiſed of Seeds; but if you deſign to plant them where the Cattle come, you muſt firſt remove them into a Nurſery, where you may let them ſtand till they are eight or ten Foot high, and then plant them out, obſerving to water them well, and neither to bruiſe nor cut the Tops; and when you prune them, leave the Stories about a Yard aſunder; the beſt time of doing which, is in the Beginning of *March*, and be careful to rub a little dry Earth upon the Wound where you cut them, to ſtop the Turpentine, and to prevent their ſpending themſelves too much, which theſe Trees are very ſubject to do; and it will cauſe them to grow taper, to ſhoot in Height, and to let the Wind thro' them, which may prevent their being blown down, and the breaking of their Boughs, which theſe Trees are very liable to during the Winter Guſts; and therefore, where you plant any of them, plant other Trees round to ſhelter them, but be ſure to let no Dung touch either their Body or Root; and if you plant them on Gravel-ground, Mud or Clay mixed with it will do well to temper it; and if you mix Sand with Clay where the Soil is Clay, it will be better than Dung; but the ſheltring them with ſome Litter will do well to preſerve them from the parching Heat in Summer, and the Cold in Winter.

As to the *Pine*, you are referr'd to the Directions of the *Fir-tree* for the ordering of it. They do not bear Tranſplantation ſo well as the *Fir* when large, and ſhould be always removed with as much Earth as you can, and both *Firs* and *Pines* ſhould be well watered at firſt Removal, and planted as ſhallow as their Roots will allow of.

There is likewiſe the *Piceaſter* (a wilder Sort of *Pine*), out of which the Pitch is boiled, which grows both in the cold and hot Countries; the Body of which being cut or burnt down, Mr. *Evelyn* ſays, will emit Suckers from the Roots, which neither the *Fir* nor the *Pine* will do. The Uſe of theſe Trees for Building, Maſts, *&c.* is ſo well known to moſt, that nothing need be ſaid of them.

The *Horſe-Cheſnut* proſpers well in *England*, delighting in Ground that is not too dry; the beſt is a rich Garden-Mould. It is a quick Grower, being raiſed by Layers, and affords a pleaſant Sight in the Spring, when its Turpentine Buds put forth into curious Leaves, and bears a Cluſter of fine Flowers.

The *Lotus*, *Larch*, and *Platanus*, are not in much eſteem amongſt us; but afford an excellent Shade.

The *Cypreſs* is a curious Tree, and delights moſt in a warm and dry Ground. It is raiſed from the Seed, ſown in *March*, and well endures removing, and may be brought to grow in any faſhion, either Pyramidal, which is the uſual way, or in Hedges kept clipt, which is beſt done in *April* and *Auguſt*, if they run too much without branching from the Bottom; a diſcreet cutting of the principal Stem may be of advantage to make them ſhew beautiful, but a good Management of them while young may prevent that Occaſion.

They are raiſed of the Seed. Procure them in the Nuts, and when you have occaſion to uſe them, expoſe them to the Sun, or put them in warm Water, and the Seeds may be eaſily ſhaken out. Sow them in *April*, prepare a Bed of fine Earth, and make it even, upon which ſtrew the Seeds pretty thick, and ſift more Mould upon them about half an Inch thick, keeping them well watered every Evening, except when the Seaſon waters them, and after a Year's Growth you may tranſplant them: When they are come up well, be ſparing of your watering of them, and weed them when the Weeds are young, leaſt otherwiſe you pull them up with the ſaid Weeds.

They will grow on any dry Ground, even Gravel and Sand, eſpecially the Male Sort, and will never be injured by Froſt if they are not planted in a cold moiſt Soil.

The Timber is very laſting, and proper for Cheſts, Muſical Inſtruments and other Utenſils, and never cleaves but by great violence. The Bitterneſs of its Juice preſerves it from Worms and Putrefaction. It is the beſt of all Timber for Building, and will laſt when either wet or dry.

Cedar. It is a great pity this Tree is not more propagated among us, being ſo eaſily raiſed, and a Tree that will grow ſo well with us. They are of ſeveral Sorts and Kinds, ſome very much reſemble the *Juniper.* Other Sorts are more like *Cypreſs*, as thoſe that grow in *New-England* and *Virginia* are: But the *Cedar* of *Lebanon* bears the ſevereſt Weather we have. Mr. *Mortimer* ſays, he had raiſed ſeveral of them of Cones he had from thence, and had now a Walk plented with them; and whereſoever they are to be had of any Sort, the Seeds may be brought from the furtheſt Part of the World in the Cones, and may be kept 3 or 4 Years without Prejudice in them. They are raiſed of Seeds, which ſeldom fail of growing if order'd right, and if Care be taken to preſerve 'em from the Mice, which are very greedy of them.

They bear a Cone as the *Pines* do, but rounder, and more like Scales; the ſame Obſervations are to be minded in the gathering of them, as that of the *Pine*; only to open 'em, let 'em be ſteep'd in cold Water 48 Hours, and the Seeds ſet as ſoon as taken out. The time of the Setting is about the latter End of *March*, which ſow on a Bed of good rich Mould, and lay it at leaſt two Foot deep, but let no Dung come near them; and if your Bed be made a little ſloping, it will do well, that the Water may run off from them; for too much Wet is apt to burſt the Seed. They cannot well ſtand too dry, if they are but ſhaded in dry Weather. As they come up, ſift Earth about them to eſtabliſh their Roots, as about the *Pine*.

They delight moſt in a rich dry Soil, but grow very well on the hazely Brick-Earths and on Gravel. Tranſplant them at three or four Years old from the Place where you raiſed them of the Seed. If the firſt Year you water them with a Liſt, it may do well, and be of great Advantage to them. They grow but ſlowly the firſt ſeven or eight Years.

I need not ſay much of the Uſefulneſs of the Timber, being ſo much known. The Fragrancy of which, its fine Grain for all Sorts of Work, and its Durableneſs, being able to recommend it for all Uſes, beſides the Statelineſs of it for Walks and Avenues, ſeveral of them being reported to be two hundred Foot, or more, in Height. It is ſo dry, that it cannot well endure Nails, and therefore proper only to be faſten'd with Pins of the ſame Wood. It was uſed formerly in Shipping.

The *Cork-Tree* is of two Sorts, (but there are divers other Species in the *Indies*) one is of a narrower leſs jagged Leaf than the other; being a conſtant Green; whereas the other is broader, and falls in the Winter: It grows near the *Pyrenæan* Hills, and in ſeveral Parts of *Italy*, and the North of *New-England*, eſpecially the latter Sort, which is the hardieſt, and beſt for our Climate; and that upon the worſt of Soils, as dry Heaths, ſtony and rocky Mountains, where there is hardly Earth enough to cover the Roots. It hath three Barks, on the outer of which is the Cork, which they ſtrip once in two or three Years in a dry Seaſon, becauſe the wet is apt to prejudice the Tree; and one of the other Coats being red, when they fell the Tree, bears a good Price with the *Tanner*. The Wood is good for Fire, and uſeful for building Paliſadoe Work, *&c.*

The *Ilex*, or great ſcarlet Oak, thrives well in *England*. 'Tis a hardy ſort of Tree, eaſily raiſed of the Acorn. If we could have them brought to us well put up in Earth or Sand, they might be brought any where from Foreign Parts. The *Spaniards*, Mr. *Evelyn* ſays, have a Sort they call *Enzina*, which bears Acorns, of which they have profitable Woods and Plantations: The Wood of which, when old, is finely chambletted as if it were painted; which Wood is uſeful for Stocks of Tools, Mallet-heads, Chairs, Axle-trees, Wedges, Beetles, Pins and Paliſadoes for Fortifications, being very hard and durable. Of the Berries of the firſt Sort is extracted the Painter's Lac, and the Confection of *Alkermes.* Their Acorns are good Food, little inferiour to Cheſnuts: But the *Kenne* Tree doth not always produce the *Cocum*, except it grow near the Sea, and where it is very hot, and therefore they frequently cut down the old Trees that they may put forth freſh Branches, upon which they find them.

Thuya, or *Arbor vitæ*, grows of Layers or Slips to a tall ſtreight goodly Tree, hardy in all Seaſons. The Wood makes incomparable Boxes, Bowls, Cups, and other Curioſities; and the Leaf makes one of the beſt Ointments for green Wounds, that is, cloſing of them ſuddenly.

Box, tho' now almoſt baniſhed our Gardens, deſerves our Care becauſe of the Excellency of its Wood, and in that it will proſper on the Declivity of cold dry barren Chalky-hills, where nothing elſe will grow; of which there are two Sorts, the dwarf, and a taller ſort that grows to a conſiderable Height. It will increaſe of Slips ſet in *March* or about *Bartholomew-tide*, and may be raiſed of Layers or Suckers. It is of uſe for the Turner, Ingaver, Carver, Mathematical Inſtrument-maker, Comb-maker, *&c.* for which they give great Prices by Weight as well as Meaſure, eſpecially the Roots, which by Seaſoning, divers ways of Cuttings, vigorous Inſolations, Politure and Grinding, furniſhes the Inlayer and Cabinet-makers, with Pieces nicely inundulated, and full of Variety: The Chymical Oil of this Wood has done the Feats of the beſt *Guajacum* for the *Venereal Diſeaſe*.

Yew: Since the Uſe of Bows is laid aſide, the Propagation of this Tree hath been neglected, tho' it will grow on our coldeſt and barreneſt Hills, eſpecially if chalky, where it may be of uſe to propagate it for the ſame Uſes as *Box*, for moſt of which Purpoſes it is as good, beſides which it makes extraordinary Axle-trees. It is eaſily produced of the Seeds, which muſt be waſhed and cleanſed of their Mucilage, and then buried in Sand made a little moiſt any time in *December*, and ſo kept in ſome Veſſel in the Houſe all Winter; and in ſome ſhady cool Place abroad in Summer. The Spring come twelve Months after you have put them in Sand, ſow them on a Bed, the Ground not too ſtiff. Some bury them in the Ground like Haws. It is commonly the ſecond Winter before they peep, and then they riſe with their Caps on their Heads. At three Years old tranſplant them. They may likewiſe be raiſed by Layers or Slips, and ſo planted out for Standards, Walks and Hedges, being to be clipped in what Form and Order you pleaſe, and therefore are much valued by our Modern Planters, to adorn their Walks and Graſs-plats.

Juniper is of three Sorts, whereof one is much taller than the other, the Wood whereof is yellow, and if cut in *March* is ſweet like *Cedar*; but this is accounted a ſpurious Kind. They ſhould neither be ſhaded much nor dropt upon. They muſt be raiſed of Seeds, which will peep in two Months after Sowing. They muſt neither be Watered nor Dunged; and being managed like *Cypreſs* will make fine Standards; eſpecially where they are not obnoxious to eddy cold Eaſterly Winds, which are apt to diſcolour them, but they ſoon recover it again. To make it grow tall, prune it cloſe to the Stem, and looſening the Earth about the Roots, haſtens its Growth much. It may be clipt for Hedges. The Berries are of excellent Uſe for many things, and the Chips within Doors make a wholſome Perfume.

The *Laurel* or *Cherry-Bay* is moſt commonly uſed only for Hedges, but being planted upright and kept for Standards by cutting away the ſide Branches, ſo as to maintain only the principal Stem, it will riſe to a large Tree, and carries a fine ſpreading Head, very Ornamental and Shady for Walks or Groves, and may this way be of much better uſe than to plant them in Hedges, as moſt do, where the lower Branches grow ſticky and dry, by reaſon of their frequent and unſeaſonable Cuttings (the Genius of this Tree being to ſpend much in Wood) cauſing them never to ſucceed after the firſt ſix or ſeven Years, but are to be new planted again or abated to the Roots for a freſh Shoot. They are raiſed of the Seeds or Berries with extraordinary Facility, or propagated by Layers, Slips and Cuttings ſet about the latter End of *Auguſt*, or earlier, in a ſhady moiſt Place, they delighting moſt in a moiſt cool Soil: If they be carefully planted, and that the Scituation be not too much expoſed to the Winds, they are not unfit for Eſpaliers.

The *Yew-Tree* is an Ever-green, moſt commonly growing in Church-yards, and raiſed from the Seeds ſown in Beds. The *Bay-Tree* delights to grow beſt in the Shade, like unto the *Lawrel*; yet it will grow in moſt Places and Soils. It is raiſed from Seeds, Suckers, *&c.*

The *Privet* hath been formerly more uſed than at preſent; but the *Phillyrea* is now much uſed inſtead of it: It delights in a warm fertil Soil; 'tis a very quick Grower, and may be raiſed of the Seeds or Berries ſown in the Spring; as alſo of the Slips, ſet like the Slips of *Box*.

The *Alaternus* proſpers well in this Kingdom; It is very beautiful and uſeful for Hedges and Arbours, being green, with an early Bloſſom. 'Tis raiſed from Seeds, and is a ſwift Grower.

Rules to be obſerved for better raiſing Trees *in way of Nurſery.*

ALtho' Trees may be raiſed by Suckers, Sets, Slips, and the like, yet the beſt and ſureſt Way is from the Seed; for they take Root ſooneſt, and thrive far faſter, which is contrary to moſt Fruit-Trees, and make the ſtreigheſt and faireſt Trees. The beſt Time for ſowing your Seed is in the Spring; for then neither the Coldneſs of the Winter, nor the Mice and other Vermin will prejudice them; and for the better preſerving 'em from drying, rotting, or decaying, you may put them into Pots or Veſſels, with a Mixture of Earth or Sand not too dry, and at the Spring you will find them ſprouted, and be as forward as if ſown in Autumn. The Maſts or Seeds that you deſign to ſow ſhould be taken from good thriving Trees, with ſound Stocks; alſo the Seed ſhould be weighty, clean, and bright.

The Ground for your Nurſery ſhould be well fenced in, and ſhelter'd from the North and Eaſt Winds, and of a Soil ſomething dry; for Trees will better thrive, being removed out of dry into moiſt Ground, than otherwiſe. The Ground muſt be well dug, and brought to a fine mellow Mould, and clear from Weeds. Being thus prepared, ſow your Seeds in ſmall Furrows or Trenches, about five Inches deep, and about two Foot broad, with a convenient Diſtance betwixt, for the better Weeding and Dreſſing the young Sets, and cover them over with Earth with a Garden-Rake, and let every Sort of Seed be ſown apart.

The Place where you ſow your Firs, Cypreſſes, Pines, and other tender Winter-greens, ſhould be ſhelter'd from the cold Winds, and ſuch Seeds ſhould not be ſown above an Inch deep, and finely covered over with ſifted Mould; and for the more convenient Removal of the Pine, you may ſet two or three Seeds in an Earthen Pot without a Bottom, filled with rich Mould, ſetting them into the Ground up to the Brims. When they grow, leave only one, which in two or three Years Growth may be removed without hazard, and in Time the Plant will rid it ſelf of the Pot.

Theſe young Plants muſt be carefully kept from Weeds, and in a dry Seaſon water them. In the cold Winter Seaſon you may lay over them ſome Buſhes or Furzes, with Straw ſcattered over to preſerve them from the cold Winds.

For the raiſing a Coppice from Maſts or Seeds, let the Ground be well ploughed, as if for Corn, and ſow it with Winter Corn, mixt with your Maſt, Nuts, Berries, and Seeds that you intend to ſow; Let the Corn be reaped high, for the Stubble is a great Preſervative of the young Shoots in Winter, and ſo lay it up for a Coppice, fencing it about that Cattle annoy it not.

The Planting of Walks and Trees in Hedges.

MOST People are apt to plant their Walks too narrow, ſo as not to afford a fair Proſpect of what they are deſigned for: And therefore whatever the Length of the Walk is, which is planted for an Avenue to a Houſe, it ſhould be as wide as the whole Breadth of the Front; and if it be long, the wider the better: As for Walks to Woods, Proſpects, *&c.* they ſhould be ſixty Foot broad at leaſt: But becauſe it will be long before they are ſhady, let a narrower Row be planted on each Side, rather than loſe the Statelineſs of the main Walk; and the ſpreading Sorts of Trees ſhould be planted at the diſtance of thirty five or forty Foot in the Row. The beſt way of raiſing Trees in Hedges, is to plant them with the Quick, if you can preſerve them well from Cattel; but where Hedges are planted already, and Trees wanting, I ſhould propoſe to plant them thus. *See Plate* 2. *Fig.* 4. *Page* 333. Let *a a* be the Bank that the Hedge ſtands on, and *b b* the Ditch, and let all the Trees be planted not on the Bank where the Hedge ſtands, as the common way is, but at the Bottom of the Bank about a Yard from the Hedge; which will prevent their dropping on it, as at *o o o o*; and over-againſt them, on the other Side of the Ditch, about a Yard from it, not in a direct Line, but in the Intervals, let another Row be planted, as at *c c c c*; and if each other of theſe Trees be a ſpiring Tree, and the odd one between, a Fruit-tree to ſpread, they may be planted the nearer together, and will afford the better Shelter.

The Infirmities of Trees.] There are ſeveral Diſeaſes and Caſualties that ſpoil Trees, and affect the ſeveral Parts of them, that are carefully to be looked after.

1. Weeds, which muſt be carefully plucked up by hand after Rain, eſpecially while the Trees are young and not able to over-drop them; but for the ſtronger Weeds, extirpate them with the Hoe, Spade, *&c.* being very prejudicial to the Trees in robbing them of their Nouriſhment, and choaking ſuch as are young.

2. Suckers ſhould be cut off cloſe to the Place they put out from, opening the Earth the better to come at them; and if you find them rooted, you may ſet them again.

3. Over-much Wet often prejudices Trees; eſpecially ſuch Kinds as require drier Ground, which is to be helped by Drains; and if a Drip fret the Body of a Tree by the Head (which will certainly decay it) cut firſt the Place ſmooth, and apply to it, ſo as to cover the Wound, ſome Loam or Clay mixed with Horſe-dung, which keep to it till a new Bark ſucceed.

4. Slit a Tree that is Bark-bound, through the Bark from Top to Bottom in *February* or *March*; and if the gaping be much, fill the Rift with Cow-dung: Alſo the cutting off of ſome Branches is profitable, eſpecially ſuch as are any ways blaſted or Lightning-ſtruck; and ſo is digging about the Tree, it being many times occaſioned from the baking of the Earth about the Stem.

5. The *Teredo*, *Coſſi*, and other Worms lying between the Body and the Bark, poiſon the Paſſage of the Sap, to the great prejudice of the Trees; but open the Holes where they lie, and make a ſmall Slit from the Bottom of them to let any Moiſture that may fall in them, run out, and do the Place over with Loam.

6. Trees, eſpecially Fruit-bearers, are often infected with the Meaſles by being burn'd and ſcorched with the Sun in great Droughts. This being commonly ſucceeded by Louſineſs, is cured by boring a Hole into the principal Root, and pouring in a Quantity of Brandy, ſtopping the Orifice up with a pin of the ſame Wood.

7. Excorticated and Bark-bared Trees may be preſerved by nouriſhing up a Shoot from the Foot or below the ſtripped Place, cutting the Body of the Tree ſloaping off a little above the Shoot, and it will quickly heal and be covered with Bark like a Tree new grafted; and if you cover the Top with Clay and Horſe-dung in the ſame manner as you do a Graft, it will help to heal the ſooner.

8. *Deer*, *Conies* and *Hares*, by barking Trees, often injure, and many times deſtroy them quite. To preſerve them from *Deer*, fence them with Pales; but from *Conies* and *Hares*, Mr. *Evelyn* propoſes the anointing them with *Stercus humanum* tempered with a little Water or Urine and lightly bruſhed on, this to be renewed after every Rain, or to ſprinkle *Tanners* Liquor on them, which they uſe for dreſſing their Hides; alſo tie Thumb-bands of Hay or Straw round them as far as they can reach.

9. Moſs is to be rubbed and ſcraped off with ſome fit Inſtrument of Wood which may not hurt the Bark of the Tree, or with a piece of Hair-cloth, after a ſoaking Rain. But the moſt certain Way is to take away the Cauſe; draining the Land well from all ſuperfluous Water, and to prevent it in the firſt planting of your Trees by not ſetting them too deep.

10. *Ivy*, *Briony*, *Honey-ſuckles*, and other Climbers, muſt be dug up, leſt they ſpoil your Trees by pinching and making them crooked.

11. Wind-ſhock is a Bruiſe and Shiver throughout the Tree, tho' not always viſible, twiſting the Warp from ſmooth-renting, being occaſioned by High-winds, and perhaps by ſubtil Lightnings, thoſe Trees being moſt in danger of it whoſe Boughs grow more out on the one Side than the other. The beſt Prevention is Shelter, choice of Place for the Plantation, and frequent ſhredding up while young. In caſe any Trees ſhould chance to be blown down which you deſire to preſerve or redreſs, be not over-haſty to remove them, but cut off their Heads, and let them lie, and many times the Weight of the Roots will bring them up; but if not, take ſome of the looſe Earth out of the Hole that the Tree hath made, and cut off ſome of the ſtraggling Roots that hinder it from falling back, and you may eaſily redreſs them.

12. Cankers are cauſed by ſome ſtroke or galling, or by hot burning ſtony Land. Cut them out to the quick, and emplaſter the Scar with Tar mingled with Oil, and over that Loam thin ſpread; or elſe with Clay and Horſe-dung, but beſt with Hogs-dung alone bound to it with a Rag, or by laying Aſhes, Nettles, or Fern to the Roots, *&c.* But if the Canker be in a Bough, cut it off; if a large Bough, at ſome diſtance from the Body of the Tree; but if a ſmall one, cloſe to it. But for over-hot ſtony Land, cool the Mould about the Roots with Pond-mud and Cow-dung: And for Fruit-trees, the beſt way to raiſe them on ſuch Land is to graft them on Crab-ſtocks raiſed in the ſame Mould.

13. Hollowneſs is contracted by the ignorant or careleſs Lopping of Trees, ſo as that the Wet is ſuffered to fall perpendicularly upon any Part of it, eſpecially the Head: In this Caſe, if there is ſufficient ſound Wood, cut it to the quick cloſe to the Body, ſo as to make it as ſloaping as you can, that the Wet may fall from it, and cap the hollow part with a Tarpaulin, or fill it with good ſtiff Loam, Horſe-dung, and fine Hay mixed together. This Evil all ſoft Woods are very liable to, if lopped; eſpecially the *Elm*, which is much better to be ſhred up, the Side-boughs of which will yield a conſtant Lop, and the Bodies afterwards be good Timber, whereas when lopped they ſoon decay and periſh, tho' many times a Spire *Elm* will begin to grow hollow at the Bottom when any of its Roots happen to periſh; but the Unthriftineſs of its Branches will quickly diſcover it.

14. *Hornets* and *Waſps* do miſchief to Trees by breeding in them, which are deſtroyed by fuming their Cells in the Night with Brimſtone, or ſtopping up their Holes with Tar and Gooſe-dung.

15. *Mice*, *Moles*, and *Piſmires*, cauſe the Jaundice in Trees, which is known by the diſcolour of their Leaves and Buds.

16. Blaſted Parts of Trees are to be cut away to the quick; and to prevent it in the Bloſſoms, ſmoak them in ſuſpicious Weather by burning moiſt Straw or the ſuperfluous Cuttings of aromatick Herbs, as Roſemary, Lavender, Juniper, *&c.*

17. *Rooks* greatly prejudice Trees by cropping off the Tops of old ones, and by lighting on young ones, whoſe Weight breaks the tender Branches and often ſpoils their Tops: They alſo deſtroy Seedlings where they breed, and their Dung breeds Nettles and Weeds.

Concerning Tranſplanting Trees.

THE beſt Seaſon for Tranſplanting of Trees, is ſoon after the Fall of the Leaf; but they may be removed any time after in open Weather, until *February*. Cut not off the Tops of the *Aſh*, *Lyme*, *Sycamore*, and the like Trees that are pithy, the firſt Year of their Removal, becauſe the Wet will be apt to periſh them; neither cut off the Heads, nor too many of the Branches or Roots of the *Firs*, *Pines*, or the like Trees, by reaſon of their Aptneſs to ſpend their Gum, which is very injurious to them. In the tranſplanting of the Suckers, Cions, Layers or Slips of the *Lyme*, *Elm*, *Horſe-Cheſnut*, *Birch* and ſuch like Trees ſo propagated, you are to obſerve the ſame Seaſon, and Method as you do in the Removal of the young Seedlings of the other

Trees; only that for the Slipping or Laying of ſuch Branches of Trees that had not before taken any Wet, the beſt time is in the Top of the Spring, when the Sap is newly riſen, and the Trees ready to bud.

All Ever-greens are to be removed in the Spring; for the Cold would kill them before they come to draw Root. All Aquaticks, that are raiſed of Sets, are to be planted in the Months of *January* and *February*. In tranſplanting be careful to preſerve the ſmalleſt Roots that gather the Sap, and in filling the Earth about the Roots, keep them to a Level, with Earth between them. Leave as much of the Root as you can, cutting only the Top-Root, or down-right Roots.

The common Rule for Planting are, firſt, to obſerve to ſet your Trees deeper in light Ground than in ſtrong, but ſhalloweſt in Clay. Six Inches is ſufficient for the drieſt, and two or three for the moiſt, provided you eſtabliſh them from the Winds, and ſhade them from the Heat of the Sun; the beſt Way is by Stakes, and round the Stem of the Tree to raiſe a ſmall Hill about two Foot thick, and four or five Foot in Diameter, which cover with Stones, Tiles, or mungy Straw, to keep it moiſt, and to prevent the Weeds growing, taking care, after a competent time, to remove them, elſe the Vermin, Snails and Inſects, which they produce and ſhelter, will gnaw and injure the Bark. Abate about half a Foot of the Height of the Hill every Year, till they become level with the reſt of the Earth round the Tree, and carefully pull up what Weeds grow about 'em, becauſe they draw away the Heart of the Soil, which ſhould give Nouriſhment to the Tree. 2. Where you dig your Holes for Trees, if it is in a gravelly Soil, or Sand, mix Clay, or rather Earth, Loam, or Mud with the Earth, you fill into the Holes again; and if a ſtiff Clay, trench it with Straw, Thatch, Litter, Wood-Stack-Earth, *&c.* let not the Roots touch any of theſe Mixtures, nor yet any Dung or Turf; but lay your Dung rather round upon the Surface of the Earth, and dig it in a little, covering it with Mould, to keep the Sun from drying it. When you dig down the Hills, or dig about the Roots of the Trees (which ſhould be done carefully once a Year) and where-ever you plant Trees, make your Earth as fine as you can. 3. The ſtrong blue, white or red Clay are ſome of the worſt Soils for Trees, and moſt Sorts of Plants; but if any of theſe Lands have ſome Stones naturally in them, or the nearer they are to the Loam, by any Mixture of Sand, they are much the better; ſo likewiſe in gravelly or ſandy Grounds, the nearer they are to a Loam, by a Mixture of Clay; for a Loam, or light Brick-Earth, compoſed of a due Mixture of Clay and Sand, is reckon'd the beſt for Trees. 4. Plant in a warm moiſt Seaſon, the Air being tranquil and ſerene, the Wind Weſterly, but never when it freezes, rains, or is miſty; for it moulds and infects the Roots; and if you water any Trees you have new-planted, it will ſettle the Earth the better to the Roots, and keep them moiſt. 5. You muſt have thoſe Trees abated that have not been tranſplanted, or others that have, if their Roots go deep, elſe you will be neceſſitated to place them too deep; only the ſmall fibrous Roots muſt be ſpared as much as may be; for they are what affords the chief Nouriſhment to the Trees; and take them up with as much Earth as you can, letting the Holes, into which you tranſplant them, be left open for the Rain, Froſt, and Sun, to mellow the Earth ſometime before you plant them. 6. If you take up a Tree, mind how the Roots grow, and diſpoſe them in the ſame Order where you new-place them, ſpreading the Roots carefully, obſerving to place the Tree to the ſame Aſpect that it grew before. 7. In the Spring rub off the Side-Buds to check the Exuberancy of the Sap in the Branches, and to cauſe it to run up to the Head. 8. Tranſplant no more Trees than you can fence well from Cattle, eſpecially from Sheep, the Greaſe of whoſe Wool is very prejudicial to them. All young Trees ſhould likewiſe be defended from the Wind and Sun in Summer, eſpecially thoſe of a tender Sort from the North and Eaſt, till their Roots are fixed, and that you find them begin to ſhoot. In Winter there is more Danger to be fear'd from wet and cold, in Conjunction one with another, than the ſevereſt Froſt alone. 9. Wood well planted will grow in mooriſh, boggy, heathy, and the ſtonieſt Ground; and what large Timber you find in white and blue Clay, which are the worſt for Wood, (the Oak only excepted) is of a very great Age. 10. If the Seaſon require it, all new Plantations are to be well watered in *April*, at their firſt Budding, eſpecially the firſt Year of their Planting, upon which depends much of their future Growth; and what Water you pour on them, let it be in a Circle, at ſome Diſtance from the Roots, which ſhould continually be bared of Graſs and Weeds; and if the Water be rich or impregnated with any Manure, the Shoots will ſoon diſcover it; for the Liquor being procolated, or ſtrain'd thro' the Earth, will carry the nitrous Vertue of the Soil with it. By no means water at the Stem, becauſe it waſhes the Mould from the Roots, and lets the Water come too crude to them, which often endangers their rotting. If you fear dry Weather, do not defer too long before you water your Trees or Seeds; but water while your Ground is yet moiſt, that it may keep ſo. 11. Young Trees will be ſtrangled with Corn, Oats, Peaſe, Hemp, or any rank growing Corn or Weeds, if a competent Circle and Diſtance be not left from the Stem. 12. Cut no Trees that have any large Pith in them, eſpecially being young and tender, when either Heat or Cold are in their Extreams; nor in wet or ſnowy Weather, tho' the diſcharging Trees of unthrifty, broken, wind-ſhaken Boughs is a very great Advantage to them, when done in a good Seaſon. *Ever-greens*, eſpecially ſuch as are tender, prune not juſt after Planting, but when you find by ſome ſmall freſh Shoot they have taken Root. 13. If you plant Fruit-trees, reduce them to a Head as ſoon as you can. As for Timber-trees, it is beſt not to head them at all, but to ſhred them up to one ſingle Bough, if the Soil be good that you plant them in; but if bad, the Sap will hardly run ſo high; and therefore then it is better to head them: And when they are ſhot out, reduce the Head to a ſingle Branch; and if your Top die, or the Tree meet with any Prejudice from Cattle, ſo as to occaſion its Breaking out of the Sides, which impedes both its Growth and Spring, prune off ſome of the Shoots, and quicken a leading Shoot with your Knife at ſome Diſtance beneath its Infirmity; but if it be in a very unlikely Condition at Spring, cut off all cloſe to the Ground, and hope for a new Shoot, which nurſe up by cutting away all ſuperfluous Branches. If you would not have a Tree put forth Side-Branches, prune them up in *February*; and whatſoever Side-Branches it puts out after, cut off at *Midſummer*, when the Sap is in them, and they will hardly ever ſprout again; you muſt lop or thin the Head of it before the Body, eſpecially if of a tender Wood, leſt the Wind break it, or let more of the Side-Boughs grow out of it to check the Sap from running all into the Top-Branches. 14. Walnut, Aſh, and pithy Trees muſt by no means be headed when tranſplanted, eſpecially the firſt; and if there is Occaſion to lop off any of the Boughs, let it be done where they may be the leaſt expoſed to the Wet; and late in the Spring, as about the latter End of *February*, or Beginning of *March*, that the Bark may the ſooner heal the Wound.

Of Pruning, Cutting, Shreuding, and Felling of Trees and Coppices; alſo Grubbing, Seaſoning, &c.

PRuning of *Trees*, is the taking off all ſuperfluous and dead Branches, which is a great Benefit to the *Tree*; for the doing of which the beſt Seaſon is in (and about) *January*, and rather whilſt the *Trees* are young than otherwiſe. This is to be perform'd with a ſharp Bill or Ax, making your Stroaks upwards, to prevent the Slitting of the *Tree* or Bark at the Fall of the Branch; and be ſure cut it off clean, ſmooth and cloſe, for by Cutting it otherwiſe, the Stump rotting, will leave a hollow Hole, which will decay the *Tree*.

Thoſe *Trees* not fit for Timber, but ſuch that are deſign'd for preſent Uſe, for Fewel, *&c.* may be lopp'd or ſhreuded at convenient Seaſons.

The harder Woods may be lopp'd at any time during the Winter-Seaſon; but the *Elm*, the *Aſh*, and ſuch like pithy and ſoft Woods, are beſt to be lopp'd in the Beginning of the Spring, leſt the Winter injure the *Tree*; and it is not good to lop them too often, once in ten or twelve Years being ſufficient: And for preſerving the *Trees* from decaying, cut the remaining Stumps aſlope, and ſmooth, as before directed, that they may caſt off the Water, which rots them.

Take not off the Head of any Aquatick, (before unlopp'd) growing upright and ſmooth, after they are about the Bigneſs of a Man's Leg, unleſs you have ſome collateral Shoots to draw up the Sap, for it will endanger the *Tree*.

Theſe Aquaticks may be cut or lopp'd every four or five Years; but cut them not too near the main Stock, which oft-times occaſions the Dying of the Tree, eſpecially if too great Lops; alſo it hinders new Shoots. You may lop them in *February*, or the Beginning of *March*, if deſigned for Sets, otherwiſe in the Winter before the Sap begins to riſe.

Thus far our Author. Mr. *Mortimer* ſays, *Pruning* is a Work that requires much Care and Skill; but more particularly you are to obſerve, that what Shape ſoever you deſign your *Tree* ſhall have, form it as much as you can thereto while it is young, ſeeing it then beſt bears *Pruning*; but be cautious of cutting off the Heads of thoſe *Trees* deſigned for Timber, eſpecially ſuch as have great Piths, as alſo all ſoft Woods; but if your *Trees* grow too top-heavy, 'tis beſt to lighten them by thinning ſome of the Boughs that ſhoot out of the Sides of the main Branches, ſo as to let the Wind have a Paſſage through them, rather than cut off the main Branches themſelves, eſpecially if you deſign them for ſpreading *Trees*; but if for ſpiring ones, it is beſt done by rubbing off the Buds as they put out in Spring, and ſparingly ſhredding up the Side-Shoots, ſo as to leave here and there a Bough; and when any new Shoots put out, ſave them, and cut off the former, always taking care to cut off the largeſt, and leave the ſmalleſt, to give a Check to the Sap, where it runs too much up to the Head, ſo as to endanger the Breaking of it where the Body is too weak; but where it is ſtrong, and able to bear it, you may be the bolder in ſhredding of it up, minding always to proportion the Head to the Body by keeping it ſmall, maintaining the leading Shoot, and particularly taking care that it do not run up with a Fork till you have got your *Tree* to the intended Height; then let the Head break out, and cut off all the Side-Boughs. If you find the Side-Boughs ſtill breaking out, and that the Top is able to ſuſtain it ſelf, to the Boughs that put out in Spring give a Summer-Pruning a little after Midſummer, cut them very cloſe, and this is the only Way to make your *Tree* grow with a fine ſtreight handſome Body. As for great, that is *Foreſt-Trees*, prune them not at all, except in Caſes of very great Neceſſity; and even then avoid the cutting off large Boughs as much as you can; but whatſoever Boughs you cut off, if it is ſmall, cut it off ſmooth and cloſe, ſo as the Bark may quickly cover it; and ſloaping, ſo as the Water may run off, and not ſoak into it: But if the Bough is large, and the *Tree* old, cut it off at ſome Diſtance from the *Tree*, as at three or four Foot, or where you find any young Shoots coming out of the Sides of it; but by no means leave any Stumps to ſtand out at any Diſtance, becauſe they cannot be covered by the Bark till the Diameter of the *Tree* grows beyond it, and in the mean time the Stump will be continually rotting, as aforeſaid. But if the *Tree* grow crooked, cut it off ſloaping upwards at the crooked Part, and nurſe up one of the principal Shoots to be a leading Shoot, except it is of ſuch a Sort as is ſubject to die when headed; or if any *Trees* are very great, do not meddle with them; but crooked *Trees* may be made ſtreight, by ſhredding up of the Side Branches till you come above the Crook, where they are young.

The Growth of Coppices is various, according to the Nature of the Ground, ſo that no prefix'd Space can be ſet for the Time of their Standing betwixt Felling and Felling; for in ſome Grounds the Wood will be at a good Growth at nine Years, in others at ten, eleven, or twelve; whereas in others not until fifteen, or more; ſo that the Bigneſs of the Wood muſt be your Direction, which, when grown to an indifferent Size, ſhould be fell'd; for after that it will not grow ſo faſt as at the firſt.

Mr. *Mortimer* ſays, Great Care ought to be taken that the Wood, Coppices are to be compoſed of, be ſuch as is ſuited to the Soil you raiſe them on, and that the Sort is proper for ſuch Uſes as you deſign to ſell your Wood for, about which you muſt be regulated by the Vent you have, as whether it is for Fire-wood, for which the *Oak*, *Horn-beam*, and other hard Wood, is beſt; or for Hoops, Hop-poles, *&c.* the *Aſh*, *Cheſnut*, *Oak*, *Hazel*, &c. is the moſt uſeful; and, according to the Profit of the Under-wood, regulate the Thickneſs of the Standards, which as they are thicker or thinner, do more or leſs Injury to your Under-wood. Conſider alſo at what Growth you can ſell your Under-wood, only remember that the older and taller it is, the better for Fire-wood, and the better it is for what Standards you leave, becauſe they will be the taller and ſtreighter by being forced up by the Wood that grows about them; though a deep Soil contributes much to their Spiring, and, according to the Time of your Felling, it is neceſſary to lay out your ſeveral Falls, that ſo you may have an Annual Succeſſion to yield a Yearly Profit, which in many Places is from eight Years to twenty or thirty: But though the ſeldom Felling of Wood yields the more and the better Timber, yet the frequent cutting of Under-wood makes it the thicker, and gives Room for the Seedlings to come up.

If many *Timber-Trees* grow in the Coppice, which are to be cut down, fell both them and the Underwood together, cutting off the Stubs as near the Ground as may be, and thoſe of the Under-wood aſloap and ſmooth, and not above half a Foot from the Ground, ſtock up the Roots of the *Timber-Trees*, if they ſend forth no Shoots, to make Way for Seedlings and young Roots to ſhoot; but where you deſign to ſow Seeds, you muſt prepare the Ground with good Tillage, as much as you do for the Sowing of *Barley*; and about *February* ſow them, and if the Soil be ſhallow, plough your Ground into great Ridges, and it will make the Soil lie the thicker on the Top of each Ridge, whereby the Roots will have the more Depth for Nouriſhment, and the Furrows in a little time be filled up by the Leaves, which, when rotten, will lead the Roots from one Ridge to another; and if you ſow them on the Sides of Hills that are dry, plough your Ridges croſs the Deſcent of the Hills, that the Water may be kept on the Land without having too ſudden a Deſcent; but if your Ground be very wet, obſerve juſt the contrary.

Some ſow their Seeds with a Crop of Corn; but as that is too late for the Seeds, it is better to ſow them by themſelves; keep them well weeded the firſt and ſecond Year. But if you have a mind to raiſe Wood on very barren dry Land, ſow it with what Fruit or Seeds you deſign it for, and with them ſow Furz, or ſuch Trumpery as will grow on the worſt Land, and it will become a Shelter to your *Trees*, which when they have once taken Root, will ſoon outgrow the Furz, and kill it with their Dropping.

For the Raiſing of Coppices, the neareſt Diſtance for the Plantations ought to be about five Foot for the Under-wood; but as to what Number and Scantlings of Timber you are to leave on each Acre the Statutes direct, and it is an ordinary Coppice which will not afford three or four *Firſts*, that is Beſts, fourteen *Seconds*, twelve *Thirds*, and eight *Wavers*, &c. according to which Proportion the Sizes of young Trees in Coppices are to ſucceed one another. By the Statute of the 35th of *Henry* the Eighth, in Coppice or Underwood, fell'd at 24 Years Growth, there were to be left twelve Standlings, or Store-Oaks, upon each Acre; or elſe the ſame Number of *Elms*, *Aſh*, *Aſp*, or *Beech*, and they to be ſuch as are likely *Trees* for Timber. In Coppices above this Growth, when fell'd, are to be left twelve great Oaks, or other *Timber-Trees*, as above, and ſo to be left for twenty Years longer, and to be encloſed ſeven Years: But a greater Number of *Timber-Trees* is better, eſpecially where Under-wood is cheap; and as to Felling, begin at one Side, that the Carts may enter without Detriment to what you leave ſtanding; where your Woods are large, it is beſt to have a Cart-way along the Middle of them, whereby you may fell on each Side where you will, and have a Cart-way always ready, without Prejudice to the reſt of the Wood. The Under-wood may be cut from the Beginning of *October* to the latter End of *February*; but *February* is beſt to cut Wood in, where you have but a ſmall Quantity to fell. Take great Care to prevent the Carter's bruſhing againſt the young Standards, and let all your Wood be carried out by Midſummer, and made up by the End of *April* at the lateſt; for where the Rows and Bruſh lie longer unbound or unmade up, you ſpoil many of the Shoots and Seedlings.

By the Statute Men were bound to encloſe Coppice-Wood after Felling, if under fourteen Years Growth, for four Years; thoſe above fourteen for ſix, and for Woods in common, a Fourth-part to be ſhut up, and at Felling the like Proportion of great *Trees* to be left, and ſeven Years incloſed: This was inlarged by the 13th of *Elizabeth*. Your elder Under-wood may be graz'd about *July*, or in Winter; but if nothing at all be ſuffer'd to come into them it is better. When the Wood happens to be cropp'd by Cattle, it is beſt to cut them up, and they will make freſh Shoots; whereas what is bit by the Cattle will ſtunt for ſeveral Years before it will take to its Growth. When they are too thin, lay down Layers of the longeſt and ſmalleſt Shoots of ſuch Wood as you like beſt, and they will ſend forth abundance of Suckers, and thicken and furniſh a Coppice very ſpeedily.

As to the Size of Faggots and Wood-Stacks, &c. it differs in moſt Countries, and therefore there is no need to dwell upon it; but here it is to be obſerv'd, that when the Workmen have bound up the Faggots, with their Bills they trim off all the ſtraggling ſmall Branches, to make the Faggots more neat and tight; which Trimmings they commonly gather up, and put into the Middle of the next Faggot, where it is of little Advantage, but would be of much more to the Land, if left to rot in the Wood, for which it is as good as Dung, and would much advance the Growth of your *Trees*, ſince it will turn any Soil whatſoever into a rich black Garden-Mould; and tho' thoſe Sticks are but ſmall, and cannot do much the firſt time, yet a conſtant Repetition of it every Fall is a much greater Improvement of Wood than can eaſily be believed.

Some adviſe, in Felling of Timber to cut it but into the Pith, and ſo let it ſtand till it be dry, becauſe by Drops there will paſs away that Moiſture, which would cauſe Putrefaction; others, to bore a Hole in it with an Augre for the ſame purpoſe; but a nipping Froſt will effect the ſame, by cauſing the Moiſture to deſcend into the Root; not that they ſhould be fell'd in froſty Weather, but not fell'd till a hard Froſt hath been upon them.

When the Stubs of your Under-wood are great, ſtock them up, becauſe it makes way for Seedlings and young Roots that are thriving, whereas when the Stumps are old and large, they are apt to let in the Water, and be unthrifty; the Time of doing which is in the Winter-Seaſon. When you fell your Woods, leave young *Trees* enough, you may take down the worſt at the next Fall, eſpecially if any grow near a great *Tree*, that you think may be fit to fell the next Seaſon, to ſupply its Place, becauſe ſeveral may be ſpoil'd by its Fall. The Signs of Decay when *Trees* are at full Growth are many, as the Dying or Withering of any of the Top-Branches, the taking in Water at any Knot, Hollowneſs, or Diſcolouring, making but ſmall Shoots, and having Holes made in them by Wood-peckers: A very ſpreading *Tree* in a Wood is frequently very prejudicial, becauſe of its Droppings upon young *Trees*. Laſtly, great Care is to be had, if Wood be ſold by the Acre, that what Standards are to be left ſhould be mark'd out before-hand, otherwiſe you may be eaſily cheated by the Buyer; and obſerve, that all Wood-lands are meaſured by the Eighteen Foot Pole.

Of the Age and Stature of Trees.

THE Growth of moſt *Trees*, for the Circumference of them, (it being eaſily ſeen what Length the Top-ſhoots grow) is from about one to two Inches in a Year, and the Increaſe of ſmall and large *Trees* is much the ſame, provided they are alike thrifty. Mr. *Mortimer* ſays, he has an Oak that grows in the Middle of a Corn-field that is conſtantly plough'd about, and the Cattle often lie under it, and dung it, growing upon a red Brick-Earth, that is at leaſt forty Foot deep, whoſe Increaſe is ſome Years four Inches; whereas the common Growth of other *Trees* is but about an Inch and a Quarter, or an Inch and a Half in Circumference; which ſhews the Advantage of digging and dunging about *Trees*, and of killing the Weeds about them, which is the greateſt Prejudice of any thing to the Growth of *Trees*, in drawing away the Heart of the Ground from them.

For the Felling of Timber-Trees, you ſhould conſider if they are of full Growth; for after that it is ill Huſbandry to let them ſtand: But for the Preſervation of the Growth and Increaſe thereof for future Ages, it is good Huſbandry to plant two young ones for every one fell'd. Next, the time of Year is to be conſider'd; for if you deſign your Timber for Sale, then the beſt Time for Oaks is from *Mid-April* to *Midſummer*, the Sap being then up; ſo that the Bark will run, which is conſiderable Advantage, being bought up by Tanners; but for all *Timber-Trees* the Winter-Seaſon, whilſt the Sap is down, is beſt.

Fell your *Timber-Trees* not in the Increaſe nor Full of the Moon, nor in windy Weather, for that oft-times ſpoils the *Tree.*

Theſe Directions not ſeeming particular enough, the firſt Thing to be taken care of, according to Mr. *Mortimer*, is a ſkilful Diſbranching ſuch Limbs as may endanger it in its Fall, many *Trees* being utterly ſpoil'd for want of it; and therefore in Arms of Timber that are very great, chop a Nick under them cloſe to the Bole; and ſo meeting it with downright Strokes, it will be ſever'd without ſplitting. 2. Take care to cut them as near the Ground as poſſible, unleſs you deſign to grub them up, which to do is of Advantage, both for the Timber and Wood, becauſe they do not reckon the Timber good that grows out of old Stools. The Price of Felling of *Trees* is twelve Pence *per* Load, and three Shillings a Load hewing.

When your *Tree* is down, ſtrip off the Bark, and ſet it ſo as it may dry well, and be well covered from the Wet in caſe of Rain; and then cleanſe the Bole of the Branches that are left, and ſaw it into Lengths, if you do not ſell it to the Timber-buyers; the common Way of dealing with whom, is to ſell your Timber as it ſtands, or by the Ton, Load, or Foot, forty Foot being reckon'd a Ton, and fifty a Load, which you meaſure either by Girt or Square Meaſure. They reckon, that forty Foot of round Timber, or fifty Foot of hewn or ſquared Timber, weighs the ſame, that is twenty Hundred, which is commonly accounted a Cart-load; and as they ſeldom ſtrip the Bark off of Elm or Aſh, they commonly allow one Inch for the Bark, which is a great deal more than it comes to; and therefore it will be better to ſtrip off the Bark in the Meaſuring-place, which ſhould be always about the Middle of the *Tree.* Some allow four Foot out of every Load for Aſh, and five for Oak and Elm: And as for the Computation of the Feet, if it is ſquare Meaſure, the Square is taken by a Pair of Callipers, or two Rulers clapp'd to the Side of the *Tree*, meaſuring the Diſtance between them; and if the Sides are unequal, they add them together, and take Half the Sum, which they account the true Side of the Square: But if girt Meaſure, by girting of the Middle of the *Tree* with a Line, and taking a Quarter-part of that Girt for the Square, meaſuring the Length from the But-end ſo far forwards, till the *Tree* comes to be ſix Inches girt, that is, 24 Inches in Circumference; and if the *Trees* have any great Boughs which are Timber, that is, which hold ſix Inches girt, they meaſure them by themſelves, and add them to the Whole: For the caſting-up the Contents of which, they make uſe of *Gunter*'s Line, upon which if you extend your Compaſſes from 12 to the Number of Inches contain'd in the Square, and placing one Foot of the Compaſſes at the Length, and keeping of the ſame Extent with your Compaſſes, if your Square is under 12 Inches, turn your Compaſſes twice towards 12, if above, twice from 12, and it will ſhew you the Contents: The Way of doing which, any one that underſtands it will ſhew you in a very little time; which Way, though it is a falſe Way of Meaſuring, being near a Fifth-part ſhort of its true Meaſure, yet it being the common Practice, you muſt be guided by it.

As to *Grubbing*; Woods and Trees may be grubbed up, upon the Account of their Unthriftineſs, or to plant better Lands to that purpoſe; and to grub up Roots that are decay'd to make Room for them that are more thriving. It is a chargeable Work, but there being a particular Engine or Inſtrument, which will eaſe about a Third-part of the Charge of this Sort of Labour: It is very proper it ſhould be deſcrib'd here. It is an Iron-Hook of about two Foot and four Inches long, with a large Iron-Ring to it, the Shape of which you have in the Figure, and may be made for about 3 *s.* 6 *d.* Charge, which they uſe after this manner: Where a Stub of Under-wood grows, they clear the Earth round it, where they think any Side-Roots come from it, and cut them; which when they have done, in any Hole on the Sides of the Root they enter the Point of the Hook, and putting a long Leaver into the Ring, two Men at the End of it go round till they wring the Root out, twiſting the Tap-roots aſunder, the Difficulty of coming at which, occaſions the greateſt Labour of this Work. Stubs alſo of Trees may be taken up with it; in which Work it ſaves a great deal of Labour, though not ſo much as in the other, becauſe the Stubs muſt be firſt cleft with Wedges before you can enter the Hook in the Sides of it to wrench it out by Pieces. See *Plate* 2. *Fig.* 5. *Pag.* 333.

After Felling and Sawing, the next Thing is to ſeaſon Timber; for doing of which, ſome adviſe, that it be laid up very dry in an airy Place, yet out of the Wind and Sun; others, that it ought to be free from the Extremities of the Sun, Wind, and Rain: And that it may not cleave, but dry equally, you may dawb it over with Cow-dung. Let it not ſtand upright, but lay it along, one Piece upon another, interpoſing ſome ſhort Blocks between them to preſerve them from a certain Mouldineſs, which they uſually contract when they ſweat, and which frequently produces a kind of Fungus, eſpecially if there be any ſappy Parts remaining. Others adviſe to lay Boards, Planks, *&c.* in ſome Pool, or running Stream, or rather in Salt-Water, for a few Days, to extract the Sap from them, and afterwards to dry them in the Sun or Air, which will hinder them to chap, caſt or cleave. Some again commend Buryings in the Earth, others in Wheat; and there be Seaſonings of the Fire, as for the ſcorching and hardening of Piles, which are to ſtand either in the Water or the Earth. And for Poſts, and the like, that ſtand in the Ground, the burning the Outſides of thoſe Ends that are to ſtand in the Ground to a Coal, is a great Preſervative of them.

As to *preſerving Timber:* When Timber or Boards are well ſeaſon'd or dry'd in the Sun or Air, and fix'd in their Places, the Uſe of Linſeed-Oil, Tar, or ſuch oleaginous Matter, tends much to their Preſervation and Duration. *Heſiod* preſcribes to hang your Inſtruments in Smoak to make them ſtrong and laſting: Surely then the Oil of Smoak, (or the vegetable *Oil* by ſome other means obtain'd) muſt needs be effectual in the Preſervation of Timber alſo. *Virgil* adviſes the ſame. The Practice of the *Hollanders* is worth our Notice, who, for the Preſervation of their Gates, Portcullis, Draw-Bridges, Sluces, and other Timbers expoſed to the perpetual Injuries of the Weather, coat them over with a Mixture of Pitch and Tar, upon which they ſtrew Cockle, and other Shells, beaten almoſt to Powder, and mingled with Sea-Sand, which incruſts and arms it after an incredible manner againſt all the Aſſaults of Wind and Weather.

When Timber is fell'd, before the Sap is perfectly at Reſt (ſays Mr. *Evelyn*) it is very ſubject to the Worm: To prevent and cure this, let common yellow Sulphur be put into a Cucurbit-Glaſs, upon which pour ſo much of the ſtrongeſt Aqua-Fortis as may cover it three Fingers deep. Diſtil this to Drineſs, which is done by two or three Rectifications. Let the Sulphur, remaining at the Bottom (being of a blackiſh or ſad Red Colour) be laid on a Marble, or put into a Glaſs, where it will eaſily diſſolve into Oil. With this anoint what Timber is either infected with Worms, or to be preſerv'd from them. It is a great and excellent *Arcanum* for tinging the Wood, of no unpleaſant Colour, by no Art to be waſh'd out, and ſuch a Preſervative of all manner of Woods, nay of many other things alſo, as Ropes, Cables, Fiſhing-nets, Maſts, or Ships, *&c.* that it defends them from Putrefaction either in Waters, or above the Earth, in Snow, Ice, Air, Winter, or Summer.

As for the *Aqua-Fortis*, our common Coperas makes it well enough for our Purpoſe, being drawn over by a Retort: And for *Sulphur*, the Iſland of *St. Chriſtophers* yields enough (which hardly needs any Refining) to furniſh the whole World. Three or four Anointings with Linſeed-Oil has proved very effectual. It was experimented in a Walnut-tree-Table, where it deſtroy'd Millions of Worms immediately, and is to be practiſed for Tables, Tubes, Mathematical Inſtruments, Boxes, Bedſteads, Chairs, *&c.* Oil of Walnuts will doubtleſs do the ſame, and is a ſweeter and better Varniſh. But Oil of Cedar, or that of Juniper, is commended above all.

For cloſing Chops and Clefts in green Timber.] To do this anoint and ſupple the Timber with the Fat of Powder'd-Beef Broth, with which it muſt be well ſoaked, and the Chaſm filled with Sponge dipped into it: And this twice over. This muſt be uſed when the Timber is green.

But ſeeing after all, ſays Mr. *Mortimer*, there are two great Diſcouragements that belong to the Planting and Raiſing of Foreſt-trees, I ſhall conclude this Treatiſe of Foreſt-trees with conſidering, and in ſome meaſure propoſing of Remedies for 'em: 1. The long time that the Owners are forc'd to wait for the Growth of their Timber, before they can make any Profit of it. 2. The Timber's being liable to ſo many Abuſes and Cheats from Tenants, Bayliffs, Executors, and others, in caſe of the Owner's Negligence or Death; eſpecially if they are forced to leave their Wood to a young Heir. He anſwers to the firſt Objection, that if the Timber is thriving, there is no Stock you can have Money in that will turn to better account, tho' you ſtay long for it; nor any thing that it can be better ſecured in, which makes amends for the Stay. And as for the ſecond, which is the moſt material, and the greateſt Inconveniency and Diſcouragement to Planting and Raiſing of Timber of any; he propoſes a Method for the taking an exact Account of the Timber-trees, both in Hedges and Woods: For the doing of which, firſt, in Hedge-rows, ſuppoſe the four Fields underneath to be what you have a mind to take an account of, being called by the Names of *The 10 Acre Field*, *The New Mead*, *The Road Pleen*, and *Park Pleen*, and lying as in the Cut; *Plate* 2. *Fig.* 6. *Page* 333.

Make a Scheme after the following manner.

Names of the Fields.	Side of the Fields.	Timber-Trees.			Pollards.			Saplins, or young Trees.		
		Oak	Aſh	Elm	Oak	Aſh	Elm	Oak	Aſh	Elm
10 Acre Field.	N. Side.	10	3	4	6	10	4	10	5	4
	E. End.	5	4	6	3	6	3		2	3
	S. Side.		5	4		2		1	3	4
	W. End.	4		3	8			6	5	4
New Mead.	N. Side.	5	3		2	6	5	4		
	E. End.		3	4		0			4	2
	S. Side.	3	5	2	2	3	4	6	7	8
Park Pleen.	N. Side.				5	6		7	5	2
	E. End.	4	3	2		0				
	S. Side.	3	4	2	3	2	2	5	5	6
	W. End.		5	4	2	3	2	4	6	5
Road Pleen.	S. Side.	4	3	2		1	2			
	W. End.				5	6	7	8	4	2

Note, That in the above Scheme, the firſt Column is the Names of the Fields, the ſecond the Sides and Ends of the ſaid Fields, the third the Number of Timber Oaks, the fourth the Timber Aſh, the fifth the Timber Elms, the ſixth Oak Pollards, the ſeventh Aſh Pollards, the eighth Elm Pollards, the ninth Saplin or young Oaks, the tenth young Aſh, the eleventh young Elms. And 'tis to be obſerved, that to the *New Mead* Field is reckoned but two Sides and only the Eaſt End, becauſe the Ditch being on the *New Mead* Side, the Hedge-row between that and the *Ten Acre* Field is reckoned to the ten Acres; and tho' the Hedge-row between the *New Mead* Field and the *Park Pleen* is reckoned to both, 'tis becauſe there are Trees on the Dools belonging to the *Park Pleen*, and not what Trees are in the Hedge-rows.

For the taking an Account of the Number of Trees in Woods, where they are long and narrow 'tis eaſily done when they are felled; but where Woods are large, 'tis more difficult: Mr. *Mortimer* propoſes the Method he took for the doing of it in a Wood he has that contains about 40 Acres. A Draught of which you have in *Plate* 2. *Fig.* 7. *Page* 333.

He goes on and ſays, that that Wood being too large to fell at once (he not having Woods enough to anſwer ſuch a Fall every Year) and finding it cut in Patches, and other Parts of it ſcambled and cut before it was at its Growth; that they might come at what was fit to cut, he reſolved to cut a Cart-way through the Middle of it, whereby he propoſed three Advantages; firſt, to cut what part of his Wood he would, and to have a clear Cart-way to carry off both his Wood and Timber, which ſaved his Standers and Wood too very much; ſecondly, to divide his Wood into two Parts, in order to the counting of his Standards; and thirdly, it being near his Houſe, to have a fine Walk of it; the Cart Path in the Scheme is marked with a prick'd Line from *a* to *b*. And the Method he took to carry the Path ſo ſtreight, and to keep the Middle of the Wood from one End to the other was, to draw on the Map the Line *a b*, and taking of the Angle on the Map at *a*, he ſet his plain Table to that Angle, and by his Sight directed a Workman to cut a narrow Path, of about two Foot wide, and about ſeven or eight Yards into the ſtanding Wood, and then he ſtuck up two Sticks of equal height, on the Top of which he made a ſmall Slit, and ſtuck a ſmall Piece of white Paper in them, and then ordered the Workman to go into the ſtanding Wood as far as he could, through the Boughs, ſee the white Papers, and then to cut his way out to 'em; and this he repeated doing till he was ſo far off the firſt Stakes, as not to diſcern them well, and then he ſet up another Stake in the ſame manner to range with the firſt, and continu'd adding of one after another till he got through to the Woods End: This divided his Wood into two Parts; and from the Gate at *c* to the Stile at *d* was a Footpath, which he marked likewiſe with a prick'd Line, which made in the Wood the two Diviſions of *A* and *B*. And having ſome Woods adjoining to this Wood at *f*, he was obliged to make another Cart-way from *e* to *f*, which made the Diviſions of *C* and *D*: And from the Foot-path *c*, *d*, being too large a Diviſion, to leſſen it he made ſeveral ſmall Hills, in which he ſtuck Stakes to run parallel with the Corner of the Wood *g*, *h*, which made the Diviſions *E* and *F*. By which means he divided his Wood into ſix Parts, which afforded him a Part to fell every Year, and gave him an opportunity of cutting the Trees in each Diviſion as he felled them, which he did thus.

His Wood conſiſting only of Oak and Aſh, he divided the Trees into three Sorts, *viz.* firſt Storers, which he reckoned all to be that were under 12 Inches girt; ſecondly, Saplins, which he called all under 24 Inches; and what was two Foot girt or above, a Yard from the Ground, he reckoned Timber-trees: And taking of a Slate, he drew ſix Lines, as in *Plate* 2. *Fig.* 8. *Pag.* 333. and taking of one with him with a Paper ruled after the ſame manner, and a Piece of Chalk, a black Lead Pencil, and a Line with two Knots in it, one of 12 Inches long, and the other of 24 Inches; thoſe Trees that he was not certain of being under the Meaſure mentioned he meaſured, and as he counted the Trees he drew a Chalk-line about them, which ſhewed him which were told, that he might not tell them again: And as he told them he ſcored on the firſt Line the Oak Storers, on the ſecond the Saplins, and on the third the Timber Oaks, obſerving the ſame Method with the Aſh; and when he had ſcored twenty on any of the Lines, he rubbed out his Scores on the Slate, and with his Pencil ſcored one on the Paper for one Score. And the Diviſions of *A* and *B* being all the Wood that was felled at preſent, when he came home he found his Account of thoſe two Diviſions as follows, which he ſet down in the following Method; as ſuppoſing it Direction enough for this or any other Wood that there ſhall be occaſion to take an Account of.

An Account of the Number of Trees in the ſeveral Diviſions of his Wood called The Great Wood, *taken in the Year* 1705.

	OAKS.			ASH.		
No	Storers	Saplins	Timber	Storers	Saplins	Timber
A.	150	110	50	50	40	60
B.	50	60	55	115	45	40

He concludes, that tho' this Exactneſs may ſeem more nice than is neceſſary, yet no one knowing whoſe Hand he may fall into, it may be of advantage, the Pains being very little, eſpecially ſince he had himſelf, with only one to help him, taken an Account of three Acres of Wood Land in an Hour's time where the Standards had been very thick, which he thought no very tedious Buſineſs.

CHAP. XIII.

Of the ſeveral Sorts of Beaſts, Fowls and Inſects, neceſſary to be kept, and the great Benefit accruing thereby.

THE *Country-Man's* chief Benefit conſiſts in the well ſtocking his Grounds, with Cattle, Fowls, and Inſects; I ſhall in this Chapter, take Notice of thoſe of moſt Uſe and Profit, omitting the Horſe, as having already treated thereof, more at large in the Treatiſe of *Horſemanſhip*, and ſhall therefore begin with the *Oxe* and *Cow*. Now for as much as the Males of all Creatures are the principal in the Breed and Generation, therefore great Care ought to be taken in the Choice of the Bull, which for a curious Shape ſhould be as followeth; he ſhould be of a quick and ſharp Countenance, his Horns the larger the better, his Neck fleſhy, with a broad and curled Forehead, his Ears rough within, with Hair like Velvet, his Eyes black and large, his Muzel large and broad at the upper Lip, but narrow and ſmall at the neather, his Noſtrils wide and open, his Dew-lap extending from his nether Lip down to his Fore-booths large, thin and hairy, his Shoulders large, broad and deep, his Breaſt rough and big, his Back ſtraight and flat, even to the ſetting on of his Tail, which ſhould ſtand high, of a good Length and buſh-haired; his Ribs broad and wide, his Belly long and large, his Hucklebones round, making his Buttocks ſquare, his Thighs round and well truſt, his Legs ſtrait and ſhort jointed, his Knees round and big, and his Hooves long and hollow. And having a *Bull* with theſe good Shapes, or as many of them as you can, you need not doubt of a good Breed, provided your *Cows* are tolerable good.

Cows.] The *Cow* ſhould be choſen of the ſame Country as the *Bull*, and as near as you can of the ſame Colour, only her Udder ſhould be white, with four Tetts and no more, and not fleſhy, but large and lank, and ſuch a one will prove good to the Pail; her Belly ſhould be round and large, her Fore-head broad and ſmooth, with well ſpread Horns. Her Eyes black, her Neck long and thin, Thighs thick, Legs round and Joints ſhort: The Size muſt be ſuited to the Goodneſs of your Land; tho' the largeſt commonly give the moſt Milk; and whatever you deſign them for, let them come off a worſe Ground than your own, if you can. The *Dutch Cows* are very good for the Pail, giving as much as two ordinary *Engliſh* one's, being a large Sort, much like an *Oxe*, but ill ſhaped Heads and Horns; they commonly bring two *Calves* at a time.

The *Red Cow's Milk* is eſteemed the beſt, but the *Black* ones bring the beſt *Calves*. The younger the *Cow*, the better for Breed. That *Cow* that giveth Milk longeſt, is beſt both for the *Dairy*, and for Breed; for thoſe that go long dry are not ſo teeming.

Calves may be bred theſe two Ways; The one to let them run with their Dams all the Year, which maketh the beſt *Calves*, but is not ſo profitable, as loſing the *Cow's Milk*; The other to take them from their Dams after ten or twelve Weeks; but for a Fortnight before you wean them, let them have ſome Water put into Milk luke-warm to drink; then they are fit, if in the Spring or Summer Seaſon, to put out to Graſs, which muſt be ſhort and ſweet, by no means rank; But if in the Winter Seaſon, to be fed with fine, ſweet and ſoft Hay, which put into low Racks, that they may learn to feed thereon; and it were not amiſs to Houſe your *Calves* the firſt Winter in the cold Nights. It is cuſtomary with ſome to take the *Calves* from their Dams after the firſt ſucking, and ſo to bring them up by Hand with flit Milk, made only lukewarm; but this Way I hold troubleſome. Thoſe *Calves* that are calved in four or five Days after the change of the Moon, are not good to rear; but ſell them off to the *Butcher*; and the beſt time to rear *Calves*, is from *Michaelmaſs* to *Candlemaſs*. Thoſe *Male Calves* that you intend for *Oxen*, the beſt Seaſon to geld them is in the old of the Moon, and when they are fiteen or twenty Days old, for then there is leaſt danger; and the *Oxe* is ſaid to be higher and larger of Body, and longer Horned.

In *Hertfordſhire*, *Eſſex*, and moſt Places near *London*, they commonly fat all their *Calves* for the *Butcher*, becauſe they have there a good Market for them, and their Lands are not ſo profitable to breed on as in cheaper Countries; a good *Calf* there often ſelling for as much as a good *Heifer*, eſpecially if they are very Fat and White, which they take a great deal of Care to make them; their Way of doing of which is by keeping of them clean, giving of them freſh Litter every Day, which they lay upon their old Litter; for they clear out their Coops but two or three times in a Year, and moſt commonly at ſuch a time as they have no *Calves* in them; they conſtantly alſo let them have a large Chalk-ſtone or two to lick, which they bore a Hole through, and hang up by a ſtring in a Corner of the Coop. They alſo obſerve to ſet their Coops where they may have as little Sun come on them as they can, that they be not made cloſe and ſtifling, and that they ſtand a Yard above the Ground, that the Urine may run from them.

The *Ox* is a very profitable Beaſt; for beſides the great Benefit made by them when fatted for the *Butcher*, they perform the Office of the Horſe, both for Ploughing and Carting, and therefore are much uſed in divers Parts of this Kingdom; and thoſe that once make uſe of them, ſeldom quit their Service, for that of the Horſe; for they require not that Care and Charge in keeping; and when they grow old, are fatted for the *Butcher*, ſo that there is not that Loſs, as by Horſes, nor are they ſubject to ſo many Diſeaſes. The larger your Oxen are, the better both for Draught and Feeding. In matching your Oxen for the Yoak, they ſhould be as near as poſſible of an equal Size, Strength and Spirit; and thoſe Oxen are fitteſt for the Yoak which are of the gentleſt Nature. By no means put your Oxen beyond their ordinary Pace, for that cauſeth Heat, which breeds Surfeits, which is found very prejudicial unto them, even ſometimes with the Loſs of their Lives. Their Food is but ordinary; Barley, Oats, or Peaſe-ſtraw, will ſuffice them, and ſometimes for change ſome Hay mixt amongſt the Fodder.

The Time of putting Oxen to work is at three Years old, at which Age, for the firſt Year, work them very gently, eſpecially in hot Weather, and feed them with a good deal of Hay, which will make them better able to endure their Labour than Graſs; the keeping of them in a Middle-ſtate, neither too fat, nor too lean, is beſt; they commonly work them till they are about ten or eleven Years old, and then ſell them; let them always be uſed gently; for Meat and fair-Words brings them ſooner to the Yoak, than Fear or Blows: But the beſt Way to rear up young ones, beſides gentle Uſage, is to couple them with an old gentle Ox; if they are unruly, let them be tied with a Rope, and keep them hungry, that they may take Meat often out of your Hand.

Cattle are bought in to fat at Spring, and about *Michaelmas*; thoſe you buy in the Spring, will be fat in *July*, *Auguſt*, or *September*, according as they are forward, and you have keeping for them; and thoſe that you bought in *Auguſt*, *September*, or *October*, muſt be either to ſell in Winter or in Spring, and muſt be forward in Fleſh to be improved the Beginning of Winter, and only kept up in Fleſh during the hard Time of Winter, either with Hay or Turneps, to be fit for a good Market whenever it offers; or they muſt be young, lean Cattle, that may by their Growth pay for their Wintering, and ſo be ready to fat next Summer. Some upon ordinary Land buy in young *Welch* Heifers, which if they prove with Calf, they ſell in the Spring with a Calf by their Side for the Dairy; and thoſe that are not with Calf, they Fat: All which Ways turn to good account, according as the Prices fall out.

For the Oxen bred for the *Butcher*, ſee that they are always luſty and healthful, which you may know by a good Tail and a good Pizzle, for if the Hair of one or both be loſt, he is a waſter, and will be long in feeding. If they lick themſelves all over, 'tis a good Sign they are fit for the *Butcher*, and will feed, ſhewing Soundneſs, and that they take Joy in themſelves; yet whilſt they ſo lick themſelves they feed not, therefore if you lay their own Dung upon their Hides, it will cauſe them to leave licking, and fall to feeding.

For the Wintering of Cattle; about *September*, you muſt turn them out that you deſign to keep up for a Winter, or a Spring-Market, and your Cows that give Milk into your Rowens, 'till Snow, or a hard Froſt comes, and they will need no Fodder; but in Snow or Froſt, you muſt give Hay to your Cows near Calving, to thoſe that have lately Calved, or that give a great deal of Milk, and to your fatting Cattle, and that every Morning and Evening, which you muſt proportion according to the Quantity of Rowen or Tore that you have upon the Ground; the more Tore you have, the leſs Quantity of Hay will do, and even the four Graſs that your Cattle would not eat before, when the Froſt hath taken it, will be good ſweet Food for them, and what they will eat with Pleaſure, if it is not covered with Snow that they cannot come at it. But for your lean Cattle, and thoſe that give but a little Milk, Straw will do well enough to fodder them, only obſerve to give the Barley-ſtraw firſt, and the Oat laſt, except you value their Milk; if you do, give to ſuch Cows your Oat-ſtraw, if the Quantity of Milk that they give doth not deſerve Hay, or that Hay is ſcarce; for Barley-ſtraw will quite dry up that Milk they have, tho' it is good Food for dry Cattle; but if your Hay fail, to thoſe Cows which you deſign to continue the Milk of, give Malt-duſt, upon which pour ſcalding-hot Water, and it will cauſe it to ſwell mightily; let it ſtand till near cold, and give it to the Cow like a Maſh, and it will cauſe her to give a great deal of Milk, tho' ſhe eat Straw with it. A Buſhel that coſts but about Threepence will ſerve a Cow a Week. But about *London* they give to thir Cows in Winter, Grains, which makes them give a great deal of Milk, but it is apt to rot them if given in too great Quantities, and for too long a Time: But when the Tore is quite eaten up, as it happens commonly about *February*, you muſt houſe your Milch-Cows, that you give Hay to, in your Cow-houſe all Night, and your other Cattle in your Yard; for which Uſe you ſhould have two Yards; one for your Cattle which eat Hay, and another for your Cattle which eat Straw, with Racks and other Conveniencies to fodder them in; obſerving that what you do give them, to do it often, and not to give them too much at a time; becauſe when they have blown on it, they will not eat it; both your Yards ought to be well ſheltred, and made as dry as you can, and a good deal of Straw given them to lie dry and warm in, which is a very great Advantage to them, and will much increaſe the Quantity of your Dung.

For the Knowledge of a fat Beaſt, handle his hindmoſt Rib; and if it be ſoft and looſe like Down, it ſhews he is outwardly well fed; the like doth ſoft Hucklebones, and a big Neck round and knotty; if his Cod be big and full, it ſhews he is well Tallowed, and ſo doth the Crop behind the Shoulders: If it be a Cow, handle her Navel, and if that be big, round and ſoft, 'tis a Sign ſhe is well Tallowed.

As for keeping Cattle abroad to the moſt advantage, there ſhould be ſeveral Cloſes of Paſture Ground to put them in, which ſhould be well encloſed and fenced about with Ditches or Hedges, the better to ſever and keep apart the greateſt and ſtrongeſt Cattle from the weak and ſmall ones, eſpecially in the Winter, when they are fodd'red; for if all Sorts and Sizes go together, the great and ſtrong one's will over-maſter the others, driving them from Place to Place, and trampling and ſpoiling more Fodder than they eat; And by being fodd'red abroad, if ſevered as aforeſaid, far leſs will ſerve them than if kept at Houſe, and the Cattle will thrive the better; beſides it is an Improvement to the Ground.

Neither Cattle, Horſe, or Sheep put into a Field alone, will eat down the Paſture even, except it be over-ſtockt, and that is not good; therefore 'tis convenient to put Horſes and Beaſts together, for there is ſome Graſs that an Horſe will eat that a Beaſt will not: But Horſes and Sheep will not agree well together, both being ſweet Feeders, and cloſe Biters. Milch-Cows and Draught-Oxen feed cloſer and barer than thoſe that are Fat.

If a Milch-Cow have too much Meat, and grow fat, ſhe will abate her Milk, and go to Bull; and if a Cow be fat at her Calving it endangers the hurting her; and where there is too much Graſs the Cattle feed the worſer, for a Bite to the Earth is ſufficient; for if it be long they will bite off the Top and no more, for that is ſweet, and the other lieth on the Ground and rots, ſo that no Beaſt will eat it, but Horſes in the Winter.

If you would buy Oxen for the Plough, let them be young, and free from Diſeaſes, nor broken of Hair, Tail, or Pizzle. If Cows for the Pail, let them be alſo young, well ſhaped, thin skin'd, with good Dugs and Udders. In buying lean Oxen for Graiſing, chuſe thoſe that are young, at leaſt thoſe that are well Mouthed, and not wanting any Teeth; alſo ſuch that have broad Ribs, a thick Hide, and looſe Skin'd. Alſo in buying Cattle either fat or lean, endeavour to know where they were bred; for if they come off from better Ground than that you deſign them for, they will not thrive, but rather grow worſe; and likewiſe ſee if they are free from *Murren*, or any Diſeaſe.

Now for the Preſervation of Cattle in good Health, it is good to let them Blood (except the Calves) every Spring and Fall, the Moon being in any of the lower Signs; and alſo to give them a Drench, made of the Pickle of Olives, mix'd with an Head of Garlick bruiſed therein: And for your Calves, let them not go too early to Graſs. But Diſeaſes being common among Cattle, I ſhall take notice of ſome of the moſt common, with Directions for their Cure.

DISEASES.] A Fever is a Diſtemper that proceeds either from a Flux of cold Humours, engender'd through Cold-keeping, or from a Surfeit of Food that is raw and muſty. The Signs of this Diſeaſe are, a Foaming at the Mouth, a Trembling, heavy Eyes, and Groaning. For Cure, firſt let Blood, then give a Drench of about a Quart of Ale, boil'd with three or four Roots of Plantin, and two Spoonfuls of the beſt *London*-Treacle, and alſo ſprinkle the Hay with Water.

For any inward Sickneſs or Drooping, take a Quart of ſtrong Ale, in which boil an Handful of Wormwood, and half an Handful of Rue; then ſtrain it, and put therein two Spoonfuls of the Juice of Garlick, with the like Quantity of the Juice of Houſe-leek, as alſo of *London*-Treacle, which give the Beaſt to drink lukewarm in a Drenching-horn.

As for the *Flux*, take a Handful of Wood-Roſe-Seeds, dried and beaten to Powder; this brew in a Quart of ſtrong Ale, and give it to drink; but if the Beaſt is dry and coſtive, take a Handful of Fenugreek, which boil in a Quart of Ale, and give it him to drink lukewarm. And for the Cholick, Belly-ach, or Gnawing in the Guts, boil in the Water that he drinks good ſtore of Oil.

Piſſing Blood proceeds either from Over-labour or Soure-feeding. For Cure, take Shepherds-purſe, and boil it in a Quart of Red Wine; then ſtrain it, and put thereto a little Cinamon, and ſo give it to drink.

For a *Cough*, give the Beaſt for ſeveral Mornings together one or two Spoonfuls of Tar, diſſolv'd in a Quart of new Milk, with an Head of Garlick bruiſed therein. The Lungs of Cattle are much ſubject to Sickneſs, which doth appear by much Panting and Shortneſs of Breath, with a continual Coughing. This Diſeaſe is cured by the aforeſaid Drink, preſcribed for a *Cough*.

To recover the *Cud*, take a little ſoure Leaven and Loam, of which make a pretty big Ball, which cauſe the Beaſt to ſwallow. And to kill Worms, take Savin, chopp'd ſmall, and mix it with ſweet Butter, and ſo give it in round Balls. And if you give the Beaſt ſome ſweet Wort, mix'd with a little black Soap, in a Drenching-horn, it will cauſe him to void the Worms.

Vomiting Blood proceeds through Rankneſs of Blood, got in rich Paſture, after hard Keeping, inſomuch that the Blood will be ſeen to flow from his Mouth. For Cure, firſt let the Beaſt Blood, and then give it to drink Bole-Armoniack and Ale mix'd together. To cauſe a Beaſt to *Piſs*, ſteep Smallage, or the Roots of Radiſh, in a Quart of Ale, and give it to drink; it is preſent Help. The *Overflowing of the Gall* is known by the Yellowneſs of the Eyes and Skin. For Cure, give him a Quart of Milk, with Saffron and Turmerick mix'd together, to drink after Letting Blood, and this do three Mornings together. A *Cow* is wither'd, when after her Calving ſhe cannot caſt her Gleaning. Now to cauſe her to caſt it, take the Juice of Betony, Mugwort, and Mallows, of each three Spoonfuls, and mix in a Quart of Ale, and give it her to drink: Alſo give her to eat ſcorched Barley, and it will cauſe her to void it. As to *Purging*, no Medicine does better than Tar, Butter and Sugar-candy mix'd together, and given in pretty big Balls. If in the Heat of the Day, or in his Labour, an *Ox* faints, looſe and drive him to ſome running Stream to drink; then give him two or three Oſpines, full of parched Barley, to eat, and he will ſoon fall to his Labour again. If after Calving a *Cow* can't let down her Milk, give her a Quart of ſtrong Poſſet-Ale, mix'd with Aniſeeds and Coriander-ſeeds, beaten to Powder, every Morning for ſome time, which will not only bring down her Milk, but much encreaſe it.

The *Rot* in Cattle is known by their Leanneſs and continual Scouring. Take Bay-berries beaten to Powder, Ivy-leaves, Featherfew, Myrrh, and Elder Leaves, a good Lump of dry Clay and Bay-Salt; mix theſe together in ſtrong Urine. Of this give the Beaſt to drink luke-warm about half a Pint, and it will preſerve them. To cure any Diſeaſe given by Edge-Tools, or otherwiſe, where the Skin is broke, take Hogs-Greaſe, Turpentine, Tar and Wax, of each a like Quantity, with a Quarter ſo much of Verdigreaſe: Melt all theſe together into a Salve, which ſpread upon a Cloth, and lay to the Wound.

To cure a Beaſt that is goar'd by another, or by a Stake, take Turpentine and Oil, heat them, and ſo tent the Wound therewith: And to draw out a Thorn or Stub, take black Snails and black Soap, beat them to a Salve, and ſo apply them to the Sore. For any general Soreneſs in the Eyes, take the Water of Eye-bright, mix'd with the Juice of Houſe-leek, and waſh them therewith. If a Haw breed therein, then cut it out, which is eaſie to do: But if for a Stroak, Inflammation, Pin, or Web, Take a new-laid Egg, put out half the White, and fill it up with Salt and a little Ginger; then roaſt it very hard, and beat it to Powder Shell and all: Of this Powder put into the Beaſt's Eye, and it will cure it. If an *Ox*'s Neck hath any of the ſaid Infirmities, occaſion'd by the Yoak, take the Leaves of round Ariſtolochia, which beat in a Mortar with Tallow, or freſh Greaſe, and anoint the Place therewith. When Cattle fall away, which may be known by their Hair, firſt let Blood; then take ſweet Butter, and beat it in a Mortar with a little Myrrh, and the Shavings of Ivory, and cauſe him to ſwallow down two or three of the ſaid Balls faſting; and if it be in the Winter, feed him with ſweet Hay.

The *Murrain* is principally cauſed from a hot, dry Seaſon of the Year, or rather from ſome general Putrefaction of the Air, or from the Infection of other Cattel, from Cattle ſmelling to Carrion, and licking of the Bones; from foul Food, as overflown Hay, Graſs rotted by the long ſtanding of Water on it in wet Summers; which Sort of Food is much better to rot on the Ground than to be made uſe of. All theſe things beget an Inflammation in the Blood, and cauſe a Swelling in the Throat, which in little time ſuffocateth the Cattle. The Signs of the Diſeaſe are, a hanging down of the Head, Gum at the Eyes as big as your Finger, going weakly, ſtaggering, the Head ſwelling very big, the Breath ſhort, the Heart beating, with Rattling in the Throat: And if you put your Hand into his Mouth, and find his Breath very hot, his Tongue ſhining, he hath the Diſtemper very ſtrong. If he be taken backward, he will be very ſtiff, and his Guts rumble very much.

If any of your Cattle are infected, ſpeedily let both ſick and well Blood, and drench them, and give all your Cattel (as well the Sound as Sick) of old Urine a Quart, mix it with a Handful of Hen's-Dung diſſolved therein, and give it them to drink.

Others preſcribe to beat unſlacked Lime, Coriander-ſeed, Marjoram and Garlick, all to Powder, and to ſprinkle it on Coals, letting the Fume of it go up the Beaſts Noſtrils; it will bring away a great deal of the infectious Humour. A third Receipt is to take Plantain, Rue, Southernwood, Shepherds-purſe, Smallage, Coleworts, of each an Handful; bruiſe them, and with a Handful of Hen's-dung, lay them in ſteep in a Pint of old Waſh eight Hours; ſtrain the Liquor, and add a Quart of Ale to it; put it on the Fire, conſuming it to one half, and put into it an Ounce of Treacle, a Spoonful of Juice of Garlick, half an Ounce of Aniſeeds, and the like Quantity of Liquorice, and give it luke-warm.

For the Worm in the Tail.] This is a Diſtemper that breeds in the End of Cattle's Tails, like unto an eating Canker, which will cauſe them to grow lean, and ſo weak in their Back, that they cannot riſe when down, and ſometimes will make their Teeth looſe. You may know it by the Hair being eaten off where the Worm lies, and you may by feeling with your Fingers find ſome of the Joints eaten aſunder.

To cure it, take Soot, Rue ſtamped, Salt and Butter, and mix them well together, and apply it to the Tail, having firſt ſlit the Inſide of it about two or three Inches long, juſt above where the Joint falls, and rub her Teeth with Juice of Oranges, or Juice of Scurvy-Graſs.

Hide-boundneſs is occaſion'd thro' over-much Labour, and ill Keeping. For Cure, Firſt let Blood, then give him to drink a Quart of Ale, brew'd with Myrrh, and the Powder of Bay-berries, or of the Leaves. You muſt keep him warm, giving him Hay that is a little mow-burnt, which will cauſe him to drink, and Drink will cauſe his Skin to looſen. And for the *Biting of a mad Dog*, &c. for Cure, take Plantin, which beat in a Mortar with Bole-Armoniack, *Sanguis Draconis*, Barley-Meal, and the Whites of Eggs; this make up into a Plaiſter, and apply to the Sore, renewing it once a Day.

As for the *Foul*, or any other Grief in the Hoof, Take *Mugwort*, beat it in a Mortar with hard Tallow, and apply it to the Hoof: Alſo caſt the Beaſt, and with a Hay-Rope rub ſo hard between the Hoof, that you make it bleed; then anoint the Place with Tar, Turpentine and Kitchin-fee, mix'd together; then bind up the Hoof, and keep him out of the Dirt. Thoſe Beaſts that are bred in Woods, under Droppings of Trees, or in barren unwholſome Places, are ſubject to Lice and Ticks. For Cure, anoint their Body with freſh Greaſe, Pepper, Staveſacre, and Quick-Silver, beaten together until the Quick-Silver be killed.

SHEEP.] *Sheep* deſerve the next Place, for the great Benefit accruing thereby for Food, Wool, and Dunging and Manuring the Ground, being folded thereon: Therefore if you will ſtock your ſelf with good *Sheep*, you muſt have Regard to the Nature of the Soil where you dwell, the barren *Sheep* becoming good in rich, and the Good barren in ill Soils; and therefore take care to know the Natures and Properties of the *Sheep* of the ſeveral Counties; when you intend to ſtock your Grounds, be ſure to bring your *Sheep* from a worſe Soil to a better, and not from a better to a worſe. Chuſe the biggeſt boned *Sheep*, with the beſt Wool, provided your Ground be fit for them; and the red Lear is the beſt. For Breed, be ſure you have good *Rams*, which ſhould be long and large of Body, with a broad and well-riſing Forehead, a chearful large Eye, broad-back'd, round Buttocks, a thick Tail, ſhort-jointed Legs, and his Body well cover'd over with thick Wool; and it is the Opinion of ſome to chuſe them without Horns; for the *Dodder-Sheep* prove the beſt Breeders, and their Iſſue doth never endanger the *Ewes* in Yeaning, as the horn'd *Sheep* do.

The *Ewe* ſhould have her Neck large and upright, bending like a Horſe's; her Back broad, Buttocks round, thick Tail, ſmall Legs, but ſhort, clean, and nimble; the Wool thick and deep, covering her all over. The beſt Time for your *Ewes* to lamb in (if they be *Paſture-Sheep*) is about the latter End of *April*, and ſo to the Beginning of *June*; but if they be *Field-Sheep*, from the Beginning of *January* to the End of *March*, to the end their *Lambs* may be ſtrong and able before *May-day* to follow their Dams over the Fallow-Grounds. About *Michaelmas* is a good Time to geld thoſe that you deſign for *Weathers*, firſt making choice of the Goodlieſt for *Rams*.

The beſt Time to ſheer *Sheep* is from *June* to *Auguſt*, and always waſh them three Days before. *Ewes* are generally good Breeders from three Years old until their Mouths break.

For the Preſervation of your *Sheep*, feed them for the generality upon high or hilly Grounds, which are dry and fertile, with ſhort but ſweet Graſs. But if you are conſtrain'd to feed on low and moiſt Grounds, which are infectious; then bring not your *Sheep* from the Fold until the Sun be riſen, and that the Beams begin to exhale the Dew from the Earth; and then ſuffer them not to feed at firſt, but chaſe them gently up and down with your Dog until they are weary: And this Chaſing not only beateth away thoſe Webs, Kells, and Mill-dews that hang upon the Graſs, which occaſion the Rottenneſs of a *Sheep*, but alſo ſtirreth up that natural Heat in a *Sheep*, which drinketh up and waſteth that Moiſture, which otherwiſe would turn to Rottenneſs; beſides, a *Sheep* thus chaſed and wearied, will fall to his Food with more Deliberation.

If a *Sheep* be ſound, and in Health, his Eyes will be bright and chearful, the White pure without Spot, and the Strings red; his Gums alſo will be red, his Teeth white, his Skin on his Briſket red, his Skin in general will be looſe, and his Wool faſt ſet on. But if unſound, his Eyes will be heavy, pale, and ſpotted, his Breaſt and Gums white, his Teeth foul and yellow, and his Wool eaſie to pull off; and when he is dead, his Belly will be full of Water, his Fat yellow his Liver putrefied, and his Fleſh moiſt and wateriſh.

To cure a Fever in *Sheep*, Change of Paſture is very profitable. Alſo take Penny-Royal, ſtamp it, and mix the Juice with Water and Vinegar, and give each of them about half a Pint in a Drenching-horn luke-warm. The *Scab* or *Itch* is a common Diſeaſe, and proceeds from wet and rainy Weather; ſo that if they have been chaſt or heated after the Wet hath fallen upon them, they commonly break forth into Scabs. The uſual Cure is to anoint the Place with Tar and Greaſe mix'd together. But if at the firſt Coming you waſh their Skins with *Penny-Royal* ſteep'd in Water, it will prevent the running into the *Scab*. Take Gooſe-Greaſe, Tar, and Brimſtone, mix'd together on the Fire, and anoint the Place therewith, to kill *Maggots* in them; and for the Gall, as the *Jaundice*, *Choler*, &c. known by the Yellowneſs of the *Sheep's* Skin, take Plantane and Lettice, ſtamp them together, and mix the Juice with Vinegar, and give to each *Sheep* about half a Pint to drink. The *Sturdy*, *Turning-Evil*, or *More-found*, proceed from Rankneſs of Blood, which offends the Brain, and other inward Parts. For Cure, let them Blood in the Eye-veins, Temple-veins, and through the Noſtrils, and then rub the Places with young Nettles bruiſed. *Broken Bones*, or *Bones out of Joint*, are to be ſet ſtreight and right; then bathe it with Oil and Wine, and dip a Cloth in moulten Patch-greaſe, which rowl about it; then ſplint it as Occaſion ſhall ſerve, and ſo let it remain for about nine Days, and dreſs it again; and at the End of the next nine Days the *Sheep* will be able to go.

As for thoſe that are *Tagg'd* or *Belt*, with a Pair of Sheers cut away the Tags, laying the Sore bare and raw; then ſtrew dried Earth upon it, and after that Tar and Gooſe-greaſe mix'd together. The *Staggers* proceeds from ſurfeiting on Hawthorn-Leaves, Oak Leaves, or the like, which *Lambs* eſpecially are very ſubject unto, and, if not timely prevented, is mortal. For Cure, take *Aſſa-fœtida*, diſſolved in Water, and put the Quantity of half a Spoonful thereof into each Ear of the *Sheep* or *Lamb*. For *Looſe Teeth*, firſt let Blood in his Gums, and under his Tail; then rub his Teeth with Sage, and Salt. That which reſtores the *Cud* to an Ox or a Cow, will do for a *Sheep*. *Worms* are known by their beating their Bellies with their Feet, and looking upon it. For Cure, Take the Leaves of Coriander ſtamp'd, mix the Juice with Honey, and give it him to drink; then chafe him a little, and keep him from eating two or three Hours. The *Lung-ſick*, or any *Cough* or *Cold* is known by its Coughing, and Shortneſs of Breath. For Cure, Take Colts-Foot and Lungwort, ſtamp'd and ſtrain'd, and the Juice mixed with a little Honey and Water, which give the *Sheep* to drink. Diſeaſes in the Eyes, as the *Haw*, *Dimneſs*, or any Soreneſs, are cured by dropping into the Eyes the Juice of Celandine.

The *Rot* is the worſt Evil of all, as being infectious, therefore great Care ought to be had to prevent it, and as ſoon as you find that any are tainted, take *Adraces*, which is a certain Salt gather'd from the Salt Marſhes in the Heat of Summer, when the Tide is going off, and leaving certain Drops of ſalt Water on the Graſs, which the Heat of the Sun turns to Salt. With this rub the Mouths of all your *Sheep* once a Week, and it will preſerve them ſound. Of this *Adraces* great Plenty is in *Spain*, and may be eaſily made in divers Parts of *England*, where the Sea overflows at Tides.

To cauſe *Ewes* to be eaſily deliver'd, take Balſa-mint, or Horſe-mint, and put either the Powder or the Juice thereof into a little ſtrong Ale, and give it her to drink, and ſhe will ſoon yean or lamb. Nothing encreaſeth Milk more than Change of Paſture, driving them ſometimes on the Hills, aud other times in the Vallies, and where the Graſs is ſweet. To cauſe an *Ewe* to love her *Lamb*, or any other's *Lamb*, take a little of the Glean of the *Ewe*, and force her to eat it, or at leaſt to chew it in her Mouth, and ſhe will fall to love it. But if an *Ewe* hath caſt her *Lamb*, and you would have her to take another *Ewe's Lamb*, take the *Lamb* that is dead, and with it rub and dawb all over the live *Lamb*, and ſo put it to the *Ewe*, and ſhe will take it naturally, as if her own, provided it be not too old. When *Lambs* are ſick, give them Mares Milk, or Goats Milk, or its own Dam's Milk, mix'd with Water, to drink, and keep it very warm.

Laſtly, To know the Age of a *Sheep*, look into his Mouth, and when he is one Shear, he will have two broad Teeth before; when he is two Shear, he will have four ſuch-like broad Teeth; when he is three Shear, he will have ſix; and when he is four, he will have eight, and after thoſe Years his Mouth will begin to break.

Swine.] *Swine* are of great Profit, affording great Variety of Meat, as *Pigs*, *Pork*, *Bacon*, and *Brawn*, beſides the Offal, which is very good Food. And *Hogs* require the leaſt Charge in keeping of any other Beaſt.

Now for the Keeping them, ſome are of Opinion, 'tis better to have a Hog-yard, with Sties in it, and there to keep them, than to have their Liberty; for then they waſte their Fleſh: Yet after Harveſt, to let them have the Benefit of eating up the Corn left upon the Ground would be profitable. And ſome think, that 'tis better to keep all *Boars* and *Sows*, and no *Barrows*; for a *Boar* will require as little Keeping as a *Barrow*, and is much better, having more Meat in him; and if you make it into *Brawn* is far dearer: And *Sows*, before they are fit to kill, may bring more *Pigs* than they are worth, and notwithſtanding be as fit for *Bacon* as *Barrows*, provided they are not too old; for a *Sow* will bring three Litters a Year, and commonly nine, ten, or twelve at a time.

For the Choice of your *Swine*, both *Boars* and *Sows*, for Breed, let them be long and large of Body, deep-ſided and bellied, thick Necks and Thighs, ſhort Legs, and thick chined, well ſet with ſtrong Briſtles. As to their Colour it matters not much; but the white or ſandy are eſteem'd the beſt, the Pied being held the worſt, as ſubject to the Meaſles. The wild Kind are not ſo large as the tame, but much hardier, and better Meat.

A *Sow* will bring *Pigs* from a Year old until ſeven; and the *Pigs* beſt to rear are thoſe farrow'd in or about *Lent*, and in Summer: Then having choſen out the beſt for *Boars* and *Sows* to breed on, geld all the Males, and ſpay the Females you deſign to rear; for both will make the beſt *Hogs* for fatning, and yield more Lard.

To have too many *Sows* in one Yard is not good, for their Increaſe is ſo great, that they will, for want of Food, not only devour whatever comes in their Way, but eat one another. If the *Sow* miſs the Time of going to *Boar*, that ſhe might in courſe have done, give her to eat ſome Oats, parch'd in a Pan in her Waſh, or the ſmall Eud of the Runnet-Bag, which will cauſe her quickly to go to *Boor*.

The beſt way of taking Care of *Swine*, is to feed them ſo, as to keep them in good middling Plight, till you deſign to fat them: For if you keep them too fat, it will endanger their Health; and too lean will make them too ravenous. 'Tis good to give them ſuch Swill as you have, every Morning and Evening, to make them come home to their Coats: The reſt of the Day let them graze, and get ſuch Food as they can; only when Corn is upon the Ground, you muſt be careful to keep them within Bounds.

For Fatning of *Swine*; thoſe that inhabit near Woods, and Places where Maſt is plentiful, turn them into the Maſt for ſix or eight Weeks, by which time they will be much improved as to Fleſh; and then put 'em into Sties to fatten, with old dry Peaſe, which makes their Fat firm, and not to waſte away in boiling. Mr. *Mortimer* ſays, He had kill'd *Hogs* fatted with Acorns, whoſe Fat was as ſolid as any fatted with Peaſe. But *Swine* fatned with Acorns or Cheſnuts, or with Parſnips, makes the Fleſh of an excellent ſweet Taſte; and if in Salting you uſe Salt-Petre, mix'd with Bay-Salt, the Bacon will imitate that of *Weſtphalia*.

Thoſe that dwell in Champion Countries, or by Cities, or great Towns, deſtitute of Wood for Maſt, do uſe to put their *Hogs* they deſign to fat into Sties, and ſo feed them with Peaſe, Beans, and Buck-wheat; but Buck-wheat is not good, without they are kept ſome time before their Killing only with Peaſe or Beans; for middling-ſiz'd *Pork*, three Weeks is enough to fatten them, and four for *Bacon*.

In the fattening of *Hogs* in Sties, they obſerve to give them Meat often, but little at a time, that it may be always freſh; and likewiſe to give them as much Water as they will drink, and to keep them very clean, which will much help their Fatting, and mend the Taſte of their Fleſh. Obſerve, that every Sty have a Yard well paved with Stone, if you can, for the *Hog* to go out and eaſe himſelf in, that he may keep his Lodging the cleaner, and air himſelf. In *Leiceſterſhire* they have a very eaſie Way of Fatting great Numbers of *Swine*, which they do by ſtacking up their Peaſe and Beans, which they ſhape like to the Form of a ſmall Cottage. This they ſet near ſome running Brook, and hedge a Yard in round about it, taking ſome part of the Stream into the Yard for the *Hogs* to drink at, into which they turn ſuch a Number of *Hogs* as they think their Peaſe or Beans will fat, where they let them live till their Proviſion is conſumed, cutting the Reek down, and giving it to them as they can eat it. By this Way they fat very great Numbers, which they diſpoſe of at *London* for Sea.

If your *Hogs* do not thrive, take half a Peck or more of Aſhes, boil them in Lye; then cauſe ſuch *Hogs* to be laid upon a Form, and waſh them with the Lye, and curry them with an old Curry-comb, until you find all the Scurf waſh'd from the Skin; then waſh 'em with clean Water, and ſtrew dry Aſhes over them, and this will kill the Lice, and cauſe them to thrive extraordinarily. Now the greateſt thing that hinders *Hogs* from thriving, is letting them lie in the Wet. There is no Creature ſo timerous in Sickneſs as the *Swine*, inſomuch that he forſakes his Meat until he finds a Recovery. Now when you find this, firſt let them Blood under the Tail and Ears; and if they bleed not well, beat them about, which will cauſe them to bleed: The Wounds wrap up, and keep warm, and give them to drink warm Waſh, well mix'd with Barley-Meal and red Oaker.

If you are to buy *Hogs*, and ſuſpect their Healthineſs, draw a Handful of Briſtles againſt the Grain of the Hair, and if the Root be white and clean, the *Hog* is ſound, but ſick when ſpotted or bloody.

The *Murren* is very common and dangerous to them, if not early prevented. For Cure give them in their warm Waſh Hens Dung, and boiled Liverwort, with a little red Oaker. The *Meaſles* is alſo a common Diſeaſe, and eaſily cured: Take Urine that hath been ſome time made, and mix it with red Oaker until it be thick, and about an Ale-Quart; this mix with a Gallon of warm ſweet Whey, and give it them to drink, after they have been kept all Night faſting. Others give an Ounce of Crude-Antimony powder'd to the *Hog* in his Waſh, keep him three or four Hours after in the Sty, and repeat it till cured. Some give them Brimſtone in their Meat, which, they ſay, is an extraordinary Thing; and that if you give to a well *Hog* an Ounce of crude Antimony, it will make him fat above a Fortnight ſooner than another *Hog* that hath the ſame Meat, giving half a Dram at a time. The Signs of the *Meaſles* are either that they cannot ſtand on their Hind-legs, that their Briſtles when pulled out are bloody, or that they have ſmall black Bliſters under their Tongues.

If *Hogs* get a Swelling on the Sides of their Throats by eating Acorns, lance it, and anointing it with *Hogs* Lard, it will quickly be well.

As for *Leanneſs*, *Scurf*, and the *Mange*, which proceed from corrupt Blood, occaſioned by ſcanty feeding, and lying wet: For Cure, firſt let Blood under the Tail; then with a Wool-card, or Curry-comb, rub them well over to fetch off all the Scurf and Filth, until they bleed; then take Tar, Hogs Greaſe and Brimſtone, well mix'd together, and anoint them therewith; then cauſe good, dry, ſweet Straw to be put into their Sty, and let them have good warm Food, which will ſoon recover them, and cauſe them to thrive. And to cure *Swine* that are lugg'd in the Ears by Dogs, anoint the Ears with Vinegar, Soap, and Tallow, mix'd together, and if, through want of looking-after, they breed Maggots, take ſweet Wort, or Honey, and anoint the Sore therewith, and the Maggots will ſoon fall off, and die.

The Signs of the *Gargel* are, their hanging down their Heads, and carrying it on one Side, moiſt Eyes, Staggering, and Loſs of Appetite. The Diſtemper proceeds from the Corruption of the Blood, engendred by eating rotten Fruit, Garbidge, or Carrion, rank Graſs, wherein there is much Hemlock, *&c.* After you have bled him, as before, under the Tail and Ears, take Angelica, Rue, Staverwort, or Hogs Madder, and May-weed, of each a Handful; let them be ſhred very ſmall, and boil'd well in a Pint of Milk, and add thereto a Pennyworth of Sallet-Oil, and the ſame Quantity of Treacle, when 'tis cold enough.

Aſſes.] The *Aſs*, though a contemptible Creature, is very ſerviceable to many that are not able to buy, or keep a Horſe, eſpecially where they live near to any Heaths or Commons, the barreneſt of which will keep them, he being contented with any Traſh, as dry Leaves, Stalks, Thiſtles, Briers, Chaff; and any Sort of Straw is excellent Food for him. He needs very little looking-to, and will ſuſtain Labour, Hunger, and Thirſt beyond moſt Creatures, and is ſeldom or never ſick; and of all other Cattle he endures the longeſt. They may be made uſe of to plough light Lands, to carry Burdens, to draw in Mills, for which they are very excellent, to fetch Water, or any other odd things. They are very uſeful for their Milk, which is an excellent Reſtorative in Conſumptions and other Weakneſſes: But they would be of much more Advantage, were they uſed as they are in Foreign Parts, for the Breeding of *Mules*.

The *She-Aſs*, when you have any Regard to their Breed, ſhould be cover'd between the Months of *March* and *June*. The beſt Age to breed on them is from three Years old to ten, and you ſhould let the young *Aſs* ſuck two Years, and not work them till they are three Years old. Thoſe are reckon'd the beſt ſhap'd that are well ſquared, have large Eyes, wide Noſtrils, long Necks, broad Breaſts, high Shoulders, a great Back, ſhort Tail, the Hair ſleek, and of a blackiſh Colour. Their Skins make the moſt durable Shoes of any Sort of Leather whatever. Perhaps the great Impediments of the keeping them are the Injuries that they do to Trees, which they are very miſchievous to; and their Slowneſs; but this hath a Conveniency in it, in that it is what makes them able to endure ſo much Labour and Hardſhip.

Mules.] *Mules* are chiefly uſed in the rocky Countries, where there are ſtony and rocky Ways, as on the *Alps*, the *Pyrenean* Mountains, *&c.* where great Numbers of them are kept; ſo as that upon the Roads you may ſee forty or fifty of them together, moſt of them coal-black, that are very finely ſhaped, and very large, being bred of the fine *Spaniſh* Mares, which are ſome of the handſomeſt ſort of Mares that are; and the *Mules* are as fine, many of them being ſixteen or ſeventeen Hands high, and valued at forty or fifty Pounds apiece. They are the beſt Sort of Creatures that are, for Burden and Sure-footedneſs, eſpecially in ſtony Ways; and are excellent for Draught, and the greatneſs of their Strength: And therefore it is to be wonder'd that they are not more minded in *England*, eſpecially conſidering their Hardineſs and Freeneſs from Diſtempers, and the Length of their Lives, which is almoſt double to that of Horſes. In which Particulars thoſe bred in the cold Countries far exceed them that are bred in the hot. They go eaſier, and are much better to ride than Horſes for their Walk and Trot; but they are commonly rough Gallopers, though ſome of them are very fleet that are long made; their Shape for Nimbleneſs, Strength, and Bigneſs, being much according to the Proportion of the Mare you breed them on, and ſo they may be ſuited for what Uſe you deſign them. The greateſt Inconvenience that attends them is, that many of them are apt to kick and be ſtomachful: But it is commonly the not taking due Care of them while they are young, they being of little Value amongſt us, makes People neglect them, elſe thoſe bred beyond Sea are as gentle as either Horſes or Mares.

Mules are of two Sorts, the one between the *Horſe* and the *She-Aſs*, and the other between the *He-Aſs* and the *Mare*. The firſt Sort are commonly very dull, and partake too much of the *Aſs*, and are not ſo large; and therefore the latter Sort are much more uſed and propagated. For this Sort of Breed you muſt take care to get one of the largeſt and fineſt *He-Aſſes* you can procure. In *Spain* they are ſo curious, as to give fifty or ſixty Pounds for a well-ſhaped large *He-Aſs*, only to make a Stallion of, and breed of the fineſt largeſt *Mares* they have, which they do by giving to the *Aſs* the Advantage of the higher Ground, and by putting the *Mare* into a narrow Pit rail'd on each Side: And though the *Mules* are of both Sorts, yet being a mix'd Kind, they never breed, tho' ſome Authors affirm, that there are a Sort in *Syria* that procreate of their own Kind. If the *Aſs* you deſign to breed on be ſuckled with a *Mare*, or the *Mare* ſuckled with an *Aſs*, it makes them the more familiar, and better acquainted with each Kind; which you may bring either of them to do, by taking of the Colt that belongs to the Dam away from her, and by putting of the other Colt to her in the Dark for ten Days, or a Fortnight's time.

Goats.] *Goats* are very pernicious to keep, for their barking of Trees, and other miſchievous Tricks; ſo that I cannot recommend them to any to keep, but to ſuch that live in rocky mountainous Places, hardly fit for any thing elſe. They will climb the higheſt craggy Rocks to feed upon Briars, Buſhes, Heath, and other Wood: And though they will feed in plain Paſtures, yet their chief Delight is in browſing upon Trees; and therefore great Care ought to be taken to keep them from all Sorts of valuable Plantations. The chief Profit of 'em is their Milk, which is eſteem'd the greateſt Nouriſher of all liquid Things on which we feed, (except Women's Milk) and the moſt comfortable to the Stomach. Many mix it with other Milk in barren Countries, where they can't keep many Cows to make Cheeſe with, for which Uſe it doth very well. Their Kids alſo are very good Meat, which the beſt Sort of them commonly produce twice a Year, and two or three of them at a time; ſome Out-landiſh Sorts of them more. Some ſhear their Hair to make Ropes with, which will lie a long time in Water without rotting, and ſome make particular Sorts of Garments of it. The *Goat* ought to have a large Body, well-hair'd, great Legs, upright Joints, a Neck plain and ſhort, Head ſmall and ſlender, large Horns and bending, a big Eye, and long Beard: And the She ſhould have large Teats, a big Udder, hanging-down Ears, and no Horns, at leaſt very ſmall ones.

They ſhould be kept in Flocks or Herds, that are uſed and aſſociated together, or each Party will be apt to ſtraggle from the other. They ſhould have good Shelter both from the Heat in Summer, and Cold in Winter: For they can neither endure the Extremities of the one, nor the other, eſpecially the Shees which are with Kid. The beſt Time for the Male and Female to go together is about *December*. If you houſe them in Winter, let them have no Litter to lie on, becauſe it is too hot for them; but let the Floor be paved, that they may be kept ſweet and clean; for they cannot endure ill Savours. As for the Kids, they are to be order'd in all things as they order Lambs. When *Goats* are ſuffer'd to go and chuſe their own Food, they are ſuch good Phyſicians to themſelves, that they are ſeldom troubled with any inward Diſtempers; only the unnatural Exceſs of their Luſt makes them ſoon grow old, and ſo quickly become paſt Uſe and Profit. They are reckon'd very good to lie amongſt Horſes, the Scent of them, as they ſay, being of great Advantage to prevent the Horſes falling into Diſtempers.

I ſhould here treat of the *Coney*, which is a very profitable Creature, and a great Help to a Family; but having diſcours'd thereof in a Chapter at large in the *Treatiſe of Hunting*, I ſhall omit it here, referring you to the ſame.

As to *Fowl* or *Poultry*, they are ſo abſolutely neceſſary, that a Country-Habitation cannot be deem'd compleat that is not well ſtored with them; and as to the Charges in keeping them, 'tis inconſiderable, if the great Profit that may be made, as well by their Eggs and Feathers, as by their Bodies and young Chickens, to the Poulterers be conſider'd, beſides the ſupplying your own Tables therewith.

As for *Hens*, the oldeſt are always reckon'd the beſt Sitters, and the youngeſt the beſt Layers; but no Sort will be good for either, if they are kept too fat. The beſt Age to ſet a *Hen* for *Chickens* is from two Years old to five, and the beſt Month to ſet them in is *February*, though any Month between that and *Michaelmas* will do. A *Hen* ſits twenty Days, but *Geeſe*, *Ducks*, and *Turkeys* thirty. Take care to let them have Meat and Drink always near them while they ſit, that they may not chill their Eggs by ſtraggling from them. One *Cock* will ſerve ten *Hens*.

The *Hen-houſe* ſhould be large, high-roofed, and withal ſtrong and ſecure built, for preſerving from Thieves; and with Shutters to the Windows, to keep out Vermin. Let there be diſpers'd about it Pens or Coops, for the *Fowl* to be put in that are with Egg; and thoſe for *Geeſe* and *Turkeys* muſt be larger and higher than for *Hens*; and on the Sides of the Walls, and thwart the Houſe in convenient Places, ſhould be long Perches for *Cocks*, *Hens*, and *Turkeys* to rooſt upon. *Geeſe* and *Ducks* ſit on the Ground, or in the Pens; and to the end the *Fowl* may the better get up to the Rooſts, let there be Pins drove into the Walls, with Steps, for them to hop up to the ſaid Rooſts. Let not the Floor be paved, or boarded, but of Earth made ſmooth. And it were convenient to have a Hole made in the Groundſel for the Chickens, and young Fowl to come in and out at, with a Shutter at Night.

For the feeding your *Poultry* it is various; Buck, or French Wheat will ſoon fat them; but 'tis a looſe Fat; Hempſeed is good to lay Eggs, the like doth Nettle-ſeeds, a little being mixt with the Oats or Barley; and it is convenient to obſerve ſet times for the feeding them; about half a Handful of Oats, or Barley, to each Fowl is ſufficient at one time, for if you feed your Store-Fowl too much, their Fatneſs will hinder their Laying; beſides they will lay their Eggs without Shells. There are divers other things very good to feed *Poultry*, as alſo *Turkeys* with, as *Parſnips*, and *Carrots*, which muſt be waſht, ſliced, and ſo boiled tender in fair Water, then mix them with Meal made up into a Paſt, but 'tis not good for your Store-Fowl; *Sea Biſket* is very good Food, being ſteeped in fair Water, over a gentle Fire until it is ſoft.

If the Range for *Poultry* and *Turkys* is large, they will get good part of their living by Worms, the Seeds of Herbs, Bugs, and the like. *Ducks* feed much on *Duckgraves*, as alſo on *Frogs*, *Slugs*, and ſuch like things that are hurtful to your Garden-plants, ſo that they are very neceſſary to be kept there; and for *Geeſe*, their Food is much on Graſs.

Stubble-Geeſe, as alſo *Green-Geeſe*, are beſt fatted, if kept dark, and to be fed with ground Malt mixt with Milk. On their Rumps there is a ſmall Bunch of Feathers, which in the Night they uſually ſuck with their Bills, drawing out a Moiſture thereat, this Bunch if cut away before they are put up to fatten, they will fat much ſooner, and with leſs Meat.

As for Setting *Poultry*, the beſt time to have the beſt, largeſt, and moſt kindly Chickens is in *February*, and in the Increaſe of the Moon, ſo that they may hatch in *March*; yet they prove good if hatch'd in any of the Summer Months; and it is obſerved to be beſt to ſet them on odd Eggs. It is a great Advantage to ſet *Turkey's* on *Hen-Eggs*, for they ſit a Month with their own, and in ſix Weeks they will hatch two Broods of *Hen-Eggs*; and the firſt may be put to ſuch *Hens* that have but a few Chickens, or had ſome Misfortune, by Addling their Eggs, or the like. Be ſure to ſet your *Poultry* with New-laid Eggs, and chuſe not the largeſt Eggs, for they take up too much room.

The *Hens* having hatch'd their Chickens, after a Day or two, give them ſmall Oatmeal, ſome dry, and ſome ſteept in Milk; and when a little bigger, larger Oatmeal, Crums of White-Bread, Curds, Barley-Meal ſoaked, and the like, until they grow big enough to eat Oats, or Barley; alſo to chop green *Chives* amongſt their Meat is very good. Be ſure let them not want Water, for that breeds the *Pip*. If you would have cram'd Chickens, let them be put into the Coops ſo ſoon as the Hen forſakes them; the beſt Cram is Wheat-Meal and Milk made into Dough, and the Crams ſteep'd in Milk, and ſo thruſt it down with your Finger in ſmall Pellets. A Fortnight is ſufficient to fat them in.

Capons ſhould be gelt ſo ſoon as the Hen hath left them, if the Stones be ſo ſoon come down, or elſe ſo ſoon as they begin to crow. As for the Cramming them for the Table, take Barley-Meal well ſifted mixt with New-Milk, which make into good ſtiff Dough, and ſo into Pellets, and feed them therewith, being wet in warm Milk; let them have their Crops full, and feed them thrice a Day, and in a Fortnight, or three Weeks, they will be fat enough.

As to the Diſeaſes that *Poultry* are moſt ſubject unto, the *Pip* is a white thin Skin, or Scale growing on the Tip of the Tongue, which hinders their feeding, occaſioned from drinking foul Water. For Cure, Pull off the ſaid Skin, and rub the Tongue with Salt. *Lice* in *Poultry* is chiefly from corrupt Feeding; the Cure is, by bathing them in warm Water, with ſmall Pepper mixt therein. Stinging by Venemous Creatures appears by their ſwelling and drooping; anoint them with Rue and Butter. *Poultry* are oft troubled with Swellings in their Rumps, which in time will corrupt the whole Body. The Cure is, to pull away the Feathers, opening the Soar and thruſt out the Core; then waſh the Place with Salt and Water, or Brine.

To cauſe *Hens* to *ſit*, bathe them oft in cold Water, and thruſt a ſmall Feather through their Noſtrils. *Hens* that crow are very unnatural; to remedy which keep them from other *Poultry*, and feed them with ſcorched Barley, or ſmall Wheat. For *Hens* that are *Crow-trodden*, there is no Remedy but to kill them. It is to be known by the Staring of their Feathers, and hanging their Wings.

Geeſe are very profitable to be kept, their chief Food being Graſs, and that the worſt, as in *Commons*; they are not to be kept without the Convenience of Water. The largeſt are the beſt; but there is a Sort of a *Spaniſh Gooſe* that is a much better Layer and Breeder than the *Engliſh*, eſpecially if the Eggs are hatch'd under an *Engliſh Gooſe*.

They begin to lay early in the Spring, and the ſooner the better; they commonly lay twelve or ſixteen Eggs a piece. In about a Month the Eggs will be hatch'd; then keep them ſome time in the Houſe, feeding them with Curds, Barley-Meal wet in Milk, ground Malt, or Bran moiſtned in Milk or Water; and having gathered a little Strength turn out the Gooſe with her Goſlings to feed, &c. ſtill obſerving to feed them as aforeſaid, until they are fit to ſhift for themſelves. In about a Month they will be fit to put up to fat for *Green-Geeſe*; and for their Fatting feed them thrice a Day, that is, Morning, Noon, and Night, with plenty of Sheg-Oats boiled, with Milk, or Milk and Water mixt to drink. Be ſure you let them have always ſome fine Hay in a ſmall Rack, which will much haſten their Fatning.

For the Fatning of *Geeſe* let them take the benefit of the Stubble after Harveſt, which will make them fleſhy; and then put them up in Coops apart dark kept; and let them have always by them good Oats, or ſplitted Beans, and for their Drink Water mixt with Barley-Meal, and this will fatten them in about three Weeks, or you may obſerve the ſame Directions, as aforeſaid. But in fatting of all Water-Fowl you may obſerve that they uſually ſit with their Bills on their Rumps, where they ſuck out moſt of their Moiſture and Fatneſs at a ſmall Bunch of Feathers, which you ſhall find ſtanding upright on their Rumps, and always moiſt, with which they trim their Feathers, which makes them oily and ſlippery more than other Fowl's Feathers are, that the Water may ſlip off them, which if cut away cloſe, will make them fat in leſs time, and with leſs Meat than otherwiſe.

For the pulling off the Feathers, as ſome uſe, I hold it not good, being prejudicial unto them. The general Infirmity that *Geeſe* are troubled with, is the *Gargil*, being a great Stopping of the Head. For Cure, take three or four Cloves of *Garlick*, beat them in a Mortar with ſweet Butter, of which make little long Balls, and give two or three of them to her faſting, keeping her ſhut up for about two Hours after.

Turkeys are very profitable, order'd rightly. The young ones are very tender, and ſubject to the Cramp, eſpecially if too tenderly kept, not permitting them to go abroad with their Dams; They are generally inclined to rove or ſtray from their Dams, which are alſo very negligent of them; *Turkeys* begin to lay about

March, and will ſit about *April*, and hatch in about a Month. They are very ſubject to lay abroad, ſo that Care muſt be taken to put them in the *Hen-houſe.*

The young ones are fed with Curds, Milk, and Bread, and let their Drink be Milk and Water. When they have got Strength put them abroad in ſome warm Place, and turn them not out till the Dew is off the Graſs, and ſo houſe them at Nights. For Fatting *Turkeys*, put them in Coops, and for the firſt Fortnight feed them with ſodden Barley, or Oats, and afterwards cram them as *Capons*, as before directed. They are only to be cram'd in a Morning, and their Meat muſt be given warm to them; let them out all Day, and ſometimes they are fed with Corn while out; becauſe, that being a ſullen Bird, they are apt elſe not to fat ſo kindly: Their Eggs are eſteemed very wholſome and a great Reſtorer of Nature. *Ducks* are no leſs profitable than the reſt, and leſs chargeable in keeping, generally being their own Purveyers; but 'tis good to feed them Mornings and Evenings to keep them tame, and to accuſtom them to the Houſe. *Grains* are very good for them. They are great Layers when they begin; they ſit about a Month, and the *Ducklings* muſt be ordered and fed as your *Goſlings*, only giving them *Clivers* chopt in Water, or *Duckgraves*, and when they are abroad they will better ſhift for themſelves than the *Goſlings.* They are reckoned to be better hatched under a Hen than a Duck; becauſe while they are Young, the Hen will not lead them ſo much into the Water. Some reckon it very good to cut off the Feathers of their Rumps; becauſe when their Tails are wet, it often occaſions their drowning. As to the fatting of them, you may do it in three Weeks time, by giving of them any kind of Corn, or Grain, and good Store of Water. Ground Malt wet with Milk or Water is beſt.

If you would preſerve Wild Ducks, Teal, Widgeon, Shell-ducks, *&c.* you ſhould have a Place walled in with a Pond in it, that has good Shelter, upon ſome Iſland, or Place near it, that the Duck may hide her Eggs from the Drake, who will ſuck them if he finds them. There is likewiſe a Sort of Ducks called *Decoy-Ducks*, that will bring whole Flights of Fowl to their Retirements, where are Conveniencies made for the Catching of them.

A *Peacock* is more for the Delight of the Eye, than Profit; however a few may be kept. They are great Enemies to Fruit-Trees and Gardens, pulling off the Buds. They delight much to feed on *Toads*, *Newts*, and ſuch Venemous things which makes their Fleſh unwholſome; tho' ſome ſay the young one's are extraordinary Meat; but then they ſhould be kept up three Weeks or a Month before they are killed, fed with Corn, and not ſuffered to feed on their uſual Food. The *Pea-Hen* loves to lay abroad in Buſhes, Hedges, and the like ſecret Places that the Cock may not find her Eggs, for he will break them. They ſit a Month. Feed her young with Cheeſe-Curds, and Barley-Meal mixt with Water. They are very tender until grown a little big.

A *Swan* is a ſtately Bird, but ſeldom kept; for they require large Waters, and then they will live on what they can get themſelves; but in Froſty Weather they muſt be fed. For feeding the *Cignets* for the Diſh obſerve the ſame Rules as for *Geeſe*; or if you have the Conveniency of a ſmall Piece of Ground with a Pond in it, which is encompaſſed with a Pale, or Wall you may feed them there, putting two Troughs, one for old dried Malt, and the other for Barley and Water, and this way they will be ſooner fatted than in a Houſe.

A *Swan* commonly lays ſeven or eight, and ſometimes ten or eleven Eggs, but ſeldom having Patience to hatch them all; their common Number is four or five young ones. The Hen ſits about ſix Weeks; and if while ſhe ſits you ſet ſome Oats once a Day in a Trough in the Water, ſomewhere near, if ſhe has not Plenty of Weeds juſt at Hand, it will do well to prevent her leaving her Eggs; and likewiſe if you ſet ſome Boughs, or other Shelter to preſerve her from the Heat of the Sun.

Herns are nouriſhed for too Reaſons, the one to make Trains for entring *Hawks*, or elſe for the Table at Feaſts. The Way to bring them up is to take them out of their Neſts before they can fly, and put them in a large high Barn that hath many high croſs Beams for them to perch upon; and to have on the Floor ſeveral Boards about two Yards ſquare with Rings in them, and there to place round ſhallow Tubs of Water, and to the Boards tie great Gobbets of Dog's-fleſh, according to the Quantity you feed; and be ſure to keep the Place ſweet, and oft ſhift the Water; and let the Roof be ſo that the Rain may fall in ſeveral Places, which they much delight in; but if you feed any for the Diſh, inſtead of Dogs-fleſh, give them Livers, or the Intrails of Beaſt or Fowl, cut in Pieces. And after this manner you may feed *Gulls* or *Bitterns.*

Pheaſants, *Partridges* and *Quails*, may be kept and fed in one large Room, where you may have, in divers Corners, Boxes for them to run in to hide themſelves, and in the Midſt of the Room let there be placed three Wheat-ſheafs, two with their Ears upwards, and the other with the Ears downwards, and near unto them ſhallow Tubs with fair Water, to the end they may eat and drink at Pleaſure, which will make them ſoon fat. As for the *Quail*, the beſt Way is to keep them in long flat Boxes, or Coops, with the Sticks or Wiers on the fore-ſide no wider than for them to put forth their Heads to feed, or drink out of the Troughs; their Food is good ſmall Wheat, and fair Water to drink.

To feed *Goodwits*, *Curlewes*, *Gray Plovers*, *&c.* Fine Chiltern, or ſmall Wheat is very good; let them be fed Mornings, Noons and Nights, and have freſh clean Water; but the quicker way is to cram them, and then uſe fine dreſt Wheat-Meal, mixt with Milk, with ſome of the ſaid Wheat, and ſo made up into Paſte, and feed them with Crums thereof dipt in Water, giving them their Gorges full; and ſo keep them feeding as oft as their Gorges are empty.

Pigeons, either wild or tame are very profitable and ſerviceable for the Table; but the wild affords the greateſt, by reaſon they get their Food abroad, except it be in hard froſty and ſnowy Weather, when nothing is to be got, and about *Mid-ſummer* before Peaſe are ripe, this Seaſon being called *Benting-time*, as being then conſtrained to feed on the Seeds of *Bent-graſs*; and at thoſe times they muſt be allowed Food. They breed almoſt every Month of the Year. But *Pigeons* thrive beſt in open Countries, becauſe there generally is the moſt Corn: And the Gunners cannot get behind a Hedge to ſhoot them, eſpecially in ſuch Countries as they ſow a great many Gray-peaſe and Horſe-beans in; for they are ſowed the firſt of any Sort of Grain; their early feeding on which occaſions them to be forwarder in breeding than in other Places. *Pigeons* are great Lovers of Salt, ſo that it is very good to ſet a large Salt-pot in your Dove-houſe, that is, temper up ſome Loam and Salt together in a Pot, and the Pigeons will feed thereon with great delight, and occaſion them not to forſake your Dove-houſe. *Aſſafœtida* being boil'd in Water, and the Holes of the Dove-houſe waſhed therewith, will cauſe a Scent to be on their Feathers, ſo that what company they light into, by their pleaſing Scent, they will draw home with them. *Cumin Seeds* boiled in Water and applied as aforeſaid, will do the ſame, being an excellent Drawer.

Pigeons are apt ſometimes to be Scabby on the Backs and Breaſts, which will kill the young ones out right, and makes the old ones ſo faint that they cannot take their flight to procure Meat, which ſtarves them by degrees, ſo that whole Dove-coats are often deſtroyed with it. To cure which Diſtemper, take a Quartern of Bay-ſalt, and as much common Salt, a Pound of Fennel-ſeed, a Pound of Dill-ſeed, as much Cummin-ſeed, and an Ounce or two of Aſſa-fœtida: Mix all theſe together with a little Wheat-flour, and ſome fine worked Clay; when it is well beat together, put it into two Pots, and bake them well in an Oven; and when they are cold, lay them long-ways on the Stand or Table in the Dove-houſe.

BEES.] There's no Creature ſo induſtrious as the *Bee*, going out early and coming home late, never reſting but in cold and wet Weather; for Idleneſs is ſo deteſtable a Vice amongſt them, that none are tolerated thereunto but their Sovereign, every one being employed either Abroad in gathering Food, or at Home in building Combs, feeding their Young, or ſome other Employ; and no Creatures live together in that Unity and Amity in one Houſe or Habitation, as having no ſingle Propriety in any thing they get or do.

There is nothing more advantageous to be kept than an *Apiary*, and there muſt be a convenient, and neceſſary Place made choice of for that purpoſe, which ſhould be ſquare, or rather more long than broad, and extending from *Eaſt* to *Weſt*, and facing the *South*, to the End that the *Bees* returning late Home at Night may the better ſee their Way in. The ſureſt way is to let them have as much of both Morning and Evening Sun as the Place will admit of; for the Morning Sun makes them ſwarm early in the Day. Let the *Apiary* be well defended from high Winds, eſpecially towards the *North*; but let not the Fences be ſo high as to hinder the Sun, nor ſo near as to obſtruct their Flight; alſo let it be remote from ill Smells, and not frequented by *Poultry*: Let the Ground be kept mowed, not digged or pared, if it be Graſs, for in the Summer it will be too hot, and in the Winter too cold; and let it not be too remote from the Houſe, that you may be often with them at Swarming-time, or upon ſeveral other Occaſions. Likewiſe it would be very neceſſary to plant, at ſome reaſonable diſtance from the *Bees*, Fruit-trees, that they may pitch upon the Boughs in Swarming-time near at Hand. *Limes*, *Phillirea's*, *Sycamore* and *Fir-trees* are particularly good to be planted near them; becauſe they draw a great deal of Honey and Wax from their Flowers.

The uſual way to ſet the Stocks of *Bees* is upon Stools, Benches, or Seats. The Stools are placed at different Heights, but about a Foot is well. They muſt be ſet ſhelving that the Rain may run off, and made two or three Inches wider than the Hives, with a place before for the *Bees* to light upon. They may be made of Wood, or Stone, but Stone is not ſo good. The Stools ought to ſtand about five Foot one from another, in a ſtraight Rank from *Eaſt* to *Weſt*; and if they are placed one behind another, they ſhould be eight or nine Foot aſunder, and the Stools of the one Rank to be placed againſt the open Places of the other, and free from all Incumbrances to hinder their Flight. Benches are nothing near ſo commodious as Stools.

Seats are eſteemed the beſt, for every Stock of *Bees* make a ſmall Houſe of about two Foot Square, and ſomething higher, which ſhould be placed upon four Legs about a Foot above Ground, and covered with Boards or Tyles, to caſt off the Rain, with the North-ſide cloſed up, the Eaſt and Weſt-ſides to be made with Doors to open and ſhut at pleaſure; and the Fore-part or South-ſide to have a falling Door to cover the one half thereof, which is to be raiſed up as occaſion requires: And it likewiſe ſerves in the Summer Seaſon as a Pent-houſe to ſhelter them from the extream Heat in the middle Part of the Day, which is apt to melt their Honey. The Stools ſhould be ſet towards the South, or rather a Point or two to the Weſt, that the Hive may ſomewhat break the Eaſt Wind from the Door.

On theſe Seats may be placed any Sort of Hive, whether of Straw, Board, or Glaſs, which will preſerve them to a longer Continuance than if placed on Stools or Benches.

When the Winter approaches, and the cold Winds are like to injure the *Bees*, you may then faſten all the Doors, which will defend the *Bees* from the Extreams of Heat and Cold, both which are injurious to them. In Winter, if you find them ſtand too cold, you may ſtuff Straw within the Doors to keep them warm; but the Extremity of Cold doth not do them ſo much Injury as Wet, which theſe Caſes beſt preſerve them from. They likewiſe prevent the *Bees* getting abroad upon every Sun-ſhine Day, becauſe the Hives ſtand ſix or eight Inches within the Doors, which makes them dark, and the *Bees* inſenſible of a ſmall Heat; when after the common Way of Stools or Benches, the Sun caſts its Rays to their Doors; which Warmth and Light together excites them forth to the Expence of their Proviſion, and the Loſs of their Lives, as is evident by frequent Experience; the mildeſt and the cleareſt Winters deſtroying or ſtarving the moſt *Bees*; whereas the coldeſt and moſt froſty Winters beſt preſerve 'em.

In Spring, as ſoon as the Willow or Withy Bloſſoms appear, you may open the under Doors, that the Light and Warmth of the Sun and Air may encourage them to work, or elſe you will hinder their early Breeding, and make them ſlothful.

Several Sorts of Hives are uſed in ſeveral Countries; but the general Sort uſed in *England* is Wicker-Hives, made of Privet, Willow, or Harl, dawb'd with Cow-dung temper'd with Duſt, Aſhes, or Sand; or Hives made with Straw, bound with Brambles. Some out of Curioſity, that they may ſee the *Bees* work, have them made of Wood, with Glaſs, but they are very cold; ſo that *Bees* do not thrive well in them. Others have placed double Hives one by another, and ſome upon the Tops of others, that ſo by the taking of one of them away, they may leave the other for the *Bees*, without driving or killing of them. The beſt Hives, and thoſe that are moſt in uſe, and warmeſt, are the Straw-Hives, the Bigneſs of which ſhould be of between five and ſeven Gallons, of a round Form, rather broad than high; but you ought to have of each Size, that you may ſuit your Swarms to them, according as they are bigger or leſſer; and where you deſign to multiply your Stock, make uſe of the ſmall Hives, and of the larger when you deſire a great deal of Honey. Your Hives being thus made, you muſt dreſs them after this manner: Take off all the ſtaring Straws, Twigs, and Jags, that are offenſive in the Hive, and make them as ſmooth as poſſible. If you need but few Hives, you may prune them with a Knife; if many, ſinge and rub them with a Piece of Brimſtone. Having prun'd your Hive, put in three or four Splints, according to the Largeneſs of the Hive; the upper End ſet together at the Top of the Hive, and faſten the lower about a Handful above the Skirt: Beſides theſe, the Straw-Hive ſhould have four other Splints driven up into the Skirts, to keep the Hive when loaded from ſinking, two of which are the two Door-Poſts, and the other are Hind-Poſts, ſet at an equal Diſtance.

As for the Swarming, if the Spring be dry, cold, and windy, it will much retard their Swarming, nor will there be many that Year; but if it be mild and calm, with gentle Showers, they will ſwarm early, and the oftner; about Mid-*May* in an early and kindly

Spring they may begin, and then comes in your Care to look after them. But you may have timely notice of their Swarming by obſerving theſe Signs; they will hover about the Doors in cold Evenings and Mornings, and in ſultry hot Mornings, and Evenings they will hang out; they will run haſtily up and down, caſt out their *Drones*, and there will be a Moiſtneſs upon the Stool. Alſo if the Weather be hot and gloomy, and after a Shower or gloomy Cloud hath ſent them home, and that they hang out together, then expect a ſuddain Swarming.

But on the contrary, if they continually lie forth, eſpecially about mid *June*, 'tis a Sign of their not Swarming; Alſo much ſtormy and windy Weather obſtructs their Swarming, although they are ready, and cauſeth them to lie out; the like doth Weather that hath been very hot and dry, for ſome continuance.

Now for the cauſing them to Swarm, keep the Hives as cool as poſſible, by watering the Ground near them, by ſhading the Hives, by enlarging the Doors to give them Air, and by forcing them into the Hives gently with a Bruſh, ſuffering them not to cluſter together.

As concerning the Signs of *After-ſwarming*, there is more Certainty to be obſerved; for when the Prime Swarm is gone, about nine or ten Evenings after, when another Brood is ready, the Hive being overcharged with them, the next Prince begins to tune in a Treble Voice, and in a Day or two after the Old Queen will make her Reply in a Baſe Note, as it were declaring her Conſent for their Swarming. In the Morning before they ſwarm they come down near the Stool, and there call ſomewhat longer, and at the time of their Swarming they come down to the Stool, and beginning their Notes more thick and ſhrill, they all come forth in great haſte.

If the *Prime Swarm* be broken, the ſecond will both call and ſwarm the ſooner, probably the next Day, and after that a third, and ſometimes a fourth, and all within a Fortnight's Space.

Sometimes a Swarm will caſt another that Year; but if late, 'tis not worth the keeping, according to the old Rhime,

A Swarm in July,
Is not worth a Fly.

It is cuſtomary when *Bees* ſwarm, to make a tinkling Noiſe upon a Baſon, Kettle, Pan or the like, 'tis found very idle and fooliſh, rather cauſing them to fly away; when the Swarm is ſettled, as it were like a Cluſter of Grapes, and the Hive well rubb'd with ſweet Herbs, *&c.* ſhake them off the Bough into the Hive, which ſhould be of a fit Size anſwerable to the Bigneſs of the Swarm to fill it that Year; and having a Sheet, or ſuch like Cloth ſpread upon the Ground, ſet the Hive thereon, for ſome time, until the *Bees* are ſettled therein; or if the Bough is ſmall on which they Swarm, you may cut it off, and put it into the Hive under the Sheet as aforeſaid. If they light near the Ground, lay your Cloth under them, and ſhake them down, and place the Hive over them; and ſuch *Bees* as gather together without the Hive, wipe them gently with your Bruſh towards the Hive: And if they take to any other Place than the Hive, wipe them off gently with your Bruſh, and rub the Place with Wormwood, Nettles, May-weed, *&c.* Then ſet the Swarm as near as you can to the Lighting-place, 'till all be quiet; every one knowing his own Houſe.

If the Swarm ſeparate, and light in two Places, but in ſight of one another, diſturb the leſſer Parcel, and they will fly to the reſt; but if not in Sight, then hive them in two Hives; bring them together, ſhake the Bees out of one of the Hives on the Sheet whereon the other Hive ſtands, and place the other Hive on them, and they will take to it.

When Swarms come late, and are but ſmall, unite them, thus; Place the Hive wherein you have newly put your Swarm you intend to drive into another, in a Place that the Skirts may be uppermoſt, and ſet the other upon him, binding them about the Skirts with a long Towel, and ſo let them ſtand until Morning, and the *Bees* will all aſcend, that you may the next Morning ſet the Receiver on a Stool, and after this manner you may put two or three Swarms together; but be ſure to unite them the ſame Evening, or the next at fartheſt that they ſwarm. But others in the Evening when it waxeth dark, having ſpread a Mantle on the Ground near unto the Stool, where this united Swarm ſhall ſtand, ſet a Pair of Reſts, or two Supporters for the Hive; knock down the Hive out of which you intend to remove your *Bees* upon the Reſts; then lift up the Hive a little, and clapping of it between your Hands to get out the Bees that ſtick in it, lay it down ſideways by the *Bees*, and ſet the Stock or Swarm to which you would add them, upon the Reſts or Supporters over them; and they will forthwith aſcend into the Hive; thoſe that remain in the empty Hive, by clapping it will haſten after their Companions. When you have gotten them all in, either that Night or early the next Morning, place the Hive on the Stool, *&c.*

As ſoon as a Swarm hath enter'd its Hive, they immediately (if the Weather will permit) gather Wax, and build Combs; that in a few Days time there will be large and compleat Combs. They lie ſo thick about them, that 'tis impoſſible one Quarter of them can be employ'd at once, until the Combs are brought to a conſiderable Length, and then a great part of them may be employ'd in filling them, and the reſt in finiſhing their Cells or Combs.

For preſerving your ſelf from ſtinging in the time of Swarming, the beſt and ſureſt Way is to be provided with a Net made of fine Thread or Silk, with a cloſe Meſh, which caſt over your Head, Hat and all, compaſſing your Face; and for your Hands have on Gloves. And if notwithſtanding you happen to be ſtung, pull out the Sting as ſoon as poſſible, and for the aſſwaging the ſwelling, heat a Piece of Iron red hot, and hold it as near to the Place grieved as poſſible, and for as long a Continuance as you can endure it, and it will attract out that fiery Venom cauſed by the Sting. But the moſt common way is to rub the Wound with the Leaves of Houſe-leek, Mallows, Mary-golds, Rue, Holly-hock and Vinegar, or Salt and Vinegar; but none of theſe are ſo good.

Their Number towards the End of Summer begins to leſſen; for in their Proſperity at Swarming-time, and ſhortly after they are far more in Number, than in the Autumn or Winter, as you may eaſily diſcern between the Quantity and Number of a Swarm, and thoſe you kill when you take them; for the *Bees* of the laſt Year's Breed do now by degrees waſte and periſh by their extraordinary Labour, their Wings decay and fail them; ſo that a Year with ſome advantage, is the uſual Age of a *Bee*, and the young only of the laſt Spring ſurvive and preſerve the Kind till the next.

The beſt Seaſon to remove an old Stock of *Bees*, is about *Michaelmaſs*, that is, a little before and a little after; alſo about the End of *February*, or Beginning of *March* at the lateſt. Let the time be in the Evening, when all the *Bees* are quiet, and when the Weather is fair. The Hive muſt be put on a Board, and gently carried to the place where it is to be ſet, for jogging ſpoils the Hive, looſning the Combs, and diſturbing the *Bees*.

It oft-times happens, that through a cold, dry and unſeaſonable Spring, as alſo by a cold and early Winter, *Bees* will not have a Stock of Honey ſufficient to keep them.

The Feeding of *Bees* is of little Uſe; becauſe thoſe *Bees* are not fit to keep that have not a profitable Stock of Honey to ſerve the Winter over; and then becauſe they that are *Bee-makers*, and do not take ſufficient Care to keep them from ſpending of that Stock they have in Winter-time, muſt not expect any conſiderable Advantage by them. But there are ſome Stocks in the Spring-time that ſeem worthy of our Care; I mean thoſe that having a ſmall Stock of Honey, and a good Quantity of *Bees* cannot make ſuch timely Proviſion, as in other Years they might have done, and yet in all probability may prove an excellent Stock, and worth our Aſſiſtance: In this caſe they muſt be fed, and the beſt Food is Honey mixt with ſweet Wort, which muſt be conveyed into the Hives by ſmall Canes or Troughs daily, until the approaching Summer affords them Proviſion abroad. Inſtead of Honey you may give them Sugar. Some give them Toaſts of Bread ſopt in Ale; others dry Meal, or Flower of Beans. Others, Bay-ſalt, roaſted Apples, *&c.* which are very good, eſpecially Salt, which if ſome were mixed with Water, and always ſet near them, it might do well; we knowing for certain, that *Bees* near the Sea-ſide thrive the beſt, which ſome attribute to their drinking Salt-Water, they fly (ſay ſome) many Miles to get.

There are ſeveral things that are injurious to *Bees*, and much hinder their Proſperity, if not prevented.

1. *Noiſe*; which may in part be remedy'd by the Situation of the Apiary free from the Noiſe of Carts, Coaches, Bells, Echoes, *&c.* 2. *Smoak*, where Land hath been Burn-beaten near unto an Apiary, and the Wind hath brought the Smoak towards it, a great many of the *Bees* have been killed; which is the Reaſon they will not thrive in or near great Towns. 3. *Ill Smells* are very offenſive to them. 4. *Ill Weather*, as Wind, Rain, Cold, Heat, *&c.* which is prevented by the Situation and Fencing of the Apiary, and ordering of the Stocks as before. 5. The *Mice*, *Birds*, and other devouring Creatures, which are to be deſtroy'd. 6. *Noiſome Creatures*, as Toads, Frogs, Snails, Spiders, Moths, Ants, *&c.* which you muſt endeavour to keep from 'em, and cleanſe alſo the Hives ever and anon from theſe Vermin. 7. *Hornets* and *Waſps*, in ſuch Yards wherein they abound, prove great Enemies to the *Bees*, by robbing them of their Honey. They are deſtroy'd by placing near the Door of the Hive a Glaſs-Vial, half full of Beer, Cyder, or any ſuch thing; if ſome Sugar be added to it, it will do the better. 8. *Bees* themſelves prove the greateſt Enemies, both by Fighting and Robbing. Several Occaſions provoke the *Bees* to fight, which, if the Battle be newly begun, may be hindred by ſtopping up the Hive cloſe; but if it be gone ſo far, that moſt of the *Bees* are out, the caſting of Duſt among them was the ancient Way.

Mr. *Worlidge* propoſes, for the Improvement of *Bees*, to take a Handful of Baum, one Dram of Camphire, half a Dram of Muſk diſſolv'd in Roſe-water, as much yellow Bees-wax as is ſufficient, Oil of Roſes as much; ſtamp the Baum and Camphire very well, and put them in the melted Wax with the Oil of Roſes, and ſo make it up into a Maſs, letting of it cool before you put in the Muſk; for otherwiſe the Heat will fume away moſt of the Scent. Take of this Maſs ſo much as a Hazle-nut, and leave it within the Bee-Hive; it will (as he ſays) much increaſe the Number of the *Bees*, and you ſhall alſo find both of Honey and Wax three times more Profit, than otherwiſe you ſhould have had.

A great Thing to advance your *Bees* is the having of Fields near you, ſow'd with Brank, Cole-ſeed, or Turneps, from which they will draw great Quantities of Honey. Beans alſo are good for them.

As the chief Aim of the Keeper of *Bees* is an Advantage by the Honey and Wax; ſo many have endeavour'd to find out ſome Way to reap the Profit of *Bees* without deſtroying them. One Way that has been uſed for this Purpoſe is Driving of them after this manner. In *September*, or any time after they have done breeding (elſe the Honey will be corrupted by the young *Bees* in the Combs) place the Hive you intend to take with the Bottom upwards, between three or four Stakes, and ſet the Hive you intend to drive the *Bees* into over the ſame, as before directed, in the Uniting of Swarms; then often clap the Under-Hive between your Hands in the Evening, and ſo let them ſtand till Morning; and then clap it again, and get as many *Bees* out as you can, which will repair to the other Hive. This Way is ſomething troubleſome to the Unexperienced, yet beneficial in ſuch Caſes where you have a great Stock of Honey, and few *Bees* in one Hive, and a ſmall Stock of Honey in another; by which means you ſave the Lives of your *Bees*, which will gladly exchange their hungry Habitation for a more plentiful.

But theſe Ways having altogether fail'd the Deſigns of the Undertakers, the preſent common Uſage is the taking of the Combs, by killing of the *Bees*, which muſt certainly be the only Way of Ordering of them; becauſe it is impoſſible for them to live if you deprive them of their Food; and therefore, about the latter End of *Auguſt*, conſider with your ſelf what Stalls you will keep, and what you will kill; the beſt Swarms to keep are thoſe of one or two Years Standing; and thoſe of three or four, which, by reaſon of their ſwarming the laſt Summer, are full of *Bees*, and are the moſt likely to be the beſt: But thoſe of that Age which have caſt Hives, not being like to continue, are to be taken, as are alſo poor Swarms not worth the Feeding, and all light Stocks, and ſuch as do not carry out their Droſs, and drive away the Drones in good time; alſo thoſe whom the Robbers eaſily aſſault, are to be ſuſpected; and if their Combs be once broken, delay not their Taking: And alſo all Stalls of three Years old, or upward, that have miſs'd Swarming two Years together, eſpecially thoſe that have lain out the Summer before, and did not caſt the laſt Summer; for ſuch ſeldom proſper: And therefore 'tis better to take them while they are good, than in vain Hope of Increaſe to keep them till they periſh. Neither is it ſafe to truſt to any after they have ſtood five Years and upwards, that have miſs'd Swarming two Years together, unleſs it be ſome ſpecial Sort of *Bees*, which always keep themſelves in heart: Such as theſe may be kept nine or ten Years. Likewiſe if you have any that are very full of Honey, as ſome will be, even down to the Stool, one ſuch Stall is worth three or four, and therefore take them in their Seaſon.

Having made choice of your Stalls to be taken, dig a Hole two or three Hours before Sun-ſetting, in the Ground, of about nine Inches deep, and almoſt as wide as the *Hive-skirts*, laying the ſmall Earth round about the Brims; then having a little Stick, ſlit at one End, and ſtripp'd at the other, take a Brimſtone-match five or ſix Inches long, and about the Bigneſs of your little Finger, and making it faſt in the Slit, ſtick it in the Middle or Side of the Hole; ſo that the Top of the Match may ſtand even with the brim of the Pit, or within one Inch of it, and then ſet another by it dreſſed after the ſame manner, if the firſt be not ſufficient. When you have fired the Matches at the upper End, ſet over the Hive, and preſently ſhut it cloſe at the Bottom with the ſmall Earth, that none of the Smoak may come out; ſo ſhall you have the *Bees* dead in a Quarter of an Hour.

The Hive being taken and houſed, lay it ſoftly on the Ground upon the Sides not the Edges of the Combs; and looſen the Ends of the Splints with your Finger, and the Edges of the Combs where they ſtick to the Sides of the Hive, with a wooden Slice, take them out one after another, and having wiped off the half dead *Bees* with a Gooſe-feather, break the Combs preſently, while they are warm, into three Parts. The Honey which firſt flows of it ſelf from the Combs is called *Virgin-honey*, (as is alſo the Honey which comes from the firſt Years Swarm). It's the beſt and fineſt, being more cryſtalline and of a better Taſte than that which is ſqueezed out of the Combs, and ſo may be kept for particular Uſes, or for the making of the fineſt Mead.

As to the Way of ordering of your Honey and Wax, with the Virtues of them, that you may be the more ſenſible of the Advantages that accrue to Mankind by this ſmall Inſect; when your Combs have run out as much as they will, put it up warm into Pots by it ſelf; this being the fineſt Honey, as I ſaid before; and it will for two or three Days time work up a Scum of courſe Wax, Droſs, and other Stuff, which muſt be taken off. The other Honey which is the coarſer Sort, you muſt get from the Combs, by preſſing of them, which you may pot alſo, except what you deſign for the preſent making Metheglin with; which being done, what remains put into a Hair-bag and waſh in a Trough or other Veſſel to make Meed or Metheglin; and when the Sweetneſs is all waſhed out, being cruſhed dry, the Balls try for Wax.

The Manner of ordering is thus; Take the Wax and Droſs, and ſet it over the Fire in a Kettle, or other Veſſel that may eaſily contain it, and pour in ſo much Water as will make the Wax ſwim, that it may boil without burning, and for this reaſon, while it is gently boiling over the Fire, ſtir it often; when it is throughly melted, take it off the Fire, and preſently pour it out of the Kettle into a Strainer of fine thin Linnen, or of twiſted Hair ready placed upon a Screw or Preſs, lay on the Cover and preſs out the Liquor (as long as any Wax comes) into a Kettle of cold Water, but firſt wet both the Bag and the Preſs to keep the Wax from Sticking: At the firſt cometh moſt Water, at the laſt moſt Droſs, and in the middle moſt Wax.

When the Wax grows hard make it into Balls, ſqueezing out the Water with your Hand. This done, break all the Balls into Crums, and in a Kettle or Skillet ſet it over a ſoft Fire: While it is melting, ſtir and skim it with a Spoon wet in cold Water; and as ſoon as it is melted and ſcummed clean, take it off, and pour it into a Pan or Mould, beſmearing the Bottom and Side, firſt with Honey (the Wax being as cool as it will run thro' a Linnen Strainer:) When you come near the Bottom, pour it gently, till you ſee the Droſs come, which ſtrain into ſome other thing by it ſelf: And when it is cold, either try it again, or (having pared away the Bottom) keep it for uſe.

When the Wax is in the Pan or Mould, if any Froth remains on the Top, blow it together at one Side, and skim it off gently with a wet Spoon. This done, ſet not the Cake abroad where it may cool too ſoon, but put it in a warm Houſe not far from the Fire; and if it be a large Cake, cover it warm to keep the Top from cooling till the inward Heat be allay'd, and ſo let it ſtand, not moving it till the Cake be cold: If it ſtick, a little warming the Veſſel or Mould will looſen it; ſo that it will preſently ſlip out.

Good Wax is yellow, odoriferous or ſweet, fat, faſt or cloſe, light, pure, being void of any other Matter. 'Tis always a ready Money Commodity, eſpecially *Engliſh* Wax which is much better than Foreign, and commonly ſells for about five or ſix Pounds a Hundred; it being of extraordinary Uſe both in Chirurgery and Phyſick; beſide the Uſe that is made of it for Lights, the Clearneſs and Sweetneſs of which makes it preferr'd before all other Sorts. As to its Chirurgical or Phyſical Vertues, it is reckon'd a Meen between Hot and Cold, between dry and moiſt, being the Ground of all Cere-cloths and Salves; it mollifies the Sinews, ripens and reſolves Ulcers, the Quantity of a Pea being ſwallow'd down by Nurſes, diſſolves the Milk curdled in the Breaſt. Its Oil is of excellent Vertue to cure Wounds, be they never ſo large or deep, (being before ſtitch'd up) in ten or twelve days at the moſt, and heals ſmall Wounds in three or four Days, by only anointing the Wound therewith; and applying a Cloth wet in the ſame, ſtayeth the Shedding of Hair, either on Head or Face, by anointing therewith. 'Tis as good for inward Diſeaſes, if you give one Dram at a time in White-wine, it will provoke Urine, help Stitches and Pains in the Loins, the Cold Gout, and all other Griefs proceeding from Cold.

Honey is little inferior, either as to its Benefit or Uſefulneſs, being of ſubtle Parts; and therefore doth pierce os Oil, and eaſily paſſes the Parts of the Body: It has a Power to cleanſe, and ſome Sharpneſs withal; and therefore it opens Obſtructions, and clears the Lungs and Breaſts of the Humours that fall from the Head. It's good to looſen the Belly, to purge the Foulneſs of the Body, and provokes Urine. It is of a very nouriſhing Nature, and breeds good Blood. Life is prolonged by Honey, which keeps every thing uncorrupted that is put into it. It is good for thoſe that have eaten Muſhrooms, or drunk Poppies; an eminent Ingredient in the great Antidote of Treacle and Mithridate; good againſt Pleuriſies, Phthiſicks, and other Diſtempers of the Lungs; but much better taken clarified than raw for any Diſtemper; for it is render'd by that means more nouriſhing, lighter of Digeſtion, leſs laxative, and not ſo ſharp.

SILK-WORMS.] *Silk-Worms* are Inſects of great Advantage to the Farmer in other Countries, and might certainly be ſo in *Britain*, as well as in *New-England*, *Virginia*, and even *Barbadoes* and *Jamaica*, without Hindrance to any of their other Affairs. Here the great Obſtacle ſeems to be the Want of Food for them. Mulberry-Leaves being the only Food that, 'tis thought, will feed and cheriſh them to Advantage; though ſome have affirm'd, that they will eat White-Thorn, Lettice, Dandelion, Poplar, Plumb and Apple-tree-Leaves. Of Mulberries there are two Sorts, the Black and the White; the former is the uſual Sort given to them in *England*; but the White is moſt eſteem'd in Foreign Parts, there being very large Plantations of them raiſed for that purpoſe in all the Silk-Countries. Its Leaf is much finer than that of the Black, and therefore muſt be much better for the Young-ones. About the Beginning of *May*, when the Mulberry begins to ſpread its Leaf, is the time that the *Silk-Worms* Eggs are, as it were by Nature, adapted for a Releaſe from their Confinement; when, and not before, lay them in ſome Window in the warm Sun, or carry them in a little Box between ſome Pieces of Say, in ſome warm Place about you, keeping them warm in the Night, they will ſoon appear. And when they are come out of the Shell, cut ſome Paper full of ſmall Holes, and lay over them, and over that ſome of the young Mulberry-Leaves, and they will eaſily find their Way to their Food.

After they are come to Feeding, you may place them on Tables or Shelves at convenient Diſtances, according to the Number of Worms that you have. They are ſick four times in their Feeding; the firſt commonly about twelve Days after they are hatched, and from that time to the End of every eight Days, according to the Weather, and their good or ill Uſage. During the time of their Sickneſs, which laſts two or three Days, they muſt be fed but very little; only relieve ſuch as have paſt the Sickneſs before the reſt, and thoſe that ſhall not fall into their Sickneſs: At this time they grow clearer, ſhorter and thicker than they were before, and more drowſie.

The whole Time of their Feeding is about nine Weeks, during which you may feed them twice a-day, by laying the Leaves over as it were to cover them, and they will ſoon find their Way through them; and as they grow in Strength and Bigneſs, ſo may you feed them more plentifully and often. Let the Leaves be clear of Dew or Rain before you give them, you may keep them ſpread on a Table, in caſe they be wet, and may gather and keep them two or three Days without any great Inconveniency, in caſe you live remote from Mul-berry-trees, or the Weather be changeable.

Rid your ſelves often of their Dung, and the Remainder of your Leaves, by removing the *Worms* when they are faſt on the new Leaves laid for them, keeping clean the Shelves and the Room, being the principal Means to preſerve them. Likewiſe keep the Room warm in cold and wet Weather, and give them a little Air in hot Weather. The Room ſhould not be too near the Tiles on the Top of your Houſe, nor in any cold or moiſt Room below, but avoid all Extreams.

When they have fed as long as they are able, they look of a clear Amber or Fleſh-Colour, and are ready to go to Work; at which time be ſure to give them what Air you can. Therefore 'tis beſt that you make Arches between their Shelves with Heath made very clean, or with Branches of Roſemary, Stalks of Lavender, or ſuch like, on which the *Worms* will faſten themſelves, and make their Bottoms, which in about fourteen Days are finiſh'd. But the beſt Way is to make ſmall Cones of Paper, and place them with their ſharp End downward in Rows, in each of which put a *Worm*, as they appear to you to be ready to go to Work, and there will they finiſh their Bottom more compleatly, and with leſs Waſte, than any other Way.

In their Working, the firſt Day they make only a Web; the ſecond, they form in it their Caſes, and cover themſelves all over with Silk; on the third, they are no longer ſeen, and the Days following they thicken their Caſes, always by one End or Thread, which they never break off themſelves. Let them not any ways be diſturb'd in their Work, that all the Silk in their Bellies may come out.

Having finiſh'd their Bottoms, which will be in about fourteen Days, take ſo many as you intend for Breeders, and lay by themſelves, *viz.* the firſt done, and them that are the hardieſt, reddeſt and beſt colour'd, muſt be choſen, and likewiſe as many Male as Female Caſes, (which are diſcern'd by this, that the Males are more pointed at both Ends of the Caſes, and the Females more obtuſe at the Ends, and bigger belly'd) and no Caſes muſt be taken, but ſuch as you may hear the *Worms* roll in; and then the *Worms* within will eat their Way out in four or five Days time; and when they come forth, 'tis adviſed to put them together on a Piece of old Say, Grogram, Velvet, whited-brown Paper, or the like, and put into a Paſte-board Box, where they muſt be kept till next Spring. One of theſe Females will produce two or three hundred Eggs; ſo that a few kept for Seed or Encreaſe is ſufficient. The reſt that you do not preſerve for Breed put into an Oven, after the Baking of Bread, that it may be hot enough to kill the *Worms*; for the gnawin gof their Way out is ſome Prejudice to the Bottom. Thoſe that are the groſſeſt and blackeſt are the beſt to breed on. Let no Rats, Mice, Ants, or other Vermin, nor even Hens or Birds come at them, becauſe they are very greedy of them; Tobacco-Smoak alſo kills them.

The *Worms* will come forth in the Form of a Butterfly, having four Wings, ſix Feet, two Horns, and two very black Eyes, which being put into a convenient Place, the Males fluttering with their Wings, will couple with the Females, after that theſe have firſt purged themſelves of a kind of reddiſh Humour by the Fundament; in which Poſture they are to be left from Morning (which is the ordinary Time of coming forth) till Evening, and then the Females are to be gently pull'd away, nine or ten Hours being the longeſt they ſhould be left together: Whereupon they will lay their Eggs, having firſt let fall another Humour eſteem'd to proceed from the Seed of the Males; but the Males are then to be thrown away as uſeleſs. The Seeds or Eggs at firſt Appearance is very white, but in a Day or two it becomes greeniſh, then red, and at laſt by little and little gray, which Colour it retains always after.

Having obtain'd your Bottoms, take off the Bags, and having found their End, put ſix, ten, or more Ends in a Baſon of Water together, where a little Gum-Tragacanth is mix'd, and ſo you may eaſily wind them; the ſmall Hairs of Silk ſeldom break; but if they do, they are eaſily found again, except the *Worms* are ill fed. Another Way to make theſe gummy Bottoms wind eaſie, is to take Soap-boiler's Liquor, or Lee, and put the Bottoms therein, ſetting them over the Fire till the Liquor be ſcalding hot, and let them remain therein about half a Quarter of an Hour till the Gummineſs be diſſolv'd, then put the Bottoms into clean ſcalding Water, let them lie a while there, and they will eaſily unwind. A Lixivium made of Wood-Aſhes, very ſtrong, will do as well as the aforeſaid Soap-boilers Liquor.

There is a kind of Tow, or rough Sort of Silk, that will not wind up with the other, which may be prepar'd, and good Silk made thereof, and indifferent alſo of the Bags themſelves; but the fineſt of the *Engliſh* Silk may compare with that of the fineſt Sorts of any Part of the World.

CHAP. XIV.

Of External Injuries amongſt Cattle, *and other Inconveniencies that happen to the* Husbandman, *with Remedies for the ſame.*

Injuries ſuſtain'd by Beaſts and Vermin.

F*Oxes* are found very pernicious in killing and taking away Geeſe, Poultry, and oft-times young Lambs, eſpecially near Woods and Foreſts; ſo that ſuch things can hardly eſcape them. Now for the Taking this ſubtle Creature divers Inventions are uſed, as by Traps, Gins, Snares, &c. as well as by Dogs.

But if you deſign to ſhoot them, get a Sheep's Paunch, and tying it to a long Stick, let your Shoes be well rubbed upon it, that the *Fox* may have no Scent of your Feet; draw the Paunch after you, making a Trail for a Mile or two, and order Matters ſo as to bring it near ſome thick headed Tree: Where when you have made your Tryal, leave the Paunch, and aſcending the Tree with your Gun; you will ſee him come by you, as ſoon as it begins to grow dark, upon the Scent of the Trail, where you may ſhoot him: Let the Trail, if you can, be to Windward of the Tree.

Thoſe who would make uſe of a Steel-trap, which is the ſureſt way to catch a *Fox*, ſhould pitch upon a Place for it in a plain Part of a large Field, out of the Way of all Paths; but near no Hedge, nor Shelter, let the Trap be opened, laid on the Ground, and having juſt cut out in the Turf the Form thereof, take out ſo much Earth as to make room to lay it, covering it again very handſomly with the Turf you caſt out; and becauſe the Joints will not cloſe exactly, get ſome of the fine Mould that is to be found in a new caſt up Mole-hill, with which fill the Joints, taking ſome Graſs and ſticking it in the Mould, as if it grew there: Every thing ſhould be made ſo neat, as to deceive even your own Eye; this done, ſcatter ſome of the fine Mould you had out of the Mole-hill, very thin, three ſeveral ways, about eight or ten Yards from the Trap, upon 3 Places fourteen or fifteen Inches Square: Lay upon theſe, and where the Trap is, two or three ſmall Bits of Cheeſe: And draw a Trail with a Sheeps-paunch, as before, to each of the three Places, that are at a diſtance from the Trap, and from them to the Trap; that ſo the *Fox* may come upon one of thoſe Places firſt, and ſo make him the bolder to get near the Trap: Where you will ſeldom fail of him: Only the Trap muſt not be faſtned, but let looſe that he may draw it to ſome Covert, elſe he will bite off his own Leg and eſcape: Some there are who bend a Stick down in the Wood; and ſet a Trap for them in the Paths, like that for *Woodcocks*, which hangs them up, or any other Sort of Vermine.

Otters are very great Deſtroyers of Fiſh, eſpecially in Ponds, to which they will in a Night travel over Land ten or twelve Miles; their common Aboad is under the Root or Stem of ſome Tree near the Water; whence ſhe expects her Food by her diving and hunting under Water: So that few Fiſh are able to eſcape her. They are either taken by ſnaring them under the Water, by the River-ſide; or by hunting them with Dogs, where you may make uſe of the Spear.

The Huſbandman in ſeveral Places ſuffers much by *Hares* and *Coneys*, which eat the Corn, Trees, *&c.* when they are young, eſpecially in hard Winters. *Hares* particularly are great Deſtroyers of Corn; where there are many of them, the Countryman may leſſen the Number of them as he ſees cauſe, either by Hunting or Courſing of them at ſeaſonable Times, or by Tracing them in the Snow. *Coneys* are deſtroy'd or taken either by Ferrets or Purſe-nets in their Burrows, or by Hayes, Curs, Spaniels or Tumblers bred up for that purpoſe, or by Gins, Pitfalls, or Snares.

Pole-cats, *Weeſels* and *Stoats*, do a great deal of Injury to Warrens, Dove-houſes, Hen-rooſts, *&c.* but the Way of taking and deſtroying them and the other Animals before mentioned, by Hunting and the like, you have before; only Note, that to prevent *Pole-cats*, or ſuch like, from deſtroying your Pigeon-houſe, if you have a Conveniency, place it in an Iſland where you may have ſome Ditch or Channel of Water round it and it will preſerve it from Vermin; there being ſcarce any Beaſt of Prey that will take the Water.

Badgers are almoſt as pernicious a Beaſt as the *Fox*, only they are not ſo ſubtil, nor can they ſo eaſily catch their Prey: But for what they can catch, as new fallen Lambs, young Pigs, and Poultry, they are as bad. The Way to catch them is with the aforementioned Trap, or to ſet a Steel-trap, or to dig a Pit in their Paths that is five Foot deep, and about four Foot long, making of it narrow at the Top and Bottom, and wide in the Middle. This muſt be covered with ſome ſmall Sticks and Leaves laid over it, ſo as that the *Badger* may fall in when he comes upon it. Sometimes a *Fox* may be catched in one of theſe Pits; but 'tis very rare; for he is very cautious of his Footing. Some hunt them into their Holes in a moon-ſhiny Night, and dig them out.

Rats and *Mice* are great Enemies, not only in the Houſes, Granaries, Barns, and Stables; but alſo in the Gardens, Orchards, and Fields. For deſtroying them within-Doors, Traps are very good; alſo Baits of *Arſenick*, or the Roots of white *Hellebore*, mixt with Sugar, and laid in their Holes or Haunts are very good; but that which is more effectual, ſeldom or never failing, is white *Arſenick* beaten to fine Powder, which uſe as followeth: Take Raiſins of the Sun, ſplit and dip them in the *Arſenick*, and ſo cloſe them again. Alſo, Take Apples codled, and the ſoft Pap mix with the *Arſenick* together with Sugar: Likewiſe, Take ſome Hogs-Lard, Flower of Malt and *Arſenick* mixt together; of each of theſe three things put a little Quantity into an Oyſter-ſhell, lay them in ſuch Places where the *Rats* come, and it will certainly deſtroy them.

For deſtroying *Field-Mice*, ſo injurious to Gardens in eating and ſpoiling the Wall-Fruit, as alſo the Beans, Peaſe, and the like. Get a piece of Deal-board, which cut into thin Slices, make them pretty ſmooth; then cut 20 Pieces ſix Inches long, and as many three Inches long, and as many two Inches long; then cut a Notch in the Side of that Piece ſix Inches long, about two Inches from the End, and a croſs Notch upon the flat Side within half an Inch of the End; then the other of two Inches cut it taper at one End, and a croſs Notch on the flat Side made within half an Inch of the End; then the Stick that is two Inches and an half muſt be taper at one End, that ſo the croſs Notch may in the Stick of two Inches reſt upon the Top of the two Inches and an half; and then the two Inches muſt at the taper End go into the Stick that is ſix Inches, and the Notch of the Side will be a Stay to hold up the Tiles; then take forty Tiles, and they will ſerve for the 20 Traps, and fit them as near as you can to fall cloſe together: Then take the three Sticks, the ſix Inch, the three, and the two Inch Sticks, and place the three Inch Stick to the Edge of the undermoſt bottom Tile; then take the two Inch Stick, and place the Notch of it upon the taper End of the three Notch Stick; then take the ſix Inch Stick, and ſet the taper End of the two Inch Stick in the Notch that is at the End of the ſix Inch Stick; then the Notch of the Side of the ſix Inches muſt hook into the Side of the three Inch Stick, otherwiſe the Weight of the Tile will make the Sticks fly all apart; if it ſtand when it is ſet exactly like a Figure of 4, you ſhall ſee every part in the Frontis-piece. You muſt bait the End of the ſix Inch Stick with Lard, and dip it into Oatmeal, and bait but the uppermoſt Side; then having ſet them all along the Hedges, or Wall-ſides, you will find good Store taken of them, for the Traps ſeldom miſs: And in thoſe Traps where *Mice* are taken, when you ſet them again, you ſhould bait them afreſh with Lard and Oatmeal, as aforeſaid.

Theſe Traps are very good to take *Titmice*, which is a very deſtructive Bird to the Buds of Trees, as alſo to Wall-Fruit.

Moles, or *Wants*, are great Enemies to Gardens, Meadows, and Corn-fields; they are to be taken with Traps, which are to be placed in the *Moles* Road, Paſſage, or Trench; and of theſe Traps there are ſeveral Sorts, but the beſt is thus made: Take a Piece of Board about three Inches broad, and five Inches long, with the Ends made Taperwiſe; on one Side fix two ſmall Sticks like round Arches, at each End one, large enough for a *Mole* to go through; in the Midſt of the Board make a Hole large enough to receive a Gooſe-Quill, into which a Peg of about two Inches long is to be put.

You muſt alſo be provided with a Hazle Stick, or ſome other bending Wood of about a Yard and an half long, which is to be ſtuck in the Ground with a Link of Horſe-hair tied to it; and before you fix the Trap into the *Moles* Paſſage, put the Hair-Spring through the Hole in the midſt of the Board, and place it round even with the Hoops, and with the ſaid Peg (gently put into the Hole to ſtop the Knot of the Hair-Spring;) then make the Trap faſt down by hooked long Sticks thruſt into the Earth, to the end that the Spring-Stick may not draw up the Trap; and the Trap muſt be exactly covered over with Earth, that there may no Light appear in the ſaid Trench; and when the *Mole* paſſeth that way, by thruſting out the ſaid Peg that hangs looſly perpendicular downwards, and the Knot paſſing through the Hole, the *Mole* is become enſnared with the Spring.

After this Method you may ſet what Quantity of Traps your Ground requires, which ſhould be tended every Day Morning and Evening at their Working-times, to ſee what are taken, and that the Traps may be ſet again, for in one Paſſage ſeven or eight may be taken without removing the Trap.

Another Way is, having taken a *Doe-Mole*, get a large Earthen-pot, and having made a Hole in the Middle of the main Trench, or Paſſage; ſet the Pot that the Top may be even with the Bottom of the Trench; then fill it about half full with Mould, and put ſome great Worms therein for the *Mole* to live upon, and cover the Pot very cloſe that no Light come therein; and the *Buck-Mole* will not fail to viſit the *Doe* in the Pot, eſpecially if it be ſet about *March*, which is their Bucking-time; for then 'tis ſaid they will run about a Quarter of a Mile after a *Doe*, and by this means (with the help of a few Pots) all the *Bucks* will be taken. If you Fume the Trenches with Brimſtone, Garlick, and the like unſavoury things, the *Moles* will forſake the Ground. The like they will do, if you put a dead *Mole* into their Trenches.

The uſual Places for their Beds and Haunts, are in Banks, and near Hedge-rows.

Mole-catchers are very expert in taking them in the Mornings and Evenings, when they ſtir, only with their Paddle-ſtaves; and immediately caſt them up, eſpecially about *March*, when they breed, by turning up the Hills that they breed under, they uſually making their Neſts in the greater Hills, which are eaſily diſcern'd. Then alſo will the Old ones come to ſeek their Young, which you may preſently take.

The *Pot-trap* is by ſome much commended, which is a deep Earthen Veſſel ſet in the Ground with the Brim even with the Bottom of the *Mole-tracts*; the chief time of ſetting of which is in their Bucking-time, which is in *March*.

As to Injurious FOWL *and* INSECTS, *Jays* are great devourers of Beans, Peaſe, Cherries, and other Garden-Fruits; but are eaſily met withal, if you are watchful in a Morning early, by lying in Ambuſh for them, ſometimes changing your Place, leſt they diſcover you: But if they do, they commonly make but ſhort Flights as it were from Tree to Tree, ſo that you may eaſily purſue them where you have any thing of Shelter to get behind. To take theſe Birds; drive a Stake into the Ground about four Foot high above the Surface; let it be made picked at Top, that the *Jay* may not ſettle on it, and within a Foot or thereabouts of the Top, bore a Hole through the Stake about three quarters of an Inch Diameter, fit a Pin or Stick to the Hole about ſix or eight Inches long, and make a Loop or Spring of Horſe-hair faſtned to a Stick or Wand of Hazel that may be entred into the Stake at a Hole near the Ground, and by bending of the Stick up put the Loop of Horſe-hair through the upper Hole, and put the ſhort Stick a little way into the Hole, and lay the Loop round on the ſhort Stick, that the *Jay* when he comes may find this Reſting-Place to ſtand conveniently amongſt his Food, ſo as that when he pearches on the ſhort Stick he may by his weight cauſe it to fall which will give the Spring the Advantage of catching the *Jay* by the Legs. This is a very good Way of taking of them, if 'tis placed amongſt Beans, Peaſe, or ſuch things as the *Jay* haunts, it being their uſual Cuſtom to hop from Tree to Tree, or any thing they can meet withal.

Bullfinches are moſt pernicious Birds to young Fruit-Trees, by feeding on the young pregnanr Buds in Spring time which contain the Bloſſoms, and are the only Hope of the ſucceeding Year. If *January* proves very cold, that the Black-thorns are backward in *February*, the *Bull-finches* will be very buſie in the Garden; the Trees there growing being forwarder than in the Field in a cold Winter. They are eaſily ſhot with a Fowling-piece, only be cautious that your Shot ſpoil not the young Layers or Branches of your Trees.

This Bird is ſo bold that no Scare-crow or other thing will frighten him from the Trees he delights to feed on; but on the *Morocco* Plum or the Damſon, he will ſettle and feed, notwithſtanding all you can do: So that the beſt way to preſerve theſe Buds, is to Birdlime the Twigs.

Goldfinches, which are very injurious to the Gooſeberry Buds, come in Flights, and cleanſe a whole Garden of them immediately, as the *Bullfinches* will the Bud of the *Currant-Trees*: The remedies againſt them are the ſame with the other.

The *Chaffinch*, *Green-finch*, *Titmouſe*, and other ſmall Birds are injurious to ſome Fruits; but not like thoſe before, which will prey upon the Buds of all Sorts of Fruit-trees, under the very Nets that cover the Trees, and near unto the dead Bodies that hang on them.

Sparrows, although but ſmall, yet are a numerous Generation of Corn-eaters: It is unknown how much they devour, and what a great Damage they are to the Husbandman, eſpecially in ſcarce and dear Years. Many Ways are made uſe of to deſtroy them, but none more effectual than the large folding Sparrow-Net, which will take many Dozens at a Draught: They being ſo eaſily induced to come to a Trap or Place baited for them, eſpecially in hard Winter Weather, and in Summer-time before Corn is ready for them; ſo that they flock to Barns in thoſe times: Soot or Lime ſow'd upon Lands will prevent Birds eating new ſown Corn.

Kites, *Hawks* and other Birds of Prey, wait for Pigeons, Chickens, Pheaſants, *&c.* for which Reaſon 'tis neceſſary that the Countryman be conſtantly provided with a good Fowling-piece to deſtroy and ſcare them away. Alſo ſmall Iron-gins about the Breadth of one's Hand made like a Fox-gin and baited with raw Fleſh, are a very good way to catch them. In like manner you may fright them away by ſtraining of Lines or pieces of Nets over the Places where you keep Chickens, Pheaſants, or ſuch like.

Pigeons are a very pernicious Fowl to the Publick, and bring but little profit to the Owners, where they muſt be fed in Winter and at Benting-time, which you muſt do in all Places, except the Clay Countries where they ſow great Quantities of Gray-peaſe and Horſe-beans which are ſow'd forward in the Year. The only way to get rid of them, is to fright them with ſhooting Powder at them, and to hang up Feathers in Lines as before directed for other Birds.

Worms are very prejudicial to Land in eating the Roots both of Corn and Graſs, eſpecially when the Corn begins firſt to ſhoot. The beſt thing to deſtroy them is any ſaltiſh Thing; and 'tis thought Sea-water would be a very great Improvement of Lands near the Sea that are troubled with them.

Gnats and *Flies* are troubleſome in Houſes, eſpecially ſituated near watery Places, and do miſchief in the Fields by eating the Leaves of ſeveral things, as they come up firſt, eſpecially Turneps, ſo as ſometimes to deſtroy whole Fields. To keep your Houſes clear of them, keep your Chamber Windows cloſe in Summer-time, eſpecially towards Evening, and ſmoak your Rooms well with Brimſtone, or burn Straw in them, which will cauſe them to fly into the Flame, and be conſum'd, or elſe the Smoak will choak them. Aſhen-Leaves hanged up in the Room will attract them to 'em that you will be leſs troubled with them. Balls made of Horſe-dung and laid in a Room will do the ſame if they are new made; by which means you may whelm ſome things over them and keep them there.

Waſps and *Hornets* uſually prove very injurious to ſome Sorts of Fruit, to *Bees*, &c. and are ſeveral ways deſtroyed. Firſt, deſtroy the old Ones by way of prevention, in the Spring or Summer before they have increaſed: For from a Few they increaſe to a Multitude. You may ſmoak or ſtifle them if they are in a hollow Tree, or ſcald them if in the Thatch of an Houſe or Barn, or in the Ground you may either ſcald or burn them, or ſtamp in the Earth upon them, and bury them. To deſtroy ſuch as come to the Fruit, Bees, *&c.* ſet by them Cyder, Verjuice, ſour Drink, or Grounds, in a ſhort neck'd Vial, wherewith you may catch many.

Alſo you may lay ſweet Apples, Pears, Beaſt Livers, or other Fleſh, or any thing that they love, in ſeveral Places; upon which you ſhall have ſometimes as many as will cover the Bait, which you may kill at once.

Caterpillars deſtroy the Leaves of Trees in Summer, devour Cabbages and other Garden Tillage, and are generally the Effects of great Droughts. To prevent their numerous increaſe on Trees, gather them off in Winter, taking away the Prickets which cleave to the Branches, and burn them: But if they get on Colliflowers or Cabbages, water them with ſome Salt-water, and it will kill them.

In the Summer, while they are yet young, when either through the Coldneſs of the Night, or ſome Humidity, they are aſſembled together on Heaps, you may take them, and deſtroy them.

Earwigs in ſome Years prove injurious to Fruits, by the Greatneſs of their Numbers, feeding on and devouring them. They are deſtroy'd by placing Hoofs or Horns of Beaſts amongſt your Trees and Wall-fruit, into which they will reſort. Early in the Morning you muſt take them gently, but ſpeedily off, and ſhake them into a Veſſel of Water.

Many Sorts of Trees and Plants, by reaſon of great Droughts, are ſubject to Lice; and ſeeing they are cauſed by Heat and Drought, as is evident in the Sweet-Briar and Gooſeberry that are only louſie in dry Times, or in very hot or dry Places; therefore frequent waſhing them, by daſhing Water on them, may prove the beſt Remedy.

Ants or *Piſmires* are injurious to a Garden, and alſo to Paſture-lands, as well by feeding on Fruit, as by caſting up of Hills, *&c.* In the hotter Regions theſe Creatures are reckon'd amongſt the Peſts of the Field, as in *Italy*, *Spain*, and alſo the *Weſt-Indies*; yet are they commended as the Emblem of Knowledge and Induſtry, and were uſed by the *Egyptians* as the Hieroglyphick of Knowledge, every one of them laying up his own Store for the Winter, never robbing their Fellows, tho' they want themſelves.

To keep them from Trees, emcompaſs the Stem four Fingers Breadth, with a Circle, or Roll of Wool newly pluck'd from a Sheep's Belly. To anoint the Tree with Tar will do the ſame; but as Tar is prejudicial to Trees, rather prefer Man's Ordure, which will do beyond the other; becauſe if any of it be put into their Hills, it will kill them.

Alſo you may have Boxes of Cards, or Paſte-boards, pierced full of Holes with a Bodkin, into which Boxes put the Powder of Arſenick, mingled with a little Honey. Hang theſe Boxes on the Trees, and they will certainly deſtroy them. Make not the Holes ſo large, that a Bee may enter, leſt it deſtroy them too. In like ſort you may hang a Glaſs-bottle in the Tree, with a little Honey, or moiſten'd with any ſweet Liquor, 'twill attract the *Ants*, which you may ſtop and waſh out with hot Water, and prepare it again as above. Watering often of Allies or green Walks often, will drive away or deſtroy the *Ants* that annoy them.

Ant-Hills prove a very great Injury to Meadows and Paſture-land, not only by waſting of ſo much Land as they cover, but by hindering the Syth, and yielding a poor hungry Food, pernicious to Cattle. In order to deſtroy them, cut the Hills into three or four Parts, beginning at the Top, and open them, ſo as to dig out the Cores below the Surface ſo deep, that when you lay down the Turf in their Places, they may lie lower than the other Ground, to the end the Water may ſtand in it, to prevent the *Ants* from returning, which they will certainly do; then ſpread the Earth you take out thinly abroad. The proper Seaſon for doing this is Winter, and if the Places be left open a certain time, the Rain and Froſt coming on it, will help to deſtroy the reſt of the *Ants*: But be ſure to cover them up time enough, that the Rain may ſettle the Turf before the Spring.

In *Hertfordſhire* they have a particular Sort of Spade, which, by reaſon of the Sharpneſs of its Edges, is very convenient for this Uſe. Its Shape you have in *Plate* 2. *Fig.* 10, 11. *Pag.* 333. It is an Inſtrument much uſed in the Weſt-Country for the ſpreading of Mole-caſts, the Teeth of which being Iron and broad, rakes out the Mould, and ſpreads it; and at the other Side, where there is a kind of Heel or Knob, 'tis very convenient to break Clots with; but where there are great Quantities of Hills, and that you have a mind to make a quick Riddance of them, you may make uſe of the Engine at Figure 3, which at *A* hath a ſharp Iron about three Foot over, with a ſtrong Back; 'tis about four or five Inches broad; at *bb* are two Handles to hold it by; at *CC* are 2 Loops or Holes to faſten the Horſe-Traces to that which draws it; at *D* is a Croſs-Bar of Iron to ſtrengthen it, from which at *e* is a ſmall Piece of Iron like a Plough-ſhare to cut the Mole-hill into two; or you may have two of the ſame Pieces of Iron, which will divide the Mole-hills into four Parts. With this Inſtrument, having one Horſe to draw it, a Boy to drive, and a Man to hold it, you may cut as many Hills in a Day as eight Men can do the common Way: The only Inconveniency is, that it leaves a bare Place under the Hills, cut up by the Roots, which is ſome Prejudice to the Land, which however being ſown with Hay-Seed, Clover, or the like, Graſs will quickly grow upon it. If People would engage to make uſe of this Inſtrument, they would find the Benefit of it: And 'tis a very wrong Suppoſition in any to think, they gain Ground by Mole-caſts, and the like.

Then for Injuries ſuſtain'd by the Heavens, high Winds are very pernicious to Fruits, Trees, Corn, Hops, Buildings, *&c.* eſpecially in plain, open and high Countries; for a Defence from which, the Elm (or other high Trees) is a great Shelter to Houſes; and for Fruits and Hops good Walls, Pales and Hedges are a Preſervative; and for Corn, there is no better Way than good Hedge-rows and Encloſures.

Thunder, Tempeſts, Hail and Lightning are great Enemies to the Huſbandman in divers Reſpects, which being ſo well known, are unneceſſary to be nam'd.

Smuttineſs in Corn is chiefly to be met with in dry Summers, occaſion'd by the Over-fatneſs and Rankneſs of the Land; and ſtrong Lands ſhould be ſown with Hemp, Barley, Peaſe, and the like, to abate its Fertility before it be ſown with Wheat, which will otherwiſe be ſubject to Smuttineſs. It is alſo confidently aſſerted, that Wheat mix'd and ſown with ſmutty Corn, generally produces a ſmutty Crop, unleſs ſteep'd all Night in Brine, and mix'd with Lime beat to Powder in the Morning juſt before ſowing; but obſerve at the ſame time, that what Corns are light, and ſwim on the Top of the Brine, are to be ſcumm'd off. If the Ground be alſo prepar'd with Lime, Soot, or other Saline Manure, it will produce Corn free from Smut. Dung is reckon'd the only Cauſe of it, if laid on juſt before ſowing; and Land often ſown with the ſame Seed, or much out of heart, is ſubject to it.

If you have ſmutty Ears among your Corn, ſo as to black the reſt, if you deſign it for Seed, pick out the black ones; but if for Sale, you muſt take it and waſh it in two or three Waters, till you ſee all the Blackneſs quite gone; then drain away the Water clean, and laying the Corn on Cloths or Coverlids, lay it in the Heat of the Sun, and ſo dry it again, till it be ſo hard that it will grind. But if the Time of the Year will not ſerve for the Sun's drying, dry it on a Kiln with a very ſoft gentle Fire, and cool it in the Air to recover the Sweetneſs again, and the Corn will be as ſerviceable as any other, only for Seed it will by no means do; and therefore it concerns every Country-man to take heed that the Corn he buys for that Uſe be not waſh'd. To know which, take it up in your Hand, and if it look bright, clear, and ſhining, being all of one entire Colour, you may be ſure it is unwaſh'd; but if whiter at the Ends than in any other Part, and that the Whiteneſs is blackiſh, and not ſhining, you may conclude it to be waſh'd Corn.

Again, put 3 or 4 Grains in your Mouth, and chew them; if the Taſte be ſweet and pleaſant, and they grind mellow and gently between your Teeth, 'tis good. But if of a bitteriſh, raw Taſte, and they grind hard with much Roughneſs, then hath it been waſh'd and dry'd again, and is not good for Seed; alſo when Corn is more than ordinarily dry: Both are ill Signs, and ſhew either imperfect Corn, or bad keeping: For good Corn always holds an indifferent Temperature betwixt dry and moiſt, and will always feel cool and ſlippery in the running of it. But ſome ſay that if Wheat be ſmutty or mill-dewed, if in the thraſhing of it you mix Barly-chaff with it, it will cure it.

Blites and *Mill-dews* have been generally taken to be the ſame thing, which hath begot much Error, and the Ways and Means uſed for the Prevention and Cure have miſcarried thro' the Ignorance of the Diſeaſe. For *Mill-dew* is quite another thing from Blaſting, being cauſed, as ſome ſay, from the Condenſation of a fat and moiſt Exhalation, in a hot and dry Summer, from the Bloſſoms and Vegetables of the Earth, and alſo from the Earth it ſelf, which by the Coolneſs and Serenity of the Air is condenſed into a fat glutinous Matter, and falls on the Earth again, part whereof reſts on the Leaves of the Oak and other Trees, whoſe Leaves are ſmooth, and do not eaſily admit the Moiſture into them, as the Elm or other rougher Leaves do. Mill-dews become the principal Food of the *Bees*, being ſweet, and eaſily convertible into Honey. Other part thereof reſts on the Ears and Stalks of Wheat, beſpotting the Stalks with a different Colour from the natural, being of a glutinous Subſtance by the Heat of the Sun, and ſo binds up the young, tender, cloſe Ears of the Wheat, that it prevents the Growth, and compleating the imperfect Grain therein, which occaſions it to be very light in Harveſt, and to yield a poor, lean Grain; for which Reaſon many reckon the bearded Wheat not ſo ſubject to it, as the other, the Beards defending the Ear from it.

Some think *Mill-dews* to proceed from Vapours ariſing from the Dung, and ſo falling upon the Corn: Becauſe Lands new dunged are the moſt ſubject to it. But if after the Mill-dew falls, a Shower ſucceeds, or the Wind blows ſtiffly, it waſhes or ſhakes it off, and theſe are the only natural Remedies againſt this Diſtemper.

Some adviſe in the Morning after the Mill-dew is fallen, and before the riſing of the Sun, that two Men go at ſome convenient diſtance in the Furrows, holding a Cord ſtretched ſtreight betwixt them, carrying of it ſo, that it may ſhake off the Dew from the Tops of the Corn, before the Heat of the Sun has thicken'd it. They would likewiſe have the Corn ſown in open Grounds, where the Wind may the better ſhake off the Dew, this being look'd upon to be the only Inconveniency Incloſures are ſubject unto; but it is evident that the Field-Lands are not exempted from Mill-dews, nor yet from Smut, where it is more than in incloſed Lands. Some ſay, that Lands that have been ſubject to Mill-dews many Years, have been cured by ſowing of Soot with, or juſt after the Corn.

'Tis obſervable, that after a wet Summer, Corn is apt to be blited; the Reaſon is, that the over-much Moiſture that lies conſtantly at the Roots of the Corn, makes it run much to Straw, and little to Corn; and at ſuch time as the Corn ſhould kern, the moiſt Vapours, exhaled by the Sun from the wet Ground, do in the Nature of a Mill-dew, prevent the due Growth of the Grain in the Ear. 'Tis obſerv'd, that when theſe Mill-dews ariſe, or Blites fall, they infect one Sort of Grain generally, as ſometimes only Wheat, ſometimes Oats, *&c.* the like happens among Fruits; ſometimes Apples are generally blaſted; ſometimes only Pears, ſometimes only Cherries, Walnuts, Filberts, Plums, and the like.

Thiſtles are a great Annoyance to ſome Land, by killing the Graſs, Corn, *&c.* though they are a ſure Token of the Strength of the Land. The Way to deſtroy them is to cut them up by the Roots before Seeding-time, that they may not by their flying Seeds encreaſe themſelves.

Ruſhes, *Flags*, and ſuch like Aquaticks are beſt deſtroy'd by Draining. If you cut your Drains below the Roots thereof, that they may take away the Matter that feeds them, and by laying of Aſhes or Soot on them, and alſo by ploughing them up, and laying of the Land in high Ridges to drain it, and by Mowing.

Twitch-graſs is a very pernicious Weed to ſome Land, by keeping it looſe, hollow, and drawing away the Vertue of the Ground, to the Prejudice of the Corn ſown upon it; it beſpeaks the Land to be of a cold, ſoure Nature: The beſt Remedy is good Fallowing in dry Weather, and Harrowing it well, with good Manuring it with Lime, Dung, Aſhes, Chalk, *&c.* White Oats are likewiſe a good Seed to ſow on ſuch Land, becauſe they are ſown late, and come up quick to over-top it. Burnbating is an effectual Way alſo to deſtroy it.

Gooſe-graſs, or *Wild Tanſie*, is a Weed that ſtrong Clays are very ſubject to. The beſt Cure is mowing it in Summer, well-dunging the Land, and never to plough the Land out of heart.

Green-weed, or *Wood-wax*, if cut while green, and made Hay of, Sheep will eat in Winter. Some Lands are more prone and ſubject to Weeds, and that in ſome Years more than others: For the deſtroying of which in Corn-lands, the laying them dry, and good Fallowing is the beſt Remedy; but for Paſture ſometimes Mowing is good. Soot and Aſhes, eſpecially upon cold Lands, or thoſe over-run with Moſs, are an extraordinary Improvement.

Shrubs and *Buſhes* are great Annoyances to the Huſbandman, it being difficult and chargeable to pull them up. Where they are grown tall, and thick, the moſt expeditious Way is to encloſe in a Timber-Chain as many as you can of them, to clap a Team of Horſes to them, and ſo tear them up by the Roots, and when that is done, encompaſs as many more: But if they are not big enough for this way, or grow too thin, the Inſtrument beſt for this purpoſe, and alſo for Furzes, Broom, &c. is that in *Plate* 2. *Fig.* 12. *Pag.* 333. At *A* is a long Handle of Wood about four Foot long; at *B* is an Iron-hook jagged; at *C* is a little Hook, which they uſe thus: They put the Handle *A* aſlope from 'em, and catch the Stem or Stalk of the Broom or Buſh they deſign to pull up in the Hook at *B*, and from that they bend the Stem to the little Hook at *C*; this occaſions the holding of the Stem that it do not ſlip, and ſo ſetting of their Shoulders to the upper End of the Handle at *D*, as it ſtands ſloping, they raiſe up the Buſh or Broom; the Price of doing which, where a Man hath fourteen Pence a Day, is to pull up a Load of Buſhes or Broom, which they reckon to contain ſixty Faggots, for two Shillings, which Faggots being well bound, ought to contain four Foot and half in Circumference; but where the Buſhes are ſhort, and grow upon old Stubs, they muſt be ſtubb'd with a Mattock, the Price of which, where the Buſhes grow thick, is three Pence a Pole ſquare; but if you will have the Land dug up, that ſo you may be ſure to clear the Land of the Roots, and to kill them, the common Price is four Pence a Pole, the Owner of the Land having the Buſhes and Roots.

Some Lands are much given to the bearing of Furz, eſpecially ſuch as are inclining to Sand; which is deſtroy'd either by ploughing up, burning, and mending of it well with Marle, Lime, Dung, &c. or by planting Acorns among them, which the Furz will ſhelter and ſhade till they get up above them, and then the Oaks will deſtroy the Furz by dropping on them.

Broom is the moſt pernicious Plant that grows upon Land, which, as it ſheds no Leaves, ſo it continually ſucks the Heart of the Land it grows upon. The only Way to kill it is to pull it up, to plough the Land, burnbate and manure it very well with Dung, Aſhes, &c. but the moſt effectual Remedy for it is Chalk and Marle. If you deſign to deſtroy it on Paſture-land, it is better to cut it up in *May*, when the Sap is in, by which means you kill the Root; whereas if you pull it up, you are apt to leave Strings behind, the leaſt of which will grow. *Broom*, if well laid, will make an excellent Thatch for Houſes or Barns.

Ling and *Heath* being much of the ſame Nature, are cured by the ſame Remedies; only I will obſerve, that *Heath* in many Places being very neceſſary for Firing, where other Fuel is not to be got, the cutting up of the Turf is a very good Way to deſtroy it, eſpecially if the Aſhes be laid on the Places where it is cut off, it being an extraordinary good Manure for Land. The Price of cutting of the Turf is eight Pence a Load, 500 of Turf being reckon'd to a Load.

Next unto theſe Shrubs, *Fern* is one of the worſt of Weeds, and as hard to deſtroy, where it has any thing of a deep Soil to root in, the Roots of it in ſome Grounds being eight Foot deep. The beſt Cure is often mowing it while in Graſs. If you plough it up, plentiful dunging it and Aſhes are very good; but the certaineſt Remedy is Urine. *Fern* cut when the Sap is in it, and left to rot upon the Ground, is a very great Improver of Land; if burnt when ſo cut, their Aſhes will yield double the Quantity of Salt that any other Vegetable will do. They cut Fern green in divers Places in the North, and burn 'em to Aſhes, which, with a little Water, are made into Balls, and dry'd in the Sun. It's uſed for waſhing of Linnen, and eſteem'd near as good as Soap.

Great and haſty Rains are very pernicious to Corn-Ground, eſpecially to ſuch as lie low, and at the Bottom of Hills, for which it is good to make Water-Courſes, or Drains, to carry it away: And a wet Harveſt is very bad, not only as to Expences, but as to the ſpoiling the Corn; which the better to prevent obſerve the old Proverb, *To make Hay whilſt the Sun ſhines*: And let the Corn be well ſhock'd up, which will very much preſerve it from a Shower of Rain.

Violent and long Froſts are very prejudicial in ſeveral Reſpects, eſpecially to forward Fruits, Seeds and Plants in the Spring. Alſo ſome Lands (as cold clayey Ground) are more ſubject to ſuffer by bitter Froſts, than thoſe that lie on a warm Sand or Gravel; alſo thoſe that lie moiſt, more than thoſe that lie dry; and thoſe that lie on the North and Eaſt Sides of Hills, more than thoſe that lie on the South and Weſt. And as a Remedy for this, Incloſures are very good, being a great Preſervative to Corn, Trees, Plants, &c.

Alſo Horſe-dung laid to the Roots of young and tender Trees and Plants, is a great Preſervative againſt pinching Froſts. Likewiſe Straw, Hawm, Fern or Furz, will very much defend any thing from Froſts. Alſo Mat or Canvaſs is very good to preſerve Beds of tender Plants or Flowers, being arch'd over with Sticks, and the ſaid Mat or Canvas laid upon it. The like it is for Hot-Beds, for the Raiſing of Seeds in the Spring.

Fruit gather'd into the Houſe is ſubject to great Damage by Froſts; ſo that to prevent this Miſchief, in a great meaſure, you muſt caſt Straw over them.

This Kingdom is much ſubject to Heat and Drought in the Summer-Seaſon, ſo that to many Seats Water is much wanting, all ſtanding Pools being then dried up, inſomuch that Cattle are drove to Water a conſiderable Diſtance to ſome Spring or River; and no Water for the Houſhold Affairs, but what is brought by a Cart, which is very troubleſome.

Nay, moſt of our Commons and open Field-Land, in a dry Year, yield but indifferent Crops, either of Corn or Graſs; and though dry Summers are the moſt productive of Corn, 'tis becauſe we have ſo much low Ground, and incloſed Lands, that are defended from the ſcorching Heat of the Summer-Air; the only Remedies to prevent which are tall Incloſures, of which elſewhere, and Plenty of Water, which in many Places is more difficult to come by, though it is what may be many Ways effected, as,

Firſt, By ſinking of Wells, which, where they are very deep, makes it very troubleſome and chargeable to raiſe the Water.

Secondly, By bringing the Water in Pipes, Gutters, &c. which is eaſily done where the Spring or Stream, from whence you bring it, is higher than the Place where you deſign to have it.

Thirdly, By raiſing of the Water with Pumps, Water-wheels, &c.

Fourthly, By making Ciſterns or Receptacles for Water, for either the Rain or Winter-Springs to fill, in which the Water may be kept throughout the Summer.

We are defective, ſays Mr. *Mortimer*, in theſe Sorts of Contrivances; for in the mountainous Countries of *Spain* they have no Water, but what they get this way.

Alſo in *Amſterdam* and *Venice* they keep Rain-water in Cellars made on purpoſe for Ciſterns, capacious enough to contain Water for the whole Year, it being renew'd as often as the Rain falls. Therefore the being put to ſuch Difficulties for the Watering of Cattle, and other Inconveniences, for want of it, is the Effect of our want of Induſtry and Care, much more Rain falling here than on the Continent, where theſe Pools and Ciſterns ſupply all their Wants for their Houſes, Cattle, and Gardens; and yet we have Thouſands of uſeleſs Acres for want of ſo eaſie a Remedy.

If you deſign to make your Ciſterns under your Houſe, as a Cellar, which is the beſt Way to preſerve it for culinary Uſes, you may lay the Brick or Stone with Terrace, and it will keep Water very well; or you may make a Cement to join the Bricks or Stones with, with a Compoſition made of ſlack ſifted Lime and Linſeed-oil, temper'd together with Tow or Cotton-wool: Or you may lay a Bed of good Clay, and on that Bricks for the Floor; then raiſe the Wall round about, leaving a convenient Space behind the Wall to ram in Clay; ſo that when it is finiſhed, 'twill be a Ciſtern of Clay, walled on the Inſide with Bricks, and being in a Cellar, the Bricks will keep the Clay moiſt, (tho' empty of Water) that it will never crack. Thus in Gardens, or any other Places, may ſuch Ciſterns be made in the Earth, and covered over, the Rain-water being convey'd thereto by declining Channels running unto it, into which the Alleys and Walks may be made to caſt their Water in haſty Showers.

But the uſual Way to make Pools of Water on Hills and Downs for Cattle, is to lay a good Bed of Clay, near half a Foot thick, and after a long and laborious Ramming thereof, another Courſe of Clay about the ſame Thickneſs; ram that alſo very well, and pave it carefully with Flints, or other Stones, which not only preſerves the Clay from the Tread of the Cattle, *&c.* but from chopping by the Wind or Sun at ſuch time as the Pool is empty. Note alſo, That if there be the leaſt Hole or Crack in the Bottom, 'twill never hold Water, unleſs you renew the whole labour; otherwiſe you may make a Pool or Ciſtern hold Water, by dawbing it with Mortar and Clay, and drawing it over after with Mortar. Stop any Cleft that may happen with clean Hair and Tallow, mix'd with unſlack'd Lime and Yelks of Eggs, well beat and reduced into Powder.

Injuries from Stones, Thiſtles, Shrubs, &c.] Stones are injurious when they are too thick upon a hot, burning, gravelly Land, and therefore ought to be pick'd up, laid in Heaps, and ſo carry'd off. On the other hand, there are ſome very cold chalky Clays on the Tops of Bleak-hills, much expoſed to high Winds and nipping Froſts, to the Corn that grows upon which the Stones are a Safeguard, by keeping its Roots warm in Winter, and ſheltering it with their Shade in Summer. It has been obſerv'd, that ſome of theſe Sorts of Lands, from which the Stones have been carry'd off, would neither bear Corn nor Graſs till laid on again.

CHAP. XV.

Of the Knowledge of the Times and Seaſons, uſeful in Agriculture.

THE Knowledge of the Times and Seaſons being extreamly neceſſary and eſſential to a *Husbandman*, the Way I propoſe to do it, is by the Help of the Sun, Moon, Stars, Animals, animate and inanimate Things; and though theſe Obſervations may ſeem to be very plain and ſimple, yet they comprehend much more Certainty in them than all the Predictions made uſe of by Aſtrologers to abuſe the Credulous: And as the Sun is the chief of all the Stars, and that it is from it they borrow their Light, I ſhall begin to draw Preſages of Rain from it.

Preſages of Rain *from the* Sun.

I Say again, That all we can predict from the Stars is very certain, and eſpecially from the *Sun*, whoſe Influences cauſe all the Fœcundity of Nature, and whoſe Setting and Riſing gives us true Signs of good or bad Weather.

Sol quoque & exoriens, & cum ſe condit in undas,
Signa dabit, ſolem certiſſima ſigna ſequentur.

The *Sun* preſages *Rain*, when cover'd with a Cloud at its Riſing, and his Face appears full of Spots, ſo that we cannot ſee above Half of it.

Ille ubi naſcentem macula variaverit ortum,
Conditus in nubem, medioque refugerit orbe;
Suſpecti tibi ſint Imbres ——

Or elſe when at Day-light you ſee ſeveral of its Rays break through the little Clouds that cover it:

Aut ubi ſub lucem denſa inter Nubila ſeſe,
Diverſi erumpent Radii.

It is a Sign of *Rain*, when the *Sun* is red at its Riſing; and 'tis alſo a certain Sign of it, when at the ſame time it appears ſurrounded with long Rays. In like manner when the *Sun* at Riſing appears with a Face of different Colours, it preſages *Rain*.

—— Nam ſæpe videmus,
Ipſius in vultu varios errare colores.

Whenever you ſee the *Sun* riſe, and look blue, you may conclude *Rain* is not far off:

Cæruleus Pluviam denunciat.

Thoſe red Clouds, which ſometime ſurround the *Sun* at her Riſing, infallibly threaten *Rain* that Day.

When the *Sun* looks pale all the Day, or ſmall and round like a Bowl, it is a Sign of *Rain* and ſtormy Weather.

As ſoon as you ſee the darkiſh Circles of an earthy Colour about the *Sun*, you may preſage *Rain*, without running the Riſque of being miſtaken.

You may fear *Rain*, when the *Sun* as it riſes more and more above the *Horizon*, looks black and darkiſh; and if at Setting it does not break out of a dark Cloud, wherewith it is then cover'd.

You may, from the very Moment you find the *Sun* ſet with large Rays towards the Earth, expect *Rain* next Day: In like manner 'tis a Sign of *Rain*, when the *Sun* at Setting, or otherwiſe, is hid with a yellow or ſomewhat reddiſh Cloud.

When the *Sun* at Riſing is felt more ſmartly than uſual, you may reckon it will rain; and you may expect the ſame Effect when it ſets after that manner.

Preſages of Rain *from the* Moon.

THE Signs we have of the Alterations of the Weather from the *Moon* are as certain as thoſe from the *Sun*.

—— Omnia certis
Indiciis tibi Luna *dabit.*

When the *Moon* appears in our *Horizon* with obſcure Horns, about a dull and thick Air, it is a Sign of much *Rain*.

Luna revertentes cùm primum colligit ignes,
Si nigrum obſcuro comprenderit aera cornu,
Maximus Agricolis, pelagoque parabitur Imber.

If the *Moon*, more-particularly on the third Day after the Change, or in the Beginning of the fourth, riſes with a black, obſcure, thick Colour, *Pallida* Luna *pluit*; or elſe with a bluiſh, livid, or greeniſh Colour, you may expect *Rain.*

When the *Moon* is at the Full, and her Face ſurrounded with ſomething, ſhe does then threaten us with *Rain.*

We ſometimes ſee the *Moon* beſet with two or three Circles, which, when they look black or obſcure, and that you find this Luminary as it were confounded, *Rain* will certainly follow.

It is to be obſerv'd, if the Weather is muddy at the Change of the *Moon*, that it is a true Preſage of *Rain.*

It ſometimes happening, that the *Moon*, towards the fourth Day after the Change, does not appear at all, you may then prognoſticate *Rain.*

It's obſerv'd, if it rain the firſt *Tueſday* after Full-Moon, it will continue to rain the reſt of the *Moon.*

Preſages from the Stars.

WHen the Stars appear larger than uſual, 'tis a certain Sign of *Rain*; ſo it is alſo when they ſeem to be cloudy and obſcure, though there are no Clouds in the Air.

Preſages from the Air.

THE beſt and moſt certain Prognoſtick of *Rain* that can be taken from the Air, is when you find it to be hotter than the Seaſon does allow.

Ciel pommele, & femme fardeé,
Ne ſont pas de longue dureé.
A ſpotted Sky, a painted Whore,
Are fair to Day, but fair no more.

This Proverb intimates ſufficiently, that when the Weather is dappled, you may ſoon expect *Rain.*

Whenever you ſee white Clouds in the Air moving to the Eaſt, 'tis a Sign of *Rain.*

It's not to be doubted, but that when the *Rainbow* appears upon the Waters, ſeems to drink them up, and looks double, it will rain.

——— *Nunquam imprudentibus Imber*
Obfuit.
——— *Cum bibit ingens*
Arcus.

Preſages from the Fire.

WHenever the *Fire* burns blue, it is a Sign 'twill rain; ſo it is alſo when it goes out of it ſelf.

When you find the Coals crackle, and Sparkles fly out of the Fire, it preſages *Rain*; ſo does alſo the Smoak's not mounting up ſtreight, the Fire's not burning clear, or being incumbred with Aſhes.

It's an Obſervation made, That if the Coals ſtick to the Bottom of the Pot upon the Fire, ot that you find the Fire ſparkle there, 'tis a Sign of *Rain.*

If you find the Wick of a Lamp or Candle does not light kindly, but burns black, has Thieves in it, or elſe crackles, or that the Smoak diſperſes here and there, and does not aſcend upright, you can expect nothing but wet Weather;

Nec noctùrna quidem carpentes penſa puellæ
Neſcivere hiemem, teſta cum ardente viderent,
Scintillare oleum, & putres concreſcere fungos.

Preſages from Human Bodies.

WE find our ſelves often drowſie and very weary, without any other Cauſe of this Drowſineſs and Wearineſs than the Thickneſs of the Air, from whence it proceeds; and when we find our ſelves thus, we may ſay 'twill rain.

Pains in the Joints, Prickings and Aches in thoſe Parts that have been broken or ſprain'd; the Twitchings of our Corns, and the like Evils wherewith the Body is incommoded, all of them foretel *Rain.*

Preſages from Animals.

WHEN you ſee Cranes fly very high, it prognoſticates *Rain.*

——— *Aut illum ſurgentem vallibus imis*
Aeriæ fugere Grues.

When Oxen or Cows toſs up their Heads on high, and look towards the South, when they lick their Hoofs all round, and go bellowing towards their Stalls, you may expect *Rain.*

——— *Ant Bucula Cœlum*
Suſpiciens, patulis captavit naribus auras.

When you find Swallows fly along the Marſhes, Ponds and Rivers, and lower than uſual, and make a Noiſe, *Rain* is not far off.

Aut arguta lacus circumvolitavit Hirundo.

The Croaking of Frogs always preſages *Rain.*

——— *Et veterem in limo ranæ cecinere querelam.*

The Ants many times, upon the Approach of bad Weather, carry away their Eggs thro' a narrow Paſſage from the Bottom of their Neſts; and when you ſee them thus at Work, you may expect nothing but *Rain.*

Sæpius & tectis penetralibus extulit Ova
Anguſtum formica terens iter.

If you ſee Ravens and other Birds go together in Flocks, *Rain* will certainly follow.

——— *Et de paſtu decedens agmine magno,*
Corvorum increpuit denſis exercitus alis.

Upon the Approach of *Rain*, you will find your Water-Fowl waſh themſelves, bathe their Wings, and make much Noiſe, one while plunging themſelves in, and at other times running upon the Surface of the Water.

Jam varias pelagi volucres, & quæ Aſia circum,
Dulcibus in ſtagnis rimantur prata Cayſtri,
Certatim largos humeris infundere Rores;
Nunc caput objectare Fretis, nunc currere in undas,
Et ſtudio incaſſum videns geſtire lavandi.

It is ſaid, the Crow calls for *Rain*, when ſhe walks alone, and makes a Cawing.

Tum Cornix plenâ pluviam vocat improba voce,
Et ſola in ſicca ſecum ſpatiatur Arena.

When the Aſſes ſhake their Ears, ſtretch out their Tails, and roll themſelves on the Ground, 'tis a Sign of *Rain.*

Worms foretel *Rain*, when they creep out of the Earth; and ſo do the Toads, when they croak in high Places.

If you find your Hens go under Cover with their Chickens, ſcratch with their Feet, and cover themſelves with Earth, or fight one againſt another, all this preſages nothing elſe but *Rain.*

Pigeons foretel the Falling of *Rain*, when they ſuddenly fly up in the Air, and when they go into their Holes without coming out again.

Thoſe Cocks which crow before their Time, eſpecially in the Evening, and the Geeſe that cry, uſually foretel *Rain.*

Pre-

Preſages of fair Weather from the Sun.

WHen you find the *Sun* bright at Riſing, does not appear larger than ordinary, and hath no broken Beams, you may hope for *fair Weather* all the Day.

Sometimes the *Sun* has a Circle about it when it riſes, in that caſe take notice if the Circle equally diſappears, 'tis a Sign of *fair Weather*.

A little Miſt very often appears in the Place where the *Sun* riſes, which cannot but preſage very fine *Weather*.

If the *Sun* be clear and ſpotleſs at Setting, and has ſmall red Clouds about it, ſeparate from one another, it will be fair.

Preſages from the Moon.

IF the *Moon* appears red at Riſing, it prognoſticates great Heat in Summer-time.

You need expect nothing but *fair Weather* when ſhe is bright at Riſing.

Nec fratris radiis obnoxia ſurgere Luna.

Whenever you find the Air ſerene on all Sides upon Change of the *Moon*, it preſages *fair Weather*.

If the *Moon*, three Days before or after her Conjunction in her Quarter, gives a ſmall but bright Light, you cannot fail of fine *Weather* upon it.

It is uſually obſerv'd, if the *Moon*, four Days after the Change, appears without Blemiſh, it's a Sign we ſhall have fine *Weather* all the reſt of the Month.

Sin ortu in quarto (namque is certiſſimus auctor)
Pura, nec obtuſis per Cœlum cornibus ibit;
Totus & ille dies, & quæ naſcentur ab illo
Exactum ad menſem, pluvia ventiſque carebunt.

Nothing forbodes *fair Weather* more than the Brightneſs of the *Moon* at the Full, or her appearing without any Spot in the Encreaſe.

There is a certain Circle, called *Halo*, that appears about the *Moon* when ſhe riſes; and as ſoon as you perceive the ſame diſappear, you may then conclude it will be fair.

Preſages from the Stars.

WHen you perceive the *Stars* to ſparkle in the Firmament, and to appear without Spots, it is a Preſage of the Goodneſs of the *Weather*.

Preſages from the Air.

The Evening Red, and the Morning Gray,
Do indicate a Pilgrim's Day.

THis is a true Proverb; for whenever you find the Clouds red in the Evening, it is always a Sign of *fair Weather*.

When the *Air* clears up on that Side which is oppoſite to the Wind, fine *Weather* will enſue.

You will ſometimes find the Clouds look like a Plume of Feathers, or a Palm-Branch, forming as it were a Cap over the Top of the Mountains; now if theſe Clouds fall, you may expect nothing but fair *Weather*.

It is in like manner a Sign of fine *Weather*, when the *Rainbow* appears in the Eaſt.

When you find the *Sun* bright, and a great deal of Dew in the Morning, you may reckon upon a fair Day throughout.

If upon the Uſhering in of the Day the Sky is border'd with a white or gilded Circle at the fartheſt Bounds of the *Horizon*, and that the lower Region of the Air be wet with Dew, as may be perceiv'd by the Glaſs of your Windows, it's an infallible Sign of fair *Weather*.

Every Eclipſe of the *Sun* introduces fair *Weather*.

Preſages from Animals.

WHen the Owl takes notice of the Setting of the *Sun*, and at the ſame time keeps within her Hole, without making any Noiſe, it's a Sign of fine Weather.

Solis & occaſum ſervans, de culmine ſummo,
Nec quicquam ſeros exercet noctua cantus.

Fair Weather is alſo preſaged by the Sparrow-Hawk's ſoaring in the Air, and ſtooping upon the Larks which he carries away with him.

Apparet liquido ſublimis in aere Niſus,
Et pro purpureo pœnas dat Scylla capillo.

Preſages of Winds.

IT is a Sign of *Wind* when the Sun looks red at Riſing, or is ſurrounded with red Circles.

When the Moon appears red in the *Horizon*, eſpecially during the Increaſe, it ever preſages *Wind*.

At ſi virgineum ſuffuderit ore Ruborem,
Ventus erit: Vento ſemper rubet aurea Phœbe.

It is a Sign of *Wind* when you find the Stars wandring up and down, or ſeem to be bigger and brighter than uſual.

When you are in the Country, and find the Foreſt ruſle, or that the Sparrows ſing more than ordinary, you may from thence gather there will be *Wind*.

It is a Sign of *Wind*, if it thunder in the Morning; and you will find the ſame Effect when you hear it thunder, without ſeeing any Lightning.

The Clouds which mount in the Air, and join one after another, ſignifie *Wind*.

When you are near the Fire, an find it puffs of it ſelf, you may expect *Wind*.

You may expect the ſame when you find the Ducks frequently ſtretching out their Wings, and very long.

The Way to know whether it will be a long Winter, and what Weather it will be.

THere are ſome Things proper to be known by the *Huſbandman*, that will be of great Uſe to him, and ſerve for a good Precaution againſt the Rigours of the Winter; and he may take this for a certain Preſage of a very ſevere Winter when there is great Plenty of Acorns.

A Shepherd ſhould take care to obſerve whether the Ewes, after they have taken Ram, ſeek after them again; and by that they may gueſs the next Winter will be a hard one.

Again, let thoſe who look after Cattle obſerve when they go together in Troops or Herds, or whether the Swine grub the Earth, with their Heads turn'd to the North; and if they find it ſo, let them take care to provide ſtore of Fewel; for it generally proves a hard and long Winter.

I would have you take notice of the 24th Day of *November*, and as that Day is, ſo the Winter is like to prove; and as you find the 25th of the ſame Month, ſo will the Month of *January* be.

You may eaſily know what Sort of a Winter it will be, by obſerving the laſt Days of the Moon, between *November* and *December*; for as they prove, ſo will the Winter.

And to know what Sort of a Summer you will have, thoſe who are nice Obſervers of the Seaſons ſay, That the three laſt Days of the Moon between *April* and *May* are infallible Preſages how it is like to prove.

The Way to know whether it will be a Forward or a Backward Year; and what Weather we ſhall have.

WE come now, according to the Opinion of a great many Men of good Senſe, to the moſt eſſential and neceſſary Article in this Chapter that can be to *Husbandmen*: For, ſay they, 'tis no ſlight thing to know whether the Year will be forward or backward, and how the Weather is like to prove; for hereupon, they add, depends the Way of Sowing more or leſs Quantity of Seed.

If you would know whether it will be a forward Year, you are to obſerve whether it rains during the time the *Pleiades* appear; and if ſo, you may be ſure of it.

On the other hand, if it rains ſometime after the *Pleiades* diſappear, it is a Mark of a backward Year; and it is always a middling Year when the Rain falls in the time that theſe Stars are hid from us.

The *Pleiades* do not begin to appear before the 11th of *June*, and continue to appear till the 2d of *November*. This is the Opinion of moſt Aſtrologers, though by Experience we find it falſe; ſince it is true that theſe Sorts of Stars appear much later than they ſay they do. Let People believe what they pleaſe as to theſe Sorts of Preſages about a forward or backward Year, I am for my part of Opinion, that this Prediction is a meer Whim.

Preſages of a Fruitful Year.

YOU may know whether it will be a fruitful Year or not, if upon the ſplitting of a Gall-nut, you find a Fly in it.

If the Autumn be fair, and the Spring pretty warm, you may conclude from both theſe that the following Year will be plentiful.

Thoſe who are wont to live in the Country, and curious Obſervers of the Productions of Nature, with a Deſign to draw good or bad Preſages from them about Things to come, judge of the Fruitfulneſs of the Year by the Plenty of Broom-Flowers, and alſo of Walnut-tree-Flowers, which ſhould be much more numerous than the Leaves.

Preſages of a Barren Year.

HAving ſaid before, if you found a Fly in a Gall-nut, it was a Sign of a fruitful Year, I am on the contrary now to inform you, if there be a Spider in it, it is a certain Sign of a barren Year.

When the Spring and Summer are very wet, and that you find the Earth and the Air full of Frogs, Worms and Graſs-hoppers, you can expect but little Good from that Year.

It is a Misfortune, that an Eclipſe of the Sun ſhould happen when the Corn is in the Blade, ſeeing that will ſuſpend the Vertue of the Sun's Influence, ſo as to prevent the Produce of any Corn, and conſequently make the Year barren. *Liger.*

CHAP. XVI.

A KALENDAR; *or Monthly Directions to the* Husbandman.

THere is a peculiar Time to be obſerved for the moſt Part of Affairs in the World, but eſpecially for ſuch as depend upon the mutable Seaſons of the Year, being the eſſential Part of *Agriculture*; inſomuch that every *Husbandman* ſtould have his Chart or Draught to ſteer by, and to reinforce his Memory; ſo that the Multiplicity of his Affairs may not occaſion his forgetting thoſe things that are neceſſary to be undertaken, always obſerving the Proverb, *To take Time by the Forelock*; for Time let ſlip cannot be recall'd, ſo that it is a great Negligence to be too late; and you ſhall rarely find a thriving *Husbandman* to be behind with his Affairs; for if you expect a Reward of your Labours, Plough, Sow and Reap in due Seaſon. But to proceed to the *Monthly Kalendar*, beginning with *January*.

	Sun-Riſe. H. M.	Sun-Set H. M.	JANUARY 31 Days.
1	*New-Years-Day.*		
2			
3			
4	8. 00.	4. 00.	*Caſtor* and *Pollux* riſeth in the Evening.
5			
6	*Twelf-Day.*		
7			
8			
9			
10	*Sun* in *Aquarius.*		*Lucida Corona*, or the *Crown*, is with the *Sun.* The *Dog-Star* riſeth in the Evening.
11			
12			
13			
14			
15			
16	7. 45.	4. 15.	
17			
18			
19			
20			
21			
22			
23			
24	7. 30.	4. 30.	
25	St *Paul.*		
26			
27			
28			
29			
30			
31	7. 15.	4. 45.	

	Sun-Riſe. H. M.	Sun-Set H. M.	FEBRUARY 28, or 29 Days.
1			*Cor Leonis* riſeth in the Evening.
2	*Candlemaſs.*		
3			
4			
5			
6			
7			
8	7. 00.	5. 00.	*Sun* in *Piſces.*
9			
10			
11			
12			
13			
14	*Valentine.*		
15			
16	6. 45.	5. 45.	*Cor Hydræ* riſeth in the Evening. The *Lion's Tail* riſeth in the Evening. *Fomahant* is with the *Sun.*
17			
18			
19			
20			
21			
22			
23	6. 30.	5. 30.	
24	*Matthias.*		
25			
26			
27			
28			
29			

A Froſty *January* is ſeaſonable, although it proves the Rich Man's Charge, and the Poor Man's Miſery.

Now it is time to plough, or fallow the Ground deſigned for Peaſe, Beans, or Oats; and if the Weather be mild, ſow forward Peaſe, and ſet Garden-Beans, digging or trenching your Garden Ground, to make it mellow for your Crop in the Spring, if your time did not permit you in *December*.

Now it is good time to water Meadows, and Marſh-Grounds, and to drain arable Lands by cutting Water-Furrows.

If the Seaſon be hard and froſty, carry out your Dung on your Land, laying it on Heaps until the Weather be mild and open.

Lop and top Trees, and cut your Coppices and Hedge-rows.

In open Weather remove and plant Trees and Vines, dig, and trench Gardens, lay up your Borders, uncover the Roots of ſuch Trees that require it, putting Soil unto them. Alſo prune your Vines and Trees, nail and trim Wall-Fruits, cleanſe Trees from Moſs and Suckers, gather Cions for Grafts, and ſtick them in the Ground until Grafting-time. Make Hot-Beds, and ſow your choice Sallads, alſo Colly-flowers, *&c.* ſecure your choice Flowers and Plants from the Cold by Covers, Straw, or Dung. Earth up the Roots of ſuch Plants as the Froſt hath uncovered. Set Quickſets, Hedge and Ditch; Cut away Ant-hills. Houſe your weanling Calves and Colts. Be careful of your Ews and Lambs. Set Traps to deſtroy Vermine. Dig weedy Hop-Grounds, remove *Bees*, and turn up Bee-Hives, and ſprinkle them with ſweet warm Wort.

This is a buſie Month for ſowing of Peaſe, Beans, Tares, and Oats, being the principal Seaſon for Lenten Grain. Carry out Dung, and ſpread it before the Plough; but for Paſture Grounds that are wet, chuſe the hard Froſts. Make haſte to plant ſuch Trees as your occaſions would not permit you in *January*, for now the Sap riſeth up, and then it is too late: You may alſo yet plant Quick-ſets. Set Oſiers, Poplars, Willows, and other Aquaticks, this being a very good Seaſon. If the Seaſon is mild ſow Hemp-ſeed, as alſo Muſtard-ſeed. Cleanſe your Ground from Moles before Breeding-time, which is in *March*, and ſpread the Mole-hills. This is ſeaſonable for cutting Coppices, Lopping of Trees and Plaſhing of Quick-ſets. If the Weather is temperate graft your forward Fruits, and cleanſe Fruit-trees from Moſs and Cankers. Cut not your tender Wall-fruit until the Froſts are over. Trim up your Paliſade-Hedges and Eſpaliers. Lay Branches to take Root. Set Nuts, Fruit-ſtones, and Kernels, with other hard Seeds. Towards the Middle, or latter End of the Month ſow Carrots, Parſnips, Onions, Sallating, Parſly, Spinage, and other hard Seeds; plant Cabbages, Liquorice; plant out Collyflowers into Warm-Beds. Make up Hot-beds for Cucumbers, Melons, *&c.* Sow *Aſparagus*. Gather off the Snails from the Wall-fruit, ſet Traps for taking *Bull-finches* that deſtroy the Buds of Fruit-Trees. Plant Hops if the Weather be mild, and dreſs them that are out of Heart. You may yet remove *Bees*, and half open their Paſſages. This Month is good to ſew *Fiſh-Ponds*, and to take Fiſh.

	Sun Riſe.		Sun-Set		MARCH 31 Days.
	H.	M.	H.	M.	
1	*David.*				
2	6.	15.	5.	45.	
3					
4					
5					
6					
7					
8					
9					
10	6.	00.	6.	00.	*Sun* in *Aries.* Æquinoctial.
11					
12					*Arcturus* riſeth in the Evening.
13					
14					
15					
16					
17					
18	5.	45.	6.	15.	*Calf* of the right Leg of *Bootes* riſeth in the Evening.
19					
20					
21					
22					
23					*Spica Virginis* riſes in the Evening.
24					
25	5.	30.	6.	30.	*Lady-Day.*
26					
27					
28					
29					*Second Star* in the Left Wing of *Virgo* riſeth in the Evening.
30					
31					

	Sun-Riſe.		Sun-Set		APRIL 30 Days.
	H.	M.	H.	M.	
1					
2	5.	15.	6.	45.	
3					
4					
5					
6					
7					
8					
9	5.	00.	7.	00.	
10	*Sun* in *Taurus.*				
11					
12					*Caudâ Leonis* Sets in the Morning.
13					
14					
15					
16					
17	4.	45.	7.	15.	
18					
19					
20					
21					
22					
23	St. *George.*				
24					
25	St. *Mark.*				
26	4.	30.	7.	30.	*Vergiliæ,* or the *Pleiades,* riſe with the *Sun.*
27					
28					
29					
30					

This Month uſhers in the welcome Spring, and if it prove dry, is eſteemed ominous of a happy Year for Corn. In this Month and the next ſow all Sorts of French Graſſes, or Hay-ſeed, and if the Weather be temperate, Flax and Hemp. It is alſo the principal Seaſon for Oats, Barley, Peaſe, *&c.* Alſo ſow Carrots, Parſnips, Turnips, Cabbage-ſeeds, Parſley, Skirrets, Onions, Leeks, Garlick, Spinage, Purſlaine, Lettice, Radiſh, Sallery, Smallage, Endive, Succory, Marygolds, with divers other Summer Herbs. You may tranſplant moſt Sorts of Sweet Herbs, and Summer Flowers. Make your hot Beds for Melons and Cucumbers. Dreſs up and ſtring your Strawberry Beds. Uncover *Aſparagus*-Beds, and tranſplant them. Slip and plant Artichoaks, and Liquorice. Plant all Garden-Herbs and Flowers that have fibrous Roots. And ſuch choice Flowers that are not natural for our Climate ſow in Hot-Beds. Now is a good time to plant Madder, and Saffron. As alſo Hops, and to dreſs them up. Sow Pine-kernels and the Seeds of all Winter Greens: Alſo Pinks and Carnations. This is the principal Seaſon for Grafting all Sorts of Fruit-Trees, and cover the Roots of ſuch Trees as you laid open in the Winter. Carry Dung into your Gardens and Orchards. Deſtroy what *Moles* you could not in *February.* It is yet ſeaſonable to ſet Oſiers, Willows, and the like Aquaticks. Lay up your Meadows and Paſtures deſigned to mow, and keep up your Fences. If the Weather be dry, rowl your Wheat. 'Tis a good Seaſon to lop Trees, and fell Coppices. And this is the beſt Seaſon to raiſe the beſt Brood of Poultry.

If the Spring is forward, cleanſe and rid away the Wood from the Coppices, and fence them in, to preſerve them from Cattle. It is now ſeaſonable to Fell ſuch Timber as you intend to bark. If the Seaſon is dry fallow your Ground, cleanſe and ſcour your Ditches, and make haſte to ſow your French Seeds that you could not do in *March*; and you may alſo ſow Hemp and Flax in the Beginning of this Month. Now is a good Seaſon to ſow all Garden Seeds, if the Weather is dry: And when it is wet, plant your Garden Herbs, and ſow ſuch tender Seeds as can't endure the cold Froſts. Sow Cucumbers and Melons; ſet Artichoaks, French-Beans, and Engliſh-Beans. In the Beginning of this Month graft ſome Sorts of Fruit in the Stock. Gather up Snails and Slugs after Evening Showers, as alſo early in the Mornings. Sow your Annual Flowers that come of Seed, that you may have Flowers all the Summer: Alſo ſow the Seeds of Winter-Greens, and tranſplant ſuch Flowers with fibrous Roots as were left unremoved in *March.* You may now ſet forth your tender Greens, that are kept in your Conſervatory in the Winter, except Orange-Trees, and thoſe bring not forth till *May.* Alſo tranſplant and remove your Jaſmines, Myrtles, and the like tender Greens: And towards the End of the Month, if the Weather be mild, clip your Phillyrea, and tranſplant any Sort of Winter Greens. Plant Hops and Pole them. Lay open your *Bees* to gather the Sweets of the Flowers.

	Sun Riſe. H. M.	Sun-Set H. M.	MARCH 31 Days.
1	*Phil.* and		*Cor Scorpionis* Sets in the Morning.
2	*Jacob.*		
3			The Great *Dog-Star* in the Evening.
4			
5			
6	4. 15.	7. 45.	
7			
8			
9			The *Goat-Star* appears.
10			
11	*Sun in Gemini.*		
12			*Aldebran* ſets in the Evening.
13			
14			*Fomahant* riſes in the Morning.
15			
16	4. 00.	8. 00.	
17			Middle Star of *Andromeda's Girdle* ſets with the *Sun.*
18			
19			
20			
21			
22			*Cor Scorpionis* riſes in the Evening.
23			
24			
25			
26	3. 50.	8. 10.	
27			
28			
29			The *Bull's Eye* riſeth with the *Sun.*
30			
31			

	Sun-Riſe. H. M.	Sun-Set H. M.	APRIL 30 Days.
1			
2			
3	3. 45.	8. 15.	
4			
5			
6			
7			
8			The Head of *Caſtor* riſes in the Morning before the Sun.
9			
10	3. 43.	8. 17.	
11	*Barnabas.*		Sun in *Cancer Solſtice.*
12			
13			
14			*Arcturus* ſets in the Morning.
15			
16			*Hydra's Heart* ſets in the Evening.
17			
18			
19			
20	3. 45.	8. 15.	
21			
22			
23			
24	*Jo. Baptiſt.*		
25			
26			
27			
28			
29	*St. Peter.*		The Right Foot of *Gemini* ſets in the Morning.
30	3. 30.	8. 10.	

This oft proves the pleaſanteſt Month in the Year, the Fields and Trees being in their Summer Liveries; and Birds chant out their pleaſant Notes to the welcoming in the Spring.

If this Month proves ſeaſonable and cool, it rejoyceth the Countryman's Heart in expectation of a happy Autumn; but if hot, it denotes Sickneſs to euſue. If your Corn be too rank, mow it, or feed it down, with Sheep.

It is a good time to wean Lambs, whoſe Ewes you intend to milk. Cutting or Croping of Trees, hinders them from thriving.

You may ſow Buck-wheat this Month, as alſo later Peaſe, and ſet later Garden-Beans. Weed your Quickſets. Drain wet and marſhy Grounds.

Turn out your weanling Calves to Graſs. Twi-fallow your Ground, get home your Fewel, cleanſe your Ground from Broom, Furz, Goſs, and the like: And grub up ſuch Coppices and Hedge-rows as you intend ſhould not grow again. Sell off your Winter-fed Cattle, look after your Sheep if the Weather proves rainy, for fear of the Rot.

About the End of the Month mow your Clover, St. Foyn, and other French Graſſes. Plant all Sorts of Winter-Greens.

Sow ſweet Marjoram, Thyme, Baſil, hot aromatick Herbs, and Plants, and ſuch like tender Seeds. Alſo ſet Sage and Roſemary. Sow Purſlaine, and Lettuce; alſo French Beans; and uncover your Melons and Cucumbers, excepting in Glaſſes.

Take up ſuch Tulips as are dried in the Stalk. Watch your Bees ready to ſwarm, and bind up the Hops to the Poles, and make up the Hills after Rain.

This Month is the principal Seaſon for Waſhing and Shearing Sheep: And now begins the Husbandman's Hay-Harveſt in high forward Meadows. Fallow your Wheat-land, which will kill the Weeds, and mellow the Ground. And cleanſe and ſcour your Ponds and Ditches from the Mud, the Seaſon being now warm to endure the Water. Fetch home your Fewel before your Teem is employed in Harveſt Affairs. Weed your Corn, ſow Rape, and Cole-ſeed, as alſo Turnep-Seed. Have a great Care to your Sheep for fear of the Rot, for Mildews, and Honey-dews begin to fall. Gather Snails, Slugs, and Worms, and deſtroy Ants and other Vermin. 'Tis a good time now to inoculate, and to pluck off the Buds where you would not have the Trees branch forth. Water ſuch Trees that you planted late, laying Weeds or Stones at the Roots to keep them moiſt. Plant July-flowers, and Roſemary, ſet Saffron, ſow latter Sallatting. Inoculate Jaſamine, Roſes, &c. gather Seeds that are ripe, and preſerve them that are cool and dry. Water the dry Beds. Take up your bulbous Roots of Tulips, Anemonies, &c. and tranſplant them. Dig ſuch Ground as you deſign for a Hop-ground, and bind ſuch Hops to the Poles that the Wind hath ſhaken off. Be careful of your Bees, this Month being the principal Time of their ſwarming. And now is the time to diſtil Waters, to dry Herbs for the Winter, and to make Syrups, &c.

	Sun-Riſe. H. M.	Sun-Set H. M.	JULY 31 Days.
1			Firſt Star of *Orion's Belt* riſes with the *Sun.*
2	Viſitation of *Mary.*		
3			
4			
5			
6			
7			
8	4. 00.	8. 00.	
9			
10			
11			
12			
13	*Sun* in *Leo.*		*Lucida Corona* riſes in the Evening.
14			
15	St. *Swithin.*		
16			
17			
18	4. 15.	7. 45.	
19	Dog-Days.		
20	*Margaret.*		Leſſer *Dog-Star* riſes with the *Sun.*
21			
22	*Mary Mag.*		
23			
24			
25	*St. James.*		
26			
27			
28	4. 30.	7. 30.	Greater *Dog-Star* riſeth with the *Sun.* *Syrius* riſes in the Morning.
29			
30			
31			

	Sun-Riſe. H. M.	Sun-Set H. M.	AUGUST 31 Days.
1	*Lammas*-Day.		*Orion* appears in the Morning.
2			
3			
4			
5			
6	4. 45.	7. 15.	
7			
8			
9			*Cor Leonis* riſes in the Morning with the *Sun.*
10	*Laurence.*		
11			
12			
13	5. 00.	7. 00.	*Sun* in *Virgo.*
14			
15			
16			
17			
18			
19			
20			
21	5. 15.	6. 45.	
22			
23			
24	*St. Bartholomew.*		
25			*Cauda Leonis* riſes in the Morning with the *Sun.*
26	*Dog-Days* end.		
27			
28	5. 30.	6. 30.	
29			
30			
31			

This Month and *Auguſt* is the Huſbandman's buſie time, Hay Harveſt admitting no delay, eſpecially if fair Weather offers.

Gather your earlieſt Hemp and Flax.

Sow Turnep-Seeds: Towards the latter End of this Month, your Rye will be ripe, eſpecially if the Year is forward.

In this Month Wheat and Hops are much ſubject to Mildews.

It is now very good time to Inoculate choice Fruits, Roſes, *&c.*

Cut off the Stocks of ſuch Flowers that have done Bloſſoming, and cover their Roots with new rich Mould.

Cleanſe your Wall-Fruit from Snails.

Sow latter Sallading. Slip Stocks, and lay July-flowers and Carnations for encreaſe, watering them, and keeping them from the Heat of the Sun; alſo lay Myrtle and other curious Greens.

Graft by approach, and Inoculate Jaſmines, Oranges, *&c.* Tranſplant and remove Tulips, and the like bulbous Roots.

Streighten the Entrance of your Bees, kill the Drones, Waſps, Flies, *&c.* that annoy them.

This Month are the Huſbandman's great Expence for bringing in of his Harveſt; and if it prove dry and free from high Winds, great Part of his Diſburſements will be abated, to Labourers; beſides, the great Advantage gained by having the Corn dry, cut and houſed. You may yet Twy-fallow, and carry on your Dung for your Winter-Corn, laying it in Heaps to be ſpread before the Plough. This is a good Seaſon for gelding of Lambs; and ſuch Ewes and Cows that you deſign not to keep for Store, put to fatting. About the End of this Month you may mow your Rowen, or After-Marth Graſs; alſo your Clover, and other French Graſſes will be fit to cut again. This is a good Month to make Cyder of Summer Fruits that will not keep. The Beginning of this Month is very good to inoculate in, and to unbind the Buds of thoſe before inoculated, if taken Sap. Pull up the Suckers from the Roots of Trees, prune away ſuperfluous Branches from your Wall-Fruit-Trees, but leave not the Fruit bare, except the red Nectarine, which is much meliorated by its being expoſed to the Sun. Set Slips of July-flowers; Tranſplant Flowers and Garden Plants, as Herbs, Strawberries, *&c.* gather Seeds of Flowers and Herbs. Sow Cabbages, Colly-flowers, Turneps, and other Roots and Plants for the Winter, and againſt the next Spring. Alſo ſow ſuch Seeds that will endure the Winter. About *Bartholomew-Tide* is a good Seaſon to tranſplant all Bulbous Roots; as alſo Winter Greens. Gather Hops, look after your Bees, and ſtreighten their Paſſages to ſecure them from Waſps, and thoſe that you intend not to keep, deſtroy for their Honey.

	Sun-Riſe. H. M.	Sun-Set. H. M.	SEPTEMBER 30 Days.
1			
2			
3			
4			
5	5. 45	6. 15	
6			
7			
8	Nativity of		
9	Virg. *Mary.*		
10			
11			*Arcturus* ſets after the *Sun.*
12			*Sun* in *Libra*, Equinoctial.
13	6. 00	6. 00	
14	Holy Croſs.		
15			
16			
17			
18			
19			
20	6. 15	5. 45	
21	St. *Matthew*		
22			
23			
24			
25			*Spica Virginis* is with the *Sun.*
26			
27	6. 30	5. 30	
28			
29	St. *Michael.*		*Pleiades* riſes in the Evening.
30			

	Sun-Riſe. H. M.	Sun-Set. H. M.	OCTOBER 31 Days.
1			
2			*Spica Virginis* riſes in the Morning with the *Sun.*
3			
4	6. 45	5. 15	
5			
6			
7			
8			
9			
10			
11			
12	7. 00	5. 00	
13			
14	*Sun* in		
15	*Scorpio.*		
16			
17			
18	St. *Luke.*		*Cauda Leonis* ſets in the Evening.
19			
20	7. 15	4. 45	
21			
22			
23			
24			
25	*Criſpin.*		
26			
27			
28			
29	7. 30	4. 30	
30			
31			

Gentle Showers are now acceptable for the Mellowing the Earth for the Plough, the Wheat Seed-Seaſon being now; but dry and calm Weather is beſt for the Gathering your Winter-Fruits, now ripe: For, according to Obſervation, ſow Wheat in the Dirt, and Rye in the Duſt. Geld Cattle, put your Boars up to fat, ſew your Fiſh-ponds, beat out Hemp-ſeed, and water your Hemp; gather Maſts, and put your Swine into the Woods; carry out what Dung you have to be ſpread on your Wheat-Land before the Plough.

'Tis a good Seaſon to make Cyder and Perry of ſuch Fruits that will not keep, or ſuch that are bruiſed, or the like, in the Gathering; but let your long-laſting Winter-Fruit hang on the Trees till *Michaelmas.* Sow Cabbages, Colly-flowers, Turneps, Onions, *&c.* and tranſplant ſuch Cabbages and Colly-flowers as are ſown in *Auguſt*; alſo tranſplant Aſparagus-Roots, Artichoaks and Strawberries. Hoe your Turneps, plant Tulips, and other bulbous Roots, that you formerly took up; you may alſo tranſplant all fibrous Roots. Be careful of your choice Plants and Winter-Greens, ſetting them in your Conſervatory.

This Month puts an End to your Gathering and Drying your Hops, cleanſing the Poles from the Hawm, and to ſet them up for the next Year.

Look after your Bees, deſtroy the Waſps, *&c.* ſtreighten the Entrances into their Hives, and deſtroy thoſe that you intend not to keep, taking away their Honey.

This Month proves generally windy, and finiſheth the Fall of the Leaf.

It is yet a good Seed-time for Wheat, and you may ſow your Hotſpurs on rich and warm Ground for a forward Crop.

Lay up your Barly-land dry, water-furrow and drain your new ſown Wheat-Ground.

The Time is ſeaſonable for ſowing of Nuts, Acorns; as alſo other Berries, or Maſts for Coppices or Hedgerows.

Plant Quickſets, and plaſh your Quickſet Hedges. You may alſo begin to ſet Trees.

Wean your Colts foal'd of your working Mares at the Spring, and ſell off ſuch Sheep that you deſign not to keep.

This is a good Time for making Cyder and Perry of your Winter-Fruits, and finiſh the Gathering of ſuch like Fruits.

Sow all Sorts of Fruit-Kernels, Stones and Nuts, as well for Trees as Stocks. Cut and prune Roſe-Trees.

Plant your bulbous Roots of any Sort, and remove Flowers and Herbs with fibrous Roots, if the former Seaſon was omitted.

Plant Hops, and bag up thoſe you dry'd the former Month.

'Tis a good Seaſon for removing Bees.

Trench the ſtiffer Sorts of Ground for Orcharding and Gardening to lie mellow in the Winter: Lay open the Roots of old and unthriving Trees, or ſuch that ſpend themſelves too much, or too ſoon in Bloſſoms.

	Sun-Riſe. H. M.	Sun-Set. H. M.	NOVEMBER 30 Days.
1	*Alhallon-Day*		
2			
3			
4			
5			
6	7. 45	4. 15	*Leonard.*
7			
8			
9			
10			*Vergiliæ*, or the *Seven Stars*, ſet in the Morning.
11	*Martinmas*, Sun in *Sagittarius.*		
12			The *Bull's-Eye* ſets in the Morning.
13			
14			
15			
16	8. 00	4. 00	*Edmond.*
17			
18			
19			
20			
21			
22			
23			*Cor Scorpii* riſes in the Morning.
24			
25			
26	8. 10	3. 50	The *Bull's-Eye* riſes in the Evening.
27			
28			The middle Star of *Andromeda*'s *Girdle* riſes in the Morning.
29			
30			

	Sun-Riſe. H. M.	Sun-Set. H. M.	DECEMBER 31 Days.
1			
2			
3	8. 15	3. 45	Right Foot of *Gemini* ſets in the Morning.
4			
5			The leſſer *Dog-Star* ſets in the Morning.
6			
7			
8			
9			
10			
11			
12	8. 17	3. 43	Sun in *Capricorn*-Solſtice.
13			
14			*Arcturus* ſets in the Evening.
15			
16			
17			*Cor Hydræ* ſets in the Morning.
18			
19			
20	8. 15	3. 45	
21	St. *Thomas.*		
22			
23			
24			
25	*Chriſtmas.*		Right Shoulder of *Orion* riſes in the Evening.
26	St. *Stephen.*		
27	8. 10	3. 50	St. *John* Evangeliſt.
28	*Innocents.*		
29			
30			The Left Foot of *Gemini* riſes in the Evening.
31			

Seed-time is now well over, and the Markets begin to fill with Corn; fat your Swine for Slaugther; caſt out your muſhy Straw in moiſt Places to rot for Dung; plant Timber and Fruit-Trees, if the Weather be open; fell Coppices, and lop Trees; break Flax and Hemp; deſtroy Ant-hills; trench and dig up Gardens, and ſow forward Peaſe; furniſh your Nurſery with Stocks againſt the Spring; prune your Fruit-Trees, and cleanſe them from Moſs. Cyder may be made of hard Fruits, that are not pulpy. Sow Nuts and Fruit-ſtones. If the Weather is open, plant Tulips; alſo Roſes, and ſeveral other Plants and Flowers; and thoſe Seedlings or Layers that are tender ſhould be cover'd with Straw, Mattreſſes, Boxes, or the like: Carry Dung into your Hop-Garden to mix with Earth, to rot againſt the Spring: Lay up Parſnips, Carrots, Cabbages, Collyflowers, *&c.* either for Uſe, or to tranſplant for Seed at the Spring. Cover your Aſparagus-Beds, Artichoaks, Strawberries, and tender Plants with long Dung, or Horſe-litter, to preſerve them from Froſts. Now is a good time to dig up Liquorice.

Now begins the Country-man's chargeable time for houſing his Cattle, or foddering them abroad. Lop Trees, and fell Coppices; plant all Sorts of Trees, as well Fruit as others, provided they are ſuch as ſhed their Leaves; let Horſes Blood, fat Cattle and Swine; deſtroy Ant-hills, over-flow Meadows, and drain your Corn-fields by cutting Water-Furrows. It is a good time to plough for Peaſe or Beans; prune your Vines, if the Weather be open; keep your Aſparagus-Beds cover'd, as directed in *November*; the like obſerve for your Artichoaks and Strawberries: Trench and dig your Garden-Ground, to mellow the Earth againſt the Spring; and, if the Weather be mild, ſow Peaſe and ſet Beans for forward Crops: Set Traps for deſtroying Vermin, and pick the Snails away from your Wall-Fruit-Trees: Dig up Liquorice; feed the Stocks of Bees that are weak, and cleanſe your Hop-Gardens from Weeds.

OF
COCK-FIGHTING:

Which treats of the Choice, Ordering, Breeding, and Dieting of Cocks *for Battle.*

FOR the Perfecting of this Work, ſince many of the Nobility and Gentry delight in this noble Diverſion, I ſhall conclude with a compendious Treatiſe thereof.

CHAP. XVII.

Of the Choice of Cocks.

THE beſt Properties for the Choice of *Fighting Cocks* is their Shape, Colour, Courage, and ſharp Heels or Spurs. As to their Shape, the middle-ſized ones are eſteem'd the beſt, as being ſooneſt and eaſieſt match'd; as alſo the nimbleſt, and generally of moſt Courage; whereas the large ones (called the *Turn-Pock*) 'tis difficult to find their Equal; beſides they are for the moſt part heavy, not ſhewing that Sport in their Battle: Likewiſe the ſmall-ſiz'd ones are weak, and tedious in Battle.

The Shape.

HE ſhould be of a proud and upright Shape, with a ſmall Head, a quick large Eye, with a ſtrong Beak, crook'd and big at the Setting-on, the Beam of his Legs very ſtrong, and according to his Plume, grey, blue, or yellow; his Spurs long, rough and ſharp, a little bending inwards.

His Colour.

THE grey Pyle, yellow Pyle, or red, with the black Breaſt, is eſteem'd the beſt: The Pied is not ſo good, and the White and Dun worſt of all. If he is red about the Head like Scarlet, 'tis a Sign of Strength, Luſt, and Courage; but if pale, 'tis a Sign of Faintneſs and Sickneſs.

His Courage.

HIS Courage is ſhew'd by his Walk, Treading, and the Pride of his Going, and in his Pen by his frequent Crowing: For the Sharpneſs of his Heel, or, as *Cock-Maſters* call it, the *Narrow Heel*, is only ſeen in his Fighting; for that *Cock* is ſaid to be Sharp-heel'd, or Narrow-heel'd, which every time he riſes hits, and draws Blood of his Adverſary, *Guilding* (as they term it) his Spurs in Blood, and every Blow threatning the other's Death. And ſuch *Cocks* are the beſt; for a ſharp-heel'd *Cock*, though he be a little falſe, is deem'd much better than the trueſt *Cock* that hath a dull Heel, and hits ſeldom. But that *Cock* which is both hard, and very ſharp-heel'd, is to be eſteem'd above others; therefore in your Choice chuſe ſuch a one as is of a ſtrong Shape, good Colour, true Valour, and of a moſt ſharp and ready Heel.

Of Breeding.

FOR the Breeding theſe *Cocks* for Battle, it is much different from thoſe of the Dung-hill; for they are like Birds of Prey, in which the Female is of better Eſteem than the Male; and ſo in the Breed of theſe *Cocks* be ſure that the *Hens* be right, that is, they muſt be of a right Plume, as Grey, Griſſel, Speck'd or Yellowiſh. Black or Brown is not amiſs, their Bodies large, and well pouk'd behind for large Eggs, and well tufted on the Crowns, which ſhews good Courage. If they have Weapons, 'tis the better: Alſo they muſt be of a good Courage, otherwiſe their Chickens will not be good. And it is obſervable that the perfect *Hen* from a *Dunghil-Cock* will bring a good Chicken; but the beſt *Cock* from a *Dunghil-Hen* can never get a good one.

Thus having got a Breed of perfect *Cocks* and *Hens*, the beſt Seaſon of the Year to breed in is from the Increaſe of the Moon in *February*, to the Increaſe of the Moon in *March*; for one *March* Bird is of far greater Eſteem than thoſe bred at other times.

Let the Pen where ſhe ſits be placed warm, with ſoft ſweet Straw therein for her Neſt, they being much tenderer than the *Dunghil-Hens*; and permit no other Fowl to come where ſhe ſits, for that will diſturb her. You ſhould obſerve, if ſhe be buſie in turning her Eggs, (being a good Sign;) if not, do it at ſuch times as ſhe riſeth from her Neſt; and be ſure that ſhe hath always Meat and Water by her, leſt when ſhe riſeth ſhe ſhould ſtay long to ſeek Food, and ſo her Eggs would be chill and ſpoil'd. Likewiſe in the Place where ſhe ſits, let there be Sand, Gravel, and fine ſifted Aſhes to bathe and trim herſelf in at Pleaſure.

In about three Weeks ſhe will hatch, and obſerve, that if ſhe doth not cover and keep the firſt warm till the reſt are hatch'd, take thoſe from her, and keep them warm in Wool by the Fire till all are hatch'd; and then put them all under her, keeping both the *Hen* and *Chickens* very warm, not ſuffering them to go abroad in the Cold for three Weeks, or a Month; for they are ſo tender, that Cold will kill them.

Let them have Plenty of Food, as Oat-meal, Cheeſe-parings, fine ſmall Wheat, and the like, and a large Room to walk in, with a boarded Floor; for that of Earth or Brick is too cold or moiſt. After three or four Weeks, let them walk in your Court-yard, or Garden, to pick Worms, provided there is no Sinks or Puddles of ſtinking Water, which is as bad as Poiſon for them to drink, engendring corrupt Diſeaſes.

After this manner keep them until you can know the *Cock-Chickens* from the *Hens*; and when you perceive their Combs or Wattles to appear, cut them off, anointing the Sore with ſweet Butter until well; and this will make them have fine, ſmall, ſlender, and ſmooth Heads; whereas if you let the Combs grow to their Bigneſs, and then cut them off, it will cauſe them to have gouty thick Heads, with great Lumps; neither is the Flux of Blood good, for the leaſt Loſs of Blood in a feather'd Fowl is very dangerous.

Let the *Cock-Chickens* go with their *Hens* till they begin to fight with one another; but then ſeparate them into ſeveral Walks, and that Walk is the beſt that is freeſt from the Reſort of others.

Let the Feeding-place be upon ſoft dry Ground, or upon Boards; for to feed them upon Pavements, or on Plaiſter-Floors, will make their Beaks blunt and weak; ſo that it will hinder their holding faſt. Any white Corn, as Oats, Barley, or Wheat, is good Food for a *Cock* in his Walk; ſo are Toaſts, or Cruſts of Bread ſteep'd in Drink or Wine, for it will both ſcour and cool them inwardly.

If your *Chickens* begin to crow at about ſix Months old clear and loud, or at unſeaſonable Times, it is a Sign of Cowardize and Falſhood, ſo that they are not worth the Rearing; for the true *Cock* is very long before he can get his Voice, and then he obſerves his Hours.

To one *Cock* four or five *Hens* are ſufficient; for they are of ſo hot a Nature, and will tread ſo much, that they ſoon conſume their natural Strength.

At two Years old you may put a *Cock* to the Battle, as not being before perfect and compleat in every Member; for to ſuffer him to fight when his Spurs are but Warts, you may know his Courage, but not his Goodneſs.

You muſt alſo be circumſpect about the Pearch whereon he rooſteth; for if it be too ſmall in the Gripe, or crooked, or ſo ill placed that he cannot ſit without ſtraddling, it will make him uneven heel'd, and by Conſequence no good Striker. Seeing therefore that the Perch is of ſuch Conſequence for the Marring or Making them, the beſt Way is to have a Row of little Pearches, not above ſeven or eight Inches long, and about a Foot from the Ground, ſo that with Eaſe they may go up to them; and being ſet, muſt have their Legs cloſe, the Shortneſs of the Pearch not admitting otherwiſe; and it is a Maxim, *That he that is a cloſe Sitter, is ever a narrow Striker.*

You muſt alſo be careful, that when your *Cock* doth leap from the Pearch, the Ground be ſoft whereon he lighteth; for hard Ground cauſeth Goutineſs.

Of Dieting and Ordering Cocks.

FOR the Dieting and Ordering a *Cock* for the Battle, which is the principal Thing (for the beſt *Cock* undieted is not able to encounter with the worſt that is dieted,) obſerve theſe Directions.

The beſt Time to take up your *Cocks* is about the latter End of *Auguſt*, (for from that Time to the latter End of *May Cocking* is in Requeſt;) and having view'd them well, and that they are ſound, hard-feather'd and full ſumm'd, put them into ſeveral Pens. Now for the true making them, it were convenient to viſit ſome *Cock-Maſter*; for an ocular Sight is far better than a verbal Direction; only let me tell you, it ſhould be made of cloſe Boards well join'd together, all but the Fore-front, which muſt be made open like a Grate, the Bars about two Inches apart, and before the Grate two large Troughs of ſoft Wood, the one for Water, and the other for Meat; the Door of the Grate to be made to lift up and down, and of ſuch Largeneſs, as with Eaſe to put the *Cock* in and out, and to cleanſe the Pen daily to keep it ſweet. The Pen ſhould be at leaſt three Foot high, and two Foot ſquare; of theſe Pens many may be join'd in one Front, according to the Uſe you have for them.

For the firſt three or four Days that they are put into their Pens, feed them only with old Wheat-Bread, the Cruſt pared away, and cut into little ſmall ſquare Bits, with which feed them at Sun-riſing, Noon, and Sun-ſet, giving them about an Handful at a time; and be ſure let them not be without good freſh Water.

After they have been thus fed four Days, and their Crops cleared of the Corn, Worms, and other coarſe Feeding, in the Morning take them out of their Pens, putting a Pair of Hots upon each of their Heels, which Hots are ſoft bumbaſted Rowls of Leather covering their Spurs, that they cannot hurt or bruiſe one another; and ſo ſetting them down (that is, two at a time) on the green Graſs, let them fight and buffet each other a good while, provided they do not wound or draw Blood of each other, and this is called *Sparring of Cocks.* The Reaſon of thus exerciſing them is, to chafe and heat their Bodies, to break the Fat and Glut within them, and to cauſe it to come away.

Your Cocks having Sparred ſufficiently, and that you ſee them pant, and grow weary, take them up, and unty their Hots; then being provided with deep Straw-Baskets made for that purpoſe, with ſweet ſoft Straw to the Middle; put into each Basket a Cock, covering him over with the like Straw to the Top; then put on the Lid cloſe, and ſo let him ſtove and ſweat till the Evening: But before you put him into the Basket, give him a pretty big Lump of ſweet Butter, with white Sugar-Candy, and ſome Roſemary finely chopt, and this Scouring will bring away his Greaſe, and breed Breath and Strength.

In the Evening (about four or five of the Clock) take them out of the Stoving-Baskets, and licking their Heads and Eyes all over, put them into the Pens; then take a good Handful of Bread ſmall cut, put it to each in their Troughs, and Piſs therein, ſo that the Cocks may take the Bread out of the warm Urine, and this will ſcour and cleanſe both their Heads and Bodies extreamly.

The Bread that you muſt now and afterward give them, muſt not be fine White Bread; but a Sort made for that purpoſe, after this manner. Take half a Peck of Wheat-Meal, with the like Quantity of fine Oatmeal; mix theſe together, and knead them into a ſtiff Paſte with Ale, the Whites of twelve Eggs, and half a Pound of Butter. This Paſte being well wrought, make it into broad thin Cakes, and being three or four Days old, and the Bliſterings cut away, cut it into little ſquare Bits, and ſo give it the Cocks. There be ſome that will mix in the ſaid Bread Liquorice, Anniſeeds, with other hot Spices; but this is not good, as making them too hot at Heart, ſo that when they come to the latter End of a Battel, they are overcome with their Heat.

Having fed your Cocks thus all the Night after their Sparring, the next Day let them reſt, only give them their ordinary Feedings of Bread and Water; then the next Day (which is the ſecond Day after their Sparring) take them into a fair even green Cloſe, there ſet down one of them, and having a Dung-hill Cock in your Arms, ſhew it him, running from him, enticing him to follow you; and ſo chaſe him up and down for about half an Hour, ſuffering him now and then to have a ſtroak at him; and when you ſee him well heated and panteth, take him up and carry him to his Pen, the like do with the reſt, and there give him this Scouring: Take freſh Butter (that is, without Salt) half a Pound; beat it in a Mortar, with the Leaves of Herb Grace, Hyſſop, and Roſemary, until the Herbs are incorporated therein, and that the Butter is brought to a green Salve, and of this give the Cock a Rowl or two, as big as he can well ſwallow; then Stove him in the Basket, as aforeſaid, until the Evening; then take him out, put him in his Pen, and feed him as before directed.

The next Day let him reſt and feed, and the Day following ſpar him again; and this Method obſerve every other Day for the firſt Fortnight to ſpar, or chafe him, as being the moſt natural and kindlieſt Heats; but forget not to give him a Scouring after every Heat as aforeſaid, for the breaking and cleanſing him from Greaſe, Glut, and Filth, which lying in his Body cauſeth Purſineſs and Faintneſs, ſo that he can't ſtand out the latter End of a Battel.

Thus having fed your Cock the firſt Fortnight, obſerve the ſame Rules the next Fortnight; but for a Week do not ſpar him, or give him Heats, above twice a Week, ſo that three or four times in the Fortnight will be ſufficient; and each time ſtove and ſcour him according to the nature of his Heats, long Heats requiring longer Stoving, as alſo greater Scouring. But if you find him in good Breath, and that he requires but ſlight Heats, then ſtove him the leſs, and give him the leſs Scouring.

For the third Fortnight, which compleats the ſix Weeks (which is ſufficient to prepare a Cock for Battel) feed him as aforeſaid; but ſpar him not at all for fear of making his Head tender and ſore, neither give him any violent Exerciſe, but only two or three times in the Fortnight, let him moderately be chaſt up and down to maintain his Wind; and now and then cuff a Cock, which you muſt hold to him in your Hands; which done give him his Scouring, well roul'd up in Powder of Brown Sugar Candy; for the Cock being now come to his perfect Breath, and clear from filth in his Body, the Sugar Candy prevents that Sickneſs which the Scouring would then cauſe, and alſo ſtrengthens Nature againſt the Medicine.

Matching and Fighting Cocks.

THE ſix Weeks Feeding being finiſhed, and finding your Cock in Luſt and Breath, he is fit to Fight; always obſerving that he have at leaſt three Days Reſt before Fighting, and be well emptied of Meat before you bring him into the Pit.

Being brought into the Pit, your chief Care muſt be in the Matching him, in which conſiſts the greateſt glory of a Cock-Maſter; therefore in your Matching there are two things to be conſidered, *viz.* the Strength of Cocks, and the Length of Cocks; for if he be too ſtrong, he will over-bear your Cock, not permitting him to riſe, or ſtrike with any advantage; and if he be too long, your Cock ſhall hardly catch his Head, ſo that he can neither endanger Eye, nor Life. Now for the knowledge of theſe there are two Rules; as for his Strength, 'tis known by the Thickneſs of his Body, that Cock being held ſtrongeſt which is largeſt in the Garth, which may be eaſily known by the meaſuring him with your Fingers; and as for his Length, 'tis as eaſily known by griping him about the Middle, cauſing him to ſtretch forth his Legs; but if you doubt loſs in the one, yet are ſure to gain in the other, you may venture a Match.

Your Cock being match'd thus, prepare him to the Battle: Firſt, with a pair of fine Cock-Sheers, cut off all his Mane cloſe to his Neck, from his Head to the ſetting on of his Shoulders; then clip off all the Feathers from his Tail cloſe to his Rump, which the more Scarlet it appears, the better eſtate of Body he is in: Then take his Wings, extending them forth by the firſt Feather, clip the reſt ſlopewiſe with ſharp Points, that in his riſing he may endanger the Eyes of his Adverſary; then with a ſharp Knife ſcrape ſmooth, and ſharpen his Beak; and alſo ſmooth, and ſharpen his Spurs: And laſtly, ſee that there be no Feathers about the Crown of his Head for his Adverſary to take hold of, and then with your Spittle moiſten his Head all over, and ſo turn him into the Pit to try his Fortune.

The Battle being ended, your firſt Buſineſs muſt be to ſearch his Wounds, and ſuch as you find, ſuck out the Blood with your Mouth; then waſh them with warm Urine to keep them from rankling, and preſently give him a Bit or two of your beſt Scouring, and ſo Stove him up as hot as you can for that Night; and in the Morning take him forth, and if you ſee his Head much ſwell'd, ſuck the Wounds with your Mouth as aforeſaid, and bathe them with warm Urine. Then having the Powder of the Herb *Robert* well dried and finely ſifted, Pounce all the Sore places therewith, and give him a good Handful of Bread to eat out of warm Wine, and then put him into the Stove again, as before directed, being very careful that no Air come to him till the Swelling is gone; but twice a Day ſuck and dreſs his Wounds, feeding him as aforeſaid.

But if your Cock hath received any Hurt in his Eye, then take a Leaf or two of right Ground-Ivy, that is, ſuch as grows in little Tufts in the Bottom of Hedges; chew this in your Mouth very well, ſucking out the Juice, which ſquirting into his Eye two or three times will ſoon cure it, provided the Sight is not pierced; and it will alſo preſerve the Eye from Films, Haws, Warts, *&c.*

If your Cock hath Veined himſelf either by narrow Striking, or other croſs Blow, find out the Wound, and preſently bind unto it the ſoft Down of a *Hare*, and it will both ſtanch it, and cure it.

After your wounded Cocks are put forth to their Walks, as being fit to go Abroad, and when you come to viſit them in about a Month or two after, if you find any hard ſwelling Bunches about their Heads, blackiſh at one End, 'tis a ſign of unſound Cores; and then with a ſharp Pen-knife open them, and cruſh out the ſaid Cores; then ſuck out all the Corruption, and fill the Holes with freſh Butter, which will perfect the Cure.

And thus much for Cock-fighting.

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THE LAWS OF THE FOREST and GAME:

AND ALSO,

Of *Hunting*, *Hawking*, *Fiſhing*, and *Fowling*,

According to the

Common and Statute-Laws

OF

ENGLAND.

In the *SAVOY*,
Printed by *J. Nutt*, Aſſign of *Edward Sayer* Eſq; for *R. Bonwick*, *W. Freeman*,
T. Goodwin, *J. Walthoe*, M. *Wotton*, *S. Manſhip*, *J. Nicholſon*, *R. Parker*,
B. Tooke, and *R. Smith*. M.DCC.IX.

THE
LAWS
OF THE
FOREST and GAME, &c.

The Introduction, with relation to Mr. *Manwood*'s Laws of the Foreſt.

IT muſt with Reſpect be acknowleged, That the Treatiſe, compoſed by the Judicious Mr. *Manwood*, relating to the Laws of the Foreſt, is an elaborate and excellent Collection (eſpecially the Third Edition thereof, printed in 1665, with ſome References from the Judicious Lord *Coke*'s, 4 *Inſt. chap.* 73. *&c.* is the moſt compleat which hath hitherto been publiſh'd on that particular Subject) and therefore deſervedly and principally to be choſen as the Ground-Work, from whence to gather the beſt Information concerning a Foreſt, it's peculiar Liberties and Juriſdictions, according to the *Engliſh* Conſtitutions thereof: Wherein alſo will evidently appear the Nature, Laws and Privileges of a Free Chaſe, Park, and Warren.

Further Additions from 4 *Co. Inſtitut. chap* 73.

However, in this Diſcourſe, ſeveral Matters relating to the very Conſtitution of Foreſts, and Privileges of *Purlieus*, and the Owners thereof (for what Reaſon I know not) neglected or rejected in the laſt Edition of Mr. *Manwood*'s Book, are inſerted as they are collected from that moſt excellent Treatiſe of *The Courts of the Foreſt*, in 4 *Co. Inſt. chap.* 73. Which you may pleaſe to obſerve, eſpecially at the End of the Diſcourſe of *Purlieus*; and in the Reſolutions and principal Notes of the Aſſizes, *&c.*

Of the Antiquity of Foreſts.

Of the Antiquity of our *Engliſh* Foreſts.

IN Mr. *Manwood*'s Preface to the Subject Matter of his Book, laſt publiſhed, and elſewhere, in the Body thereof is plainly demonſtrated, That Foreſts have been in this Realm from the Firſt Time it was Inhabited; for that 'tis recorded of *Gurguntius*, the Son of *Belyn*, being a King of this Land, That he did make certain Foreſts in *Wiltſhire*, as alſo divers Kings and Princes ſince his Time in other Places: Which Foreſts they have always maintain'd and preſerv'd (with divers Privileges and Laws belonging to the ſame) as Places of Pleaſure and Delight for their Recreation.

They had their Original and Privileges at the King's Pleaſure.

The incertainty of the Laws thereof, until King *Canutus*.

That Offenders entring and treſpaſſing in thoſe Privileged Places, were ſeverely puniſh'd at the King's Will and Pleaſure, and not by any Law certain; for that until the Time of King *Canutus* the *Dane*, which was about the Year 1016, the former Laws were altogether uncertain: Wherefore *Canutus*, for the better Preſervation of ſuch Places, privileged for the Prince's Pleaſure, did eſtabliſh certain Laws, ſet forth in 34 Canons, relating only to Foreſts.

Who gave Liberty to Freemen to hunt in their own Grounds.

By the 30th Canon whereof, it appears, That before that Time all wild Beaſts were the King's, whereſoever they were out of the Foreſt: And therefore that King made this Law, *viz.* That every Freeman might have his own Vert or Veniſon in his own Plains upon his own Ground, without the Chaſe, ſo that they did refrain from the King's Game whereſoever he ſhould pleaſe to have it.

Yet the Lord *Coke*, in 4 *Inſt.* 320. ſuppoſes the true Law to be otherwiſe, and to this Effect, *viz.*

As well in Fields as in Woods.

Alſo moreover I grant, That every one in their own proper Privileges may hunt wild Beaſts, as well in Fields as in Woods, *&c.* and ſaith, this differs much from the other, in Two Reſpects; 1. That the true Law extends as well to Woods as to Plains, the other only to Plains. 2. That by this they may hunt, by that they cannot.

Confirm'd by King *Edward* the *Confeſſor*.

That King *Edward* the *Confeſſor* did confirm this Canon, and ſo both the ſaid Kings did grant this Law, That thereafter it ſhould be lawful for every Subject to enjoy the Benefit of his own Hunting that he could any way take in his own Land, or his own Woods or Fields; but ſo as he ſhould refrain from hunting the King's wild Beaſts in his own Foreſts, and privileged Places for them, upon Pain of the Loſs of ſuch Offender's Life.

Upon Penalty of Life, to forbear the King's Game.

Alſo confirm'd by ſeveral ſucceeding Kings.

And it alſo further appears, that *William* the Conqueror, *William Rufus*, and King *Henry* the Firſt, did ſeverally confirm theſe Laws; and, after them, King *Stephen* and King *Henry* the Second did confirm the ſaid Laws of the Foreſt in moſt Things, and that it appears further in the firſt Book of King *Henry* the Second's Laws.

The King's Power to create a Foreſt.

That the King then might (and yet he alſo may) make a Foreſt in every Place where he pleaſeth, as well in the Lands and Inheritance of any of his Subjects, as in his own Demeſn Lands and Inheritance. And thereupon many ſuch Lands were afforeſted, not only to the great Prejudice of the Subjects by lying open, but alſo to their great Puniſhment, and that many Time for a ſmall Offence, if they acted againſt the Aſſizes or Laws of the Foreſt; and the Forfeitures for the ſame were according to the Will and Pleaſure of the King. And this Courſe of Law continued during the Reigns of King *Henry* the Second, King *Richard* the Firſt, and likewiſe of King *John*, until King *Henry* the Third, who gave a Remedy, and moderated theſe Laws by his Charter of the Liberties of the Foreſt.

And ſeveral Lands afforeſted after King *Hen.* II.

The Inconvenience.

Remedy thereof by the Charter of K. *H.* III.

Confirm'd by King *Edward* I.

Which Charter was afterwards confirm'd and enlarged by King *Edward* the Firſt, his Son, for pacifying the Commonalty of this Realm, that then were much grieved at this Miſchief; the greateſt Part of the Realm being then become Foreſt.

So Lands diſafforeſted again.

Wherefore by the Charter of the Foreſt, *Article* the Firſt, 'tis provided, That all Foreſts that King *Henry* the Grandfather had made of the Lands of any of his Subjects, which were not the King's own Demeſn Lands, ſhould be diſafforeſted again.

The King's Demeſn Lands excepted.

And by the third Article of the ſaid Charter there is a Proviſion, That all ſuch Foreſts which King *Richard* the Firſt, and alſo King *John*, had afforeſted, and made of the Lands or Woods of any of his Subjects, being not the Demeſn Lands of the Crown, ſhould be diſafforeſted again. And ſince that Time, what Things have been thought overhard or ſharp, have been further moderated by ſeveral ſubſequent Statutes.

Remedy by ſubſequent Statutes.

The Two lateſt remaining Foreſts.

So that it ſeems there is no Foreſt now remaining that was made ſince the *New Foreſt* in *Hampſhire*, (which nevertheleſs was made a Foreſt in the Time of King *William* the Conqueror) the Foreſt of *Hampton-Court* only excepted: Which alſo appears to have been made a Foreſt by Act of Parliament, *Anno* 31 *Hen.* 8.

Sixty nine Foreſts in *England*.

And by *Manw. L. For. pag.* 70. *in Marg.* it's obſerv'd, The other Foreſts in *England*, which appear to be about 67, are ſo ancient, that no Record maketh Mention when any of them were erected. *Vide* 4 *Co. Inſt.* 319.

Grant of a Foreſt to a Subject.

And here it may be noted, That no Subject can have and enjoy a Foreſt as ſuch, without ſpecial Grant from the King under the Great Seal of *England*, it being *jus Regale* peculiar only to the Imperial Crown and Dignity, as to a Sovereign Prince. (*Of which, ſee after.*)

Foreſt by Common Law, when.

Though it may ſeem, that before the Statute 22 *Ed.* 4. which was in the Negative, a Subject might have a Foreſt by the Common Law. *Vide Man. L. For.* 27. *in Marg. & idem. pag.* 73. Yet,

Quo Warranto, againſt ſuch as make a Chaſe, *&c.* without the King's Grant.

Idem. pag. 56. It is obſerved from *Bracton, Lib.* 2. *cap.* 1. *nota* 2. *Bro. Action ſur le Statut.* 48. *Quo Warranto* 7. That it is not lawful for any Man in *England* to make any Chaſe, Park or Warren, in his own Freehold, or elſewhere, to keep or preſerve any wild Beaſts, or Birds of Foreſt, Chaſe, Park or Warren, in it, without the King's Grant or Warrant, otherwiſe the Offender may be puniſh'd by *Quo Warranto*, and the Franchiſe ſeized into the King's Hands.

Lord *Coke*'s Opinion, That the King could not make Foreſts in other Men's Woods.

It is alſo noted by the Lord *Coke*, 4 *Inſt.* 300. That whereas *Henry* II. claimed, that he might make Foreſts, not only within his own Woods and Grounds, but in the Woods and Grounds of his Subjects; and thereupon made divers ſuch Foreſts within his own and other Mens Woods and Grounds. Whereupon ſome Readers and others that have followed them, are of Opinion, That *Henry* the Second might *de jure* do that which he did. But he adds, That the Act of *Carta de Foreſta,* For diſafforeſting thoſe Foreſts, which is but a Declaratory Law, reſtoring the Subject to his former Right, is directly againſt that Conceit in the firſt and third Articles or Chapters thereof. By this Charter alſo, all manner of Commons are ſaved to others.

Or Grounds.

And therefore he concludes, 297. That neither could *Henry* the Second, or any other King, have made or raiſed a Free-Chaſe, Park or Warren, for Himſelf, in any of the Grounds of the Subjects: According to *Plow. Com. Lord* Berkley's *Caſe.*

Tho' ſuch a Foreſt may be good by Preſcription.

Yet he ſeems to agree, That a Foreſt may, by Preſcription, be good in Law over other Men's Grounds: And that the King, in his own Grounds, may make a Foreſt at this Day; which is prov'd by the Two afore-mention'd Chapters, for that ſuch Foreſts are thereby ſaved and enacted to ſtand.

That *Hampton-Court* Foreſt was made by Agreement, &c.

He further inſtances the Foreſt at *Hampton-Court*, intended to be made by King *Henry* the Eighth. And that the King finding He could neither make Foreſt or Chaſe over other Mens Grounds without their Conſents, He came to an Agreement with the Owners, by Indenture, (as if 'twere to make a Chaſe; but afterwards, in cloſe Words, That it ſhould have the like Liberties, &c. as any Free-Chaſe or Foreſt within this Realm had, &c.) and granted them ſeveral Recompences and Privileges: Which paſſed into an Act of Parliament, 31 *Hen.* 8. *cap.* 5. By which Act, and divers General Clauſes referring to Foreſts, the King intended to have it a Foreſt.

And that the King, without Conſent, cannot erect a Foreſt, &c.

But that hereby it plainly appeareth, both by the King's ſaid Indenture, and by the Judgment of the whole Parliament, that the King could neither erect any Chaſe or Foreſt over any Mans Grounds, without their Conſent and Agreement; and that yet King *Henry* the Eighth did ſtand as much upon his Prerogative, as any King of *England* ever did.

The Deſcription of a Foreſt, Free-Chaſe, Park and Warren.

Deſcription of a Foreſt.

A Foreſt, is briefly deſcribed to be a certain open Territory or Circuit of Woody Grounds, great Coverts of Vert, and Fruitful Paſtures, appointed and ſet apart, at the King's Command, by Marks, Meers and Boundaries, repleniſh'd with wild Beaſts of Venery or Chaſe, with Privilege for them, and the Fowls of Foreſt, Chaſe and Warren, therein to reſt and abide, under the ſafe Protection of the King, for his Princely Pleaſure and Delight.

The Soil, Boundaries and Game.

Laws and Privileges, &c.

For the Preſervation and Continuance whereof, there are certain Laws, Privileges, Courts, Judges and Officers, proper and peculiar to a Foreſt, and not to any other Place.

The Special Properties of a Foreſt.

The Properties of a Foreſt in Special, are theſe:

I. *Firſt*, a Foreſt, as it is truly and ſtrictly taken, cannot be in the Hands of any but the King, becauſe none hath Power to grant Commiſſion to a Juſtice in Eyre for the Foreſt, but the King.

II. The *Second*, relates to the Courts of Juſtice, Seat and Swainmote, belonging to a Foreſt.

III. The *Third*, has Reſpect to the Officers thereof.

How a Foreſt may be in the Hands of a Subject.

Vid. Cowel's Interpreter, *Verb. Foreſt*; and it there appears, that he gather'd this from Mr. *Manwood's Foreſt-Laws*, which was firſt printed and publiſh'd, of Two Parts, in the Reign of Queen *Elizabeth.*

But ſee after, how the ſame may be a Foreſt in the Hands of a Subject.

Eight Things whereof a Foreſt conſiſts.

Wherefore it's ſaid, a Foreſt doth conſiſt of Eight Things; *viz.* 1. Of Soil. 2. Covert. 3. Laws. 4. Courts. 5. Judges. 6. Officers. 7. Game. 8. Boundaries: And that the Marks, Meers and Boundaries thereof, are either known by Matter of Record, or elſe by Preſcription.

Neceſſary Officers belonging to a Foreſt.

And it is further noted, That a Foreſt muſt of Neceſſity have theſe Officers, *viz.* A Steward, Verderors, Foreſters, Regardors, Agiſters and Woodwards: Alſo, that the Swainmote is no leſs incident to a Foreſt, than the Court of Pyepowders to a Fair; yet that a Swainmote-Court doth not make it a Foreſt, but that a Juſtice-Court doth only make it ſuch.

Concerning a Free open Chaſe.

The Franchiſe, next in Degree to a Foreſt, is a Free Chaſe, reſembling a Foreſt, in that it is alſo an open Place, and privileged for the Game, and differ-

How it differs from a Foreſt and Park.

ing only from a Park, in that the latter is incloſed: Yet it farther differs from a Foreſt, as to the Offices and Officers thereunto belonging, and the Puniſhment of Offences therein committed.

Chaſe may be in the Hands of a Subject. *Aliter*, of a Foreſt. *Sed vide poſtea.*

Vide Cowel's Interp. verb. Chaſe; where he alſo obſerves from the ſaid Book of Mr. *Manwood*, of Two Parts, That a Chaſe differeth from a Foreſt in this, becauſe it may be in the Hands of a Subject, which a Foreſt, in it's proper and true Nature, cannot; and from a Park, in that it is not incloſed, and hath not only a larger Compaſs, and more Store of Game, but of Keepers alſo, and Overſeers: And it is ſaid, *Chaſea eſt ad communem Legem. Vide poſtea.*

As to the Beaſts.

It alſo differs from a Foreſt as to the kind of Beaſts therein: For as the Beaſts of the Foreſt are ſaid to be theſe Five, *viz.* The Hart, Hind, Hare, Boar, and Wolf; ſo thoſe of a Chaſe are Five of another kind, *viz.* The Buck, the Doe, the Fox, the Martron, and the Roe.

As to the Officers.

Courts.

Puniſhments of Offenders.

Neither hath the Chaſe ſuch Officers of Note as the Foreſt, *viz.* Verderors, Regardors or Rangers, Foreſters and Agiſtors, but only Keepers and Woodwards: Nor hath it any Courts of Attachments, Swainmote, nor Juſtice-Seat, as hath a Foreſt; alſo the Offenders in a Chaſe are puniſhable by the Common Law, and not by the Foreſt Law, nor by any other Law that is proper to a Chaſe only: And laſtly, Chaſes, that never were any Foreſts, cannot have any Purlieus or Porallees, (that is to ſay) Woods and Lands adjoining, which were diſafforeſted and ſevered from the Old Foreſts by the Perambulations.

A Park is incloſed.

As the Chaſe is next in Degree to a Foreſt, ſo a Park is next in Degree to a Free Chaſe, and differing from it only by Incloſure, as before obſerved. And thoſe Officers which are called Keepers in a Park or Chaſe, are like to thoſe which in a Foreſt are term'd Foreſters.

Park Keepers.

It is obſerv'd from *Hob. Rep.* 39. That a Foreſt and Park, as they are Liberties, are Things incorporeal.

> *Note:* It's ſaid, a Park muſt be incloſ'd, and may not lie open; for if it do, it is a Cauſe of Seiſure of the ſame into the Hands of the King, as a Free Chaſe is, if it be incloſed. *Vide Cowel's Interp. verb. Park.* And this he cited from Mr. *Manwood*, *Part. prin.* 149.

A Free Warren.

The Game, &c.

The next Franchiſe in Degree unto a Park, is the Liberty and Franchiſe of a Free Warren. The Beaſts and Fowls whereof are ſaid to be Four, *viz.* The Hare, the Coney, the Pheaſant and the Partridge, and no other, (being ſuch as may be taken by Long-winged Hawks.) That for the moſt part there are no Officers in a Warren but the Maſter of the Game, or the Keeper; and that there is no Neceſſity of incloſing the ſame, as there is of a Park. *Cow. Interp. Verb. Warren*, cited from the Firſt Part of Mr. *Manwood*.

How a Foreſt may comprehend in it a Chaſe, a Park, and a Warren.

And that becauſe a Foreſt in Dignity is both the higheſt and the greateſt Franchiſe, ſo it doth comprehend in it, a Chaſe, a Park, and a Free Warren; for which Reaſon, the Beaſts of the Chaſe, and Beaſts and Fowls of Warren, are as much privileged within a Foreſt, as the Beaſts of the Foreſt are, every Foreſt being in it ſelf a Chaſe, tho' a Chaſe be not a Foreſt, but a Part of it: And the like may be ſaid of a Park or Warren. For which Reaſon, the Hunting, Hurting or Killing, any of the Beaſts or Fowls of Chaſe, Park or Warren, within the Limits of the Foreſt, is a Treſpaſs of the Foreſt, and to be puniſh'd only by the Laws of the Foreſt, and not otherwiſe.

Preſcription for a Warren or Park within a Foreſt.

> *Note*, It was reſolv'd, That a Man may preſcribe for a Warren for Conies within a Free Chaſe, alſo for a Park within a Foreſt. *Vide Manwood, L. F. laſt pub. pag.* 90.

Chacea eſt ad communem Legem.

Vide 4. *Co. Inſt.* 314. *Chacea eſt ad communem Legem*, and is not to be guided by the Foreſt Laws, and ſo are Parks. *Regiſt.* 8. *b.*

A Man may have a Free Chaſe, as well as a Warren or Park, in his own Grounds.

Id. Co. Inſt. 318. That a Man may have a Free Chaſe, as belonging to his Manor, in his own Woods, as well as a Warren or Park in his own Grounds; for the Chaſe, Warren and Park, are Collateral Inheritances, and not iſſuing out of the Soil, as the Common doth. And therefore if a Man hath a Chaſe in other Men's Grounds, and after purchaſe the Grounds, the Chaſe remaineth. *Reg. Judic.* 35, 36. *Dyer*, 16 *Eliz.* 326, 327.

How a Foreſt is bounded.

By Rivers, Highways, Hills, &c.

And altho' a Foreſt doth lie open, and not incloſ'd with Hedge, Ditch, Pale, or Stone Wall, as Parks are, (tho' there be ſeveral particular Woods and Grounds incloſed therein); yet in the Eye of the Law, the Marks, Meers and Boundaries thereof, go round about it, as it were a Brick-Wall, directly in a Right Line from the one of them to the other, and are uſually of ſuch Things which cannot be removed or taken away; as Rivers, Highways, Hills, and ſuch-like; and ſometimes great Trees, that are notably known, are made uſe of for want of other Meers and Boundaries.

Where the Boundaries are known by Matter of Record.

Alſo theſe Boundaries are known, either by Matter of Record, or elſe by Preſcription; and they are known by Matter of Record, upon the ſeveral Perambulations thereof, made in the Time of K. *Edward* the Firſt, becauſe of the Diſafforeſtations of thoſe Afforeſtations made by King *Henry* the Second, King *Richard* the Firſt, and King *John*, as is before obſerv'd.

Where they are known by Preſcription only.

But all ſuch Foreſts as were ancient Foreſts before the Time of King *Henry* the Second, (whereof there were no ſuch Perambulations made, becauſe the Inhabitants thereabouts had no ſuch Cauſe to complain of any ſuch new Afforeſtations,) have their Marks, Meers and Boundaries, known by Preſcription only; and there is no Matter of Record to be found whereby to know them.

All the Boundaries, *&c.* are intirely the King's.

And it is to be farther obſerv'd, That all the Meers and Boundaries of the Foreſt are, according to the Aſſizes of the Foreſt, *Ann.* 6 *Ed.* 1. intirely the King's, and Parcel of the Foreſt, except in ſome particular Caſes; as where they do conſiſt of ſuch Things as the King hath no Intereſt in; as if a Dwelling-Houſe, Mill, or ſuch-like, be a Meer, or Mark of the Foreſt, yet the King will not thereby have any Intereſt in the ſame. And, 4 *Co. Inſt.* 318. That all the Meers belong to the King: *Quoad Juriſdictionem & Imperium & non quoad Dominium.*

Exception.

None may fiſh in a River that is a Boundary.

Yet by the Aſſizes of *Pickering*, *Ann.* 8 *Ed.* 3. it was adjudged, That no Perſon might Fiſh in any River that is a Boundary or Meer of the Foreſt, without Warrant, becauſe it is Parcel of the Foreſt, and the King's, as being a Meer of the Foreſt: 4 *Co. Inſt.* 318. Nor hunt or kill the King's Deer in a Highway, being an incluſive Boundary, though the State or Intereſt of the Soil be in other Men.

How the Limits, *&c.* ſhall be according to *Stat.* 17. *Car.* 1. 16.

And by *Stat.* 17. *Car. Prim. cap.* 16. The Limits, Meers and Bounds of all Foreſts, ſhall be taken, adjudged, and deemed to extend no farther than they were commonly reputed, known, uſed, or taken to be, *&c.* in the Twentieth Year of King *James*, and not beyond in any wiſe; any Perambulations, Preſentments, Extents, Surveys, Judgments, Records, Decrees, or other Matter or Thing to the contrary notwithſtanding. *See the Statute at Large.*

Of the Regard of the Foreſt, and the Difference between the Words [*Within the Regard of the Foreſt,*] and [*Within the Limits,* &c. *of the Foreſt.*]

And whereas in the Aſſizes and Cuſtoms of the Foreſt, *Ann.* 6. *Ed.* 1. *Art.* 3. it is ſaid, That if any Perſon ſhall be found felling an Oak out of the Demeſn Wood, and within the Regard of the Foreſt, without the View or Delivery of the Foreſter or Verderor, he ſhall be attached by Four Pledges, *&c.*

Attachment, *contra Vadios & Plegios.*

> Here the Words, *Within the Regard of the Foreſt*, ſhall be underſtood *within the Limits of the Foreſt*; but it is quite otherwiſe in the Fifth Article of the ſame Aſſizes and Cuſtoms; where it is ſaid, 'If any Man 'ſhall be found Attachable, contrary 'to his Sureties and Pledges, (that 'is, when he has been bound to 'his good Behaviour towards the 'Foreſt, and afterwards offends in 'the like Nature,) he ſhall be diſtrained by his Chattels found 'within the Bounds or Limits of 'the Foreſt:' By which it appears, that ſuch a Perſon may have Chattels diſtrainable within the Bounds and Limits of the Foreſt, which are nevertheleſs out of the Regard of the Foreſt: As if ſuch Chattels or Cattle were remaining in certain Woods or Grounds, that the King by ſome Charter hath exempted to be free from the Burthen and Charge of the Foreſt: So that although they are within the Bounds of the Foreſt, yet they are out of the Regard thereof.

Chattels Diſtrainable in the Foreſt, may be out of the Regard thereof.

When divers Woods, *&c.* were exempted out of the Foreſt.

And this may appear by the Perambulations made of the Foreſts in *Edward* the Firſt's Time, when divers Woods, *&c.* within the Limits and Bounds of the Foreſt, were exempted out of the Regard of the Foreſt: So that there happens to be ſometimes, Towns, Parks and Woods, which lie within the Bounds and Limits of the Foreſt, which notwithſtanding are no Part of ſuch Foreſt, nor within the Regard there, as *Walwood* in *Eſſex* formerly was, being within the Foreſt of *Waltham.* And likewiſe *Havering* Park, which is within the Meers and Bounds of the ſaid Foreſt of *Waltham*, yet out of the Regard of the ſame, and not any Part thereof.

And therefore out of the Regard.

Lands, *&c.* Part of a Foreſt, are within the Regard.

Aliter, If no Part, though within.

So that all ſuch Franchiſes, Lands or Woods, that be any Part of a Foreſt, are within the Regard of the ſame: And all ſuch as are within the Meers and Bounds of a Foreſt, and are no Part thereof, are out of the Regard of the Foreſt: And this is the Meaning of the Diſtinction to be made of the Words, *Within the Regard of the Foreſt*; *Within the Limits or Bounds of the Foreſt*; and, *In the Foreſt.*

Concerning a *Purlieu* or *Pourallee* of the Foreſt.

A *Purlieu* or *Pouralle* of the Foreſt, is a Circuit of Ground adjoining to the Foreſt, circumſcribed likewiſe with immovable Boundaries, known only by Matter of Record; which Compaſs of Ground was once Foreſt, and afterwards diſafforeſted, by the Perambulations made for that Purpoſe, for all the Woods and Lands as were afforeſted by *Hen.* 2. *Rich.* 1. or King *John*, and by the Perambulations ſevered from the antient Foreſts, were, and yet are, called *Pourallees*, *viz.* Woods and Lands ſevered from the old Foreſts, and diſafforeſted by Perambulation; *Pourallee* in *French* being the ſame as *Perambulatio* in *Latin.*

Land diſafforeſted and ſevered by the Perambulations.

Yet not ſo, but they ſtill may be made Foreſts again.

Yet notwithſtanding ſuch diſafforeſting by Perambulations, whereby the ſame became *Pourallee* or *Purlieu*, they were not thereby ſo diſafforeſted as to every Man, but chiefly as to the Owners; ſo that the ſame remain Foreſt ſtill, as to all thoſe that have no Property

By Conſent.

perty to the Land therein, for the Owners of the Woods and Lands therein may ſuffer the *Pourallee* to remain Foreſt ſtill, if they be ſo minded to have Common, *&c.* within the Foreſt; of which, more hereafter.

Of Waſte, Aſſart, and Purpreſture of the Foreſt.

Waſte in the Foreſt, what it is, and how puniſhable.

Seizure and Fine.

HERE Waſte is taken in the ſame Senſe that Spoil is: For a Waſte of the Foreſt is as much by common Intendment, as to ſay, a Spoil of the Coverts or Paſture of the Foreſt. *Manw.* 153. For this Offence, the whole Wood or Place waſted, is to be ſeized into the King's Hands, and ſo remain, till the Owner in his Life, or his Heir after his Death, ſhall replevy it, and make his Fine to the King. *Id.* 151.

An Aſſart, what it is, and how puniſhable.

When by the Owner, *&c.*

Seizure and Fine.

Impriſonment, *&c.*

Until he makes Fine.

And whereas a Waſte in the Foreſt is but the felling or cutting down of the Coverts, which may grow again, and become Coverts in time: An Aſſart, is a plucking up thoſe Woods by the Roots that are Thickets or Coverts of the Foreſt (without Licence), to make the ſame a Plain or Arable Land, ſo that they cannot grow again to become Coverts, be it by the Owner, or others: And thereby the whole Piece of Ground that is ſo aſſerted, be it in Woods, Meadow or Paſture, or any other Aſſart of the Foreſt, ſhall be ſeized into the King's Hands, and ſo remain until either the Owner in his Life-time, or the Heir after his Death, ſhall replevy it, and make Fine to the King. *Manw.* 154, 157. And if the Aſſarting be of the King's own Woods or Lands, the Offender is to be impriſon'd for the Firſt Offence, without Bail or Mainprize, until he has made his Fine to the King: But if the Aſſarting be of Woods or Lands of another Man, the Offender is bailable for the Firſt and Second Offence; but for the Third, he is to be impriſon'd until he hath made Fine to the King, except the Chief Juſtice of the Foreſt will deliver him upon Bail. *Id.* 159.

Purpreſture, what it is.

Purpreſture in a Foreſt, is moſt properly, when any Man doth make any manner of Encroachment upon the King's Foreſt, by Building, Incloſure, or by uſing any Liberty or Privilege, without any lawful Warrant ſo to do. *Manw.* 167.

If it be made in the King's Demeſns.

If the Purpreſture be made in the King's own Demeſn Woods or Lands, then his Body is to be committed and detain'd in Priſon without Bail or Mainprize, until he hath made Fine for the ſaid Offence, at the King's Will and Pleaſure; and ſhall alſo yield the Place, upon which the Purpeſture is made to the King, to whom of Right it doth belong. *Id.* 174.

If in a Man's own Lands, *&c.*

Fine, *&c.*

Elſe a Rent, *&c.*

And for every Purpreſture that a Man doth make in his own Lands or Woods that he hath within the Foreſt, as in building up of any Houſe where none was before, the Judgment is Twofold, *viz.* Firſt, He ſhall pay a Fine to the King, according to the Quantity and Quality of the Offence: And Secondly, That the ſame Houſe or Purpreſture be pull'd down again, or elſe to pay a Yearly Rent, for the ſuffering the ſame to remain; which is left to the Choice and Diſcretion of the Lord Chief Juſtice of the Foreſt.

Of Vert, Venery and Veniſon, a General Deſcription.

FOR that the Laws of the Foreſt (which are next to be ſet forth) are chiefly made for the Preſervation of the Vert and Veniſon thereunto belonging, it may in this Place be convenient to give a General Deſcription thereof.

Deſcription of Vert.

Vert therefore in general, is every Plant that doth grow within the Foreſt, and bear green Leaf which may hide or cover a Deer under it: But here, this Word *Plant* muſt be underſtood, for ſuch Plants as are either Trees, Woods, Buſhes, or ſuch-like, which are of the Nature of Wood or Underwood, and not of thoſe kind of Plants which are of the Nature of Herbs, as Thiſtles, and ſuch-like, which may alſo be comprehended within the Word *Plant*, but not in this Senſe.

An. 6 *Ed.* 1. *Raſt. Abridg. Stat. intit.* Foreſt.

And when, after the making *Charta de Foreſta*, ſome queſtioned what was to be accounted Vert; King *Edward* the Firſt, to make the Certainty known to all Men, made a Law to this Purpoſe: 'Know ye (ſaith the King) that all Trees that ſhall be growing within the Foreſt, as well thoſe which bear no Fruit at all, as thoſe that do bear Fruit, at any time in the whole Year; and an old Aſh, being in the arable Land within the Foreſt; Theſe ſhall be accounted Vert, becauſe the King is in Poſſeſſion of them." And it is obſerved, That by all Trees, muſt be underſtood as well Underwoods as Great Woods.

Note,

Manw. 120.

Note, Over-Vert is all manner of high Trees, as Nether-Vert is all ſorts of Underwood; and Bruſhwood is called Cabliſh.

Vert, a *Viriditate*, is of divers Kinds.

Nut-Trees, *&c.*

Some diſtinguiſh Vert after this Manner, *viz.* Vert is derived from *Viriditate*, and is any Thing that beareth Green Leaf, but eſpecially of great and thick Coverts. Alſo, it is of divers Kinds; ſome whereof beareth Fruit that may ſerve for Food both for Man and Beaſt, as Service-Trees, Nut-Trees, Crab-Trees, *&c.* and for the Shelter and Defence of the ſame.

Over-Vert.

Some, called Hautboys, (or Over-Vert,) ſerving for Food and Browſe, of and for the Game, and for the Defence of them, as Oaks, Beeches, *&c.* Some Hautboys for Browſe, Shelter and Defence only, as Aſhes, Poplars, *&c.*

Nether-Vert.

Of Subboys, (or Nether-Vert,) ſome, for Browſe and Food of the Game, and for Shelter and Defence, as Maples, *&c.* Some for Browſe and Defence, as Birch, Sallow, Willow, *&c.* Some for Shelter and Defence only, as Elder, Alder, *&c.*

Buſhes, *&c.*

Of Buſhes and other Vegetables; ſome for Food and Shelter, as the Hawthorn, Blackthorn, *&c.* Some, for Hiding and Shelter, as Brakes, Gorth, Heath, *&c.*

Deſcription of Venary and Veniſon.

Manw. 110.

Concerning the Name Veniſon: It is noted, that as old Foreſters and good Woodmen do by the General Term, *Beaſts of Venery*, (or rather *Venary*) underſtand every Beaſt of Foreſt; ſo by this General Word, *Veniſon*, they underſtand every Beaſt of Foreſt and Chaſe, as a Word of Art proper to Beaſts of Foreſt and Beaſts of Chaſe, and to none other; and that therefore by the Word Veniſon, it always muſt be underſtood, that it is one of the Five Beaſts of Foreſt aforeſaid, or one of the Five Beaſts of Chaſe, or elſe the ſame is not to be called Veniſon: But by 4 *Co. Inſt. pag.* 316. Whatſoever Beaſt of the Foreſt is for the Food of Man, that is Veniſon; *& a contra*: And ſome account *Capriolus*, or the Roe, no Veniſon, unleſs hunted.

Wolf and Fox.

And it ſeems, King *Canutus* did not account the Wolf for a Beaſt of the Foreſt, nor a Fox for a Beaſt of the Chaſe; as afterwards appears in his Charter, *Canon* 27.

Hart and Hind.

Alſo, though amongſt the Beaſts of the Foreſt the Hart and Hind are number'd ſeverally, yet they are of the ſame Kind or Species, and they are accounted Two ſeveral Beaſts, becauſe they are of ſeveral Seaſons for Hunting; that of the Hart being in the Summer, and the Seaſon for hunting the Hind beginning when that of the Hart is over.

Stags and Red Deer.

Alſo it is to be noted, that with the Hart is included the Stag, and all other Red Deer of *Antiler*.

More Beaſts and Fowls of Warren than are before obſerv'd.

And though it's ſaid before, That the Beaſts and Fowls of Warren are, the Hare, the Coney, the Pheaſant, and the Partridge; yet my Lord *Coke* accounteth all Fowls *Feræ Naturæ*, Fowls of Warren, as in *Co. Litt.* 233. There be both Beaſts and Fowls of the Warren, ſaith he; Beaſts, as Hares, Coneys and Roes; Fowls of Two Sorts, *viz.* Terreſtres and Aquatiles (Land Fowl and Water Fowl); that the Terreſtres are of Two Sorts, Silveſtres and Campeſtres; the Firſt are, Pheaſant, Woodcock, *&c.* The Second, Partridge, Quail, Rail, *&c.* Then the Aquatiles, as Mallard, Hern, *&c.*

Difference between Beaſts of Foreſt, and of the Chaſe.

There is alſo granted to be this Difference between Beaſts of Foreſt, and thoſe of Chaſe: The Firſt are ſaid to be *Silveſtres tantum*; the latter, *Campeſtres tantum.* The Beaſts of the Foreſt are obſerved to make their Abode all the Day-time in the great Coverts and ſecret Places in the Woods; and in the Night Seaſon, they repair into the Lawns, Meadows, Paſtures, and pleaſant Feeding Places, and therefore they are called Silveſtres, Beaſts of the Wood.

Wherefore thoſe of the Foreſt are called *Silveſtres*.

Why thoſe of Chaſe are called *Campeſtres*.

The Beaſts of Chaſe do reſide all the Day-time in the Fields, and upon the Hills or high Mountains, where they may ſee round about them afar off, to prevent Danger; but upon the Night's Approach, they feed as the reſt, in Meadows, *&c.* And therefore theſe are called Campeſtres, Beaſts of the Field.

Of the proper Names, Seaſons, Degrees and Ages, of Beaſts of Foreſt or Venary, Chaſe and Warren.

Before all the others, the *Hart* is preferred, as the moſt Noble, Worthy, and Stately Beaſt, and therefore ought to take the firſt Place of Account.

I. He is called,
- The Firſt Year, a Hind-Calf (or Calf).
- The Second Year, a Broker (or Knobler).
- The Third Year, a Spayad (or Brock).
- The Fourth Year, a Staggard.
- The Fifth Year, a Stag.
- The Sixth Year, a Hart.

A Hart-Royal.

The ancient Charter of the Foreſt of King *Canutus*, *Canon* 24. doth call the Hart, *Fera Regalis*, a Royal Beaſt (or a Hart-Royal); but he is more eſpecially ſo, if hunted by the King or Queen; and if he eſcape, and Proclamation be made for his ſafe Return, without Let or Detriment, he is then called a Hart-Royal proclaim'd.

A Hart-Royal proclaim'd.

A Stag.

A Great Stag.

In ancient Times, ſome did uſe to call him a Stag at the Fourth Year, and the Fifth Year they did call him a Great Stag, and ſo gave him a Difference.

Vulgar Error.

But it is held a Vulgar Error, to think that a Stag, of what Age ſoever he be, ſhall not be called a Hart till he be hunted by the King or Queen, and that thence he ſhall derive his Title: For late Huntſmen do agree, he may be called a Hart at and after the Age of Six Years old.

Wherefore He is call'd a Hart-Royal.

Now if the King or Queen ſhall happen to hunt or chaſe him, and he eſcape with Life, he ſhall ever after be called a Hart-Royal; but if he fly ſo far from the Foreſt or Chaſe, that it is unlikely he will ever return of his own accord to the Place aforeſaid, and that Proclamation be made in all Towns and Villages thereabout, that none ſhall kill or offend him, but that he may ſafely return if he liſt, he is then called Hart-Royal proclaim'd. *Manw.* 98, 99. *&c.*

Wherefore he is call'd a Hart-Royal.

II. The *Hind.*

She is called,
- The Firſt Year, a Calf.
- The Second Year, a Brocket's-Siſter (or Hearſe).
- The Third Year, a Hind.

III. The *Hare.*

Which, by ſome old Foreſters, is called the King of all Beaſts of Venary.

A *Hare* is called,
- The Firſt Year, a Leveret.
- The Second Year, a Hare.
- The Third Year, a Great Hare.

IV. The *Wild-Boar.*
- The Firſt Year, he is a Pig of the Sounder.
- The Second Year, he is a Hog.
- The Third Year, he is a Hogſtear (or Hogſteer).
- The Fourth Year, he is a Boar, at which Age, if not before, he heaveth the Sounder, and then is called a Singler (or Sanglier.)

V. The laſt Beaſt of Venery, is the *Wolf*: Of which, there are none in *England.*

The Names of the Beaſts of Chaſe, according to their Ages.

Beaſts of Chaſe.

I. The *Buck.*

He is called,
- The Firſt Year, a Fawn.
- The Second Year, a Pricket.
- The Third Year, a Sorel.
- The Fourth Year, a Sore.
- The Fifth Year, a Buck of the Firſt-Head.
- The Sixth Year, a Great Buck.

II. The *Doe*, or *Doo.*

She is called,
- The Firſt Year, a Fawn.
- The Second Year, a Pricket's-Siſter (or a Teg).
- The Third Year, a Doe.

III. The *Fox.*

A *Fox* is called,
- The Firſt Year, a Cub.
- The Second Year, a Fox, and afterwards an Old Fox.

IV. The *Martern.*

It is called,
- The Firſt Year, a Cub (or Martern-Cub).
- The Second Year, a Martern.

V. The laſt Beaſt of Chaſe is the *Roe*.

It is called,
The Firſt Year, a Kid.
The Second Year, a Girl.
The Third Year, a Hemuſe.
The Fourth Year, a Roe-Buck of the Firſt Head.
The Fifth Year, a Fair Roebuck.

Beaſts of Warren.

As to the Beaſts of the Warren, the Hare hath been ſpoken of already. The Coney is called, the Firſt Year, a Rabbet, and afterwards an Old Coney.

The Seaſons of Beaſts.

Hart, or Buck.

A Hart (or Buck) beginneth at the end of *Fencer-Month*, which is 15 Days after *Midſummer-Day*, and laſteth till *Holy-Rood-Day*.

Fox.

The Fox beginneth at *Chriſtmas*, and laſteth till *Lady-Day*.

Hind, or Doe.

The Hind (or Doe) beginneth at *Holy-Rood-Day*, and laſteth till *Candlemas*.

Roebuck.

The Roebuck beginneth at *Eaſter*, and laſteth till *Michaelmas*.

Roe.

The Roe beginneth at *Michaelmas*, and laſteth till *Candlemas*.

Hare.

The Hare beginneth at *Michaelmas*, and laſteth till *Midſummer*; others ſay, till the End of *February*.

Wolf.

The Seaſon of the Wolf, is ſaid to be from *Chriſtmas* till *Lady-Day*.

Boar.

And that of the Boar, is ſaid to begin at *Chriſtmas*, and laſts till the *Purification* of our Lady.

Terms of Hunting, *&c.*

As to the Terms of Hunting theſe Beaſts, and of Lodging and Diſlodging them, *&c.* they are referred to the Diſcourſe of Hunting, *&c.*

Of Agiſtment, &c.

Agiſtment and Pawnage.

OF Agiſtment and Pawnage in the Woods, *&c.* belonging to the Foreſt: See after, in the Courts and Officers of the Foreſt, *Tit' Agiſtors*.

That a Juſtice-Seat makes a Foreſt, and not a Swainmote.

And *Note*, by *Stat.* 17 *Car.* 1. *cap.* 16. That no Place where no Juſtice-Seat, Swainmote, Court of Attachment, *&c.* have been held or kept within the Space of Sixty Years next before, ſhall be accounted Foreſt: And by 2 *Bul.* 206. A Swainmote-Court doth not make a Foreſt, but a Juſtice-Court doth make it.

The Limits of Foreſt ſettled ſince 20 *Jac.* 1.

Reſervation.

This Statute alſo limits the Meets and Bounds of Foreſts to be as they were known and uſed, *Ann.* 20 *Jac.* 1. And that Grounds, ſince that Time diſafforeſted, ſhould be excluded the Bounds of the Foreſt; with a Reſervation, That the Tenants, Owners and Occupiers of Lands, to be ſo excluded, ſhould enjoy Common and other Profits and Eaſements within the Foreſts as anciently.

Every Wood with wild Beaſts not Foreſt, tho' a Foreſt ſeems to be a great Wood, *&c.*

Except, *&c.*

Alſo, though it may ſeem by the ancient *Latin* Words, *Silva* or *Saltus*, uſed for a Foreſt; that therefore a Foreſt was derived from a Wood, becauſe that wild Beaſts have always had their abiding Places in Woods: Yet ſaith Mr. *Manwood*, *pag.* 68. It doth not therefore follow that every Wood is a Foreſt, although that there be Deer and other wild Beaſts in the ſame; except that the ſame Wood be eſpecially privileged by the King for them to reſt in a firm Peace.

Wherefore a Subject may not make a Foreſt.

It's ſaid, the Reaſon why a Subject cannot have a Foreſt, is becauſe a Juſtice-Seat is incident to a Foreſt, and none can make a Juſtice in Eyre but the King: 2 *Bulſt.* 295. *Manw. pag.* 72. in *Marg.* Yet it ſeems the King may in a Grant of a Foreſt, by Special Words, give ſuch Power. And by 4 *Co. Inſt.* 314. 2 *Bulſt.* 297. If the King alſo grant that the Subject may have a Juſtice-Seat, here the Subject ſhall have it Foreſt, otherwiſe it ſeems it ſhall be but a Chaſe in the Hands of the Grantee. *Manw. pag.* 77, 78. 81. *&c.*

But the King may grant him a Special Power.

Prince *Henry*, *&c.* had ſuch a Grant.

It appears, the laſt Prince *Henry* had a Foreſt granted to him, with a Power alſo to make a Juſtice in Eyre, and Licence to keep Courts; and that the Duke of *Lancaſter* alſo had ſuch a Grant, with a Special Commiſſion to make a Juſtice in Eyre, for keeping of Courts. 2 *Bulſt.* 295. *An.* 1 and 2 *Eliz. Dier. fol.* 169. *b. Placit.* 1. *Manw.* in *Marg.* 79.

Duke of *Gloceſter* had Foreſt granted, *&c.*

Alſo, *Manw. pag.* 80. in *Marg.* it is ſaid, King *Richard* the Second granted to *Thomas* Duke of *Gloceſter*, in eſpecial Tail, the Caſtle of St. *Briovel*, and the Foreſt of *Dean*; and that by Authority of Parliament, it is enacted, That the ſaid Duke ſhould hold the ſaid Foreſt as a Foreſt, and to conſtitute ſuch Juſtices and Officers, *&c.* as belong to a Foreſt. *Co.* 4 *Inſt.* 315.

Of the FOREST-LAW.

Charter of King *Canutus.*

The Charter or Conſtitutions of King Canutus, *concerning the Foreſt, which ſome ſay, are the moſt ancient Laws of the Foreſt.*

The Preamble.

THESE are the Conſtitutions of the Foreſt, which I *Canutus*, King, with the Advice of my Nobility, do make and eſtabliſh, That both Peace and Juſtice may be done to all the Churches of our Kingdom of *England*, and that every Offender may ſuffer according to his Quality, and the Manner of his Offence.

Pægened. Four Chief Men appointed.

1. There ſhall from henceforth be Four of the beſt of the Freemen, who had their accuſtomed Rights ſecure, (whom the *Engliſh* call *Pægened*) conſtituted in every Province of my Kingdom, to diſtribute Juſtice, together with due Puniſhment, as to the Matters of the Foreſt, to all my People, as well *Engliſh* as *Daniſh*, throughout the whole Kingdom of *England*, which Four we think fit to be called, *The Chief Men of the Foreſt.*

Verderors.

Theſe Four Chief Men are noted to be thoſe Four Officers that are now called Verderors.

Leſpegend. Four middle Sort of Men, *&c.*

2. There ſhall be placed under every one of theſe Four, out of the middle Sort of Men, (whom the *Engliſh* call *Leſpegend*, and the *Danes*, *Young Men*,) who ſhall take upon them the Care and Charge, as well of the Vert as the Veniſon.

Regardors.

Theſe Four ſeem to be thoſe Men that are now called The Regardors.

How not to intermeddle, *&c.*

3. But in the Adminiſtration of Juſtice, we will by no means have ſuch Perſons concern themſelves; yet ſuch middle Sort of Men, after their taking upon them the Care of the Beaſts of the Foreſt, ſhall always be reputed Freemen, ſuch as the *Danes* call *Ealdermen.*

But to be Freemen, *&c.*

(Regardors *reputed Freemen,* alias *Ealdermen.*)

Tinemen. Two meaner Sort of Men.

4. Again, under every One of theſe ſhall be Two of the meaner Sort of Men, [whom the *Engliſh* call *Tinemen*,] theſe ſhall take care of the Vert and Veniſon by Night, and undergo other ſervile Offices.

Alias Foreſters.

Theſe are they that are now called Foreſters *or* Keepers.

How all to be maintained.

5. Such a mean Servant, ſo ſoon as he takes Place in our Foreſt, ſhall be Free; and all theſe we will maintain at our own Charge.

Verderors Fee yearly.

6. Moreover, every one of the Chief Men ſhall have every Year out of our Ward (which the *Engliſh* call *Michni*) two Horſes, the one with a Saddle, the other without, one Sword, five Lances, one Spear, one Shield, and two hundred Shillings of Silver.

Regardors Fee yearly.

7. Every one of the middle Sort of Men, one Horſe, one Lance, one Shield, and ſixty Shillings of Silver.

Foreſters Fee.

8. Every one of the meaner Sort of Men, one Lance, one Croſsbow, and fifteen Shillings of Silver.

All to be acquitted of Taxes and Hundred-Law, *&c.*

9. All of them, as well Chief Men, as middle Sort and meaner Sort of Men, ſhall be free, and quit from all Provincial Summons and popular Pleas, (which the *Engliſh* call *Hundred Laghe,*) and from all Taxes concerning the Wars, and from all foreign Plaints.

The Regardors to be corrected by the Verderors, and the Verderors by the King.

10. The Cauſes of the middle Sort of Men, and their Corrections, as well Criminal as Civil, ſhall be judged and decided by the provident Wiſdom and Diſcretion of the Chief Men; but the Enormities of the Chief Men (if any ſuch ſhall be) leſt any Crime ſhould remain unpuniſhed, we our ſelf will puniſh according to our Royal Diſpleaſure.

Verderors to have Regal Power of *Muchehunt*, and *Gangfordel.*

11. Theſe Four Chief Men ſhall have a Royal Power (ſaving in our Preſence) and four Times in the Year the General Demonſtrations of the Foreſt, and the Forfeiture of Vert and Veniſon, (which the *Engliſh* call *Muchehunt*) where they ſhall all of them hold Claim (or Challenge) of any Matter touching the Foreſt, and ſhall go to a Three-fold Judgment (which the *Engliſh* call *Gangfordel.*) And thus the Three-fold Judgment ſhall be acquired: The Party ſhall take with him Five others, and himſelf ſhall be the Sixth; and ſo by Swearing he ſhall obtain a Three-fold Judgment, or a Triple Oath. But the fiery Purgation ſhall by no means be admitted, except where the naked Truth cannot otherwiſe be found out.

Trial by Fire to be avoided.

This fiery Trial is one of the Trials or Purgations by the Ordelian Law, *which were Two-fold, viz. by Fire, if a Freeman; and by Water, if a Servile Man;*

Man; and was ouſted by Act of Parliament, 3 Hen. 3.

A Witneſs allowed for *Pegen*, or a Freeman.

12. But a Freeman (1. *Pegen*) ſo that his Crime be not great, may have an honeſt Man, who may take an Oath for him, 1 *Forathe:* But if he hath not, he muſt ſwear himſelf, and ſhall not be excuſed from his Oath.

But a Stranger not finding a Pledge.

13. If a Stranger or Foreigner, who ſhall come from afar off, be challenged of Offence in the Foreſt, and his mean Condition be ſuch, that he cannot procure a Pledge to the firſt Challenge, which no *Engliſh* Man may adjudge; then he ſhall undergo the King's Caption, and there he ſhall ſtay until he ſhall go to the Judgment of Iron and Water; * but if otherwiſe any ſhall paſs a Judgment upon ſuch a Stranger, be it at his own Peril; *ſibi ipſi nocet, ſi aliquod judicium judicaverit.*

To be judged by Iron and Water.

* *This is otherwiſe conſtrued,* viz. *But if any one ſhall hurt ſuch a Stranger, being an Offender, he that doth hurt him, ſhall have his Judgment executed upon him.*

This Judgment was by the *Ordelian* Law.

Note, *The Judgment or Purgation by Iron and Water, were by the* Ordelian Law, *which was for the ſuſpected Party either to paſs over Bars of Red-hot Iron, or be caſt into ſome Pond, or great Veſſel of cold Water, or to thruſt an Arm into a Copper or Cauldron of ſeething Water; in which, if he continued for a while Unhurt, or without Peril of Life,* &c. *he was diſcharged as innocent.*

A falſe Witneſs diſabled to give Teſtimony.

14. Whoſoever ſhall, before my Chief Men of Foreſt, bear falſe Witneſs, and be thereof convicted, he ſhall not afterwards be thought worthy to bear Teſtimony, becauſe he hath loſt the Benefit of the Law, and for his Crime ſhall pay to the King Ten Shillings, which the *Danes* call *Halfe-hang*, alias *Hals-hang*.

Violence to a Verderor puniſhed. 1. Offence, how.

15. If any Perſon ſhall offer any Violence to the Chief Men of my Foreſt, if he be free, he ſhall loſe his Freedom, and all that he hath; and if he be a Villain, his Right Hand ſhall be cut off. This implies for the firſt Offence.

2. Offence, how.

16. If either of them ſhall offend again, he ſhall be guilty of Death.

For contending with a Verderor.

17. But if any ſhall contend in Suit with a Chief Man, he ſhall forfeit as much as he is worth, (which the *Engliſh* call *Pere & Pite*) and ſhall pay to the Chief Man 40 *s.*

Breach of Peace before a Regardor.

18. If any Perſon ſhall break the Peace before the middle Sort of Men of the Foreſt, which they call *Geth-brech*, he ſhall pay to the King 10 *s.*

For ſtriking him.

19. If any Perſon ſhall ſtrike one of the middle Sort of Men in Wrath, he ſhall forfeit as much to the King, as is uſually forfeited for killing a Royal Beaſt.

For offending in the Foreſt.

20. If any Perſon ſhall be taken offending in the Foreſt, he ſhall be puniſh'd according to the Manner and Quality of the Offence.

Difference in the Puniſhment of a Freeman, and him that is not.

21. The Puniſhment and Forfeiture ſhall not be one and the ſame of a Freeman (whom the *Danes* call *Ealderman*) and of him that is not free, nor of a Maſter and of a Servant; of one that is known, and of one that is not known: Nor ſhall the Management of Cauſes, either Civil or Criminal, of the Beaſts of the Foreſt, and of the Royal Beaſts of the Vert, and of the Veniſon, be one and the ſame; for the Crime of Hunting hath from of old, and that not undeſervedly, been reputed one of the greateſt Offences committed in the Foreſt; but that of Vert is ſo ſmall and trivial, (except as it is a Breach of our Royal Chace) that our Conſtitution doth ſcarcely take notice of it; nevertheleſs he that offends therein, is guilty of an Offence committed in the Foreſt.

So for hunting a Royal Beaſt, and one that is otherwiſe.

Offences of Vert are the leaſt.

Puniſhment for chaſing a Beaſt ſo that he pant.

22. If any Freeman, either caſually or wilfully chaſe or hunt a Beaſt of the Foreſt, ſo that by Swiftneſs of the Courſe the Beaſt doth pant for Breath, he ſhall forfeit Ten Shillings to the King; and if he be not a Freeman, he ſhall pay double; but if a Bondman, he ſhall loſe his Skin.

For killing ſuch a Beaſt.

23. But if the Free or Unfreeman ſhall kill any Beaſt of the Foreſt, he ſhall for the firſt pay double; for the ſecond as much, and the third Time ſhall forfeit as much as he is worth to the King.

For forcing a Royal Stag till he pant. *Fera Regalis.*

24. But if either of them, by Courſing or Hunting, ſhall force a Royal Beaſt (which the *Engliſh* call a *Staggon*) to pant and be out of Breath, the Freeman ſhall loſe his Natural Liberty for one Year, and the other his for two Years. But if a Bondman do the like, he ſhall be reckoned for an Out-law, (which the *Engliſh* call a *Frendleſs-man.*)

For killing ſuch Royal Beaſt.

25. But if any of them ſhall kill ſuch a Royal Beaſt, the Freeman ſhall loſe his Freedom, the other his Liberty, and the Bondman his Life.

What Beaſts Biſhops and Barons may hunt and kill.

26. My Biſhops, Abbots and Barons, ſhall not be challenged for hunting in my Foreſt, except they kill Royal Beaſts; and if they do ſo, they ſhall make Satisfaction at the King's Pleaſure.

(Therefore no Certainty of the Forfeiture is here expreſſed.)

The hunting wild Goats, *&c.* ſubject to the Regardors, is puniſhable.

27. There are ſome Beaſts (beſides thoſe of the Foreſt) which whilſt they keep within the Limits and Boundaries of the Foreſt, are therefore liable to be anſwered for: Such are wild Goats, Hares and Conies. And there are alſo a great Number of Cattle, which although they live within the Boundaries of the Foreſt, and are ſubject to the Charge and Care of the middle Sort of Men, nevertheleſs can in no ways be reputed Beaſts of the Foreſt: Such are wild Horſes, Buffaloes, Cows, and ſuch-like; but as for Foxes and Wolves, they are not accounted Beaſts of the Foreſt, nor of Venary; therefore the killing of them requires no Recompence: Nevertheleſs, he that kills them within the Bounds of the Foreſt, makes a Breach of the Royal Chaſe, and is ſubject to a leſſer Penalty. And as for a wild Boar, although he is a Beaſt of the Foreſt, yet he is not to be accounted a Beaſt of Venary.

Buffaloes, Cows, Foxes, Wolves, *&c.*

A wild Boar no Beaſt of Venary.

Pulling down Wood without Licence.

28. No Man ſhall pull down our Highwood or Underwood, without Licence of the Chief Men of the Foreſt; if otherwiſe, he ſhall be guilty of the Breach of the Royal Chace.

Cutting down a Holly-Tree, or other Fruit-Tree.

29. But if any Man cut down a Holly-Tree, or any other Tree that beareth Fruit for Food for the Beaſts of the Foreſt, he ſhall pay Twenty Shillings to the King, beſides his Forfeiture for the Breach of the Chace.

How Freemen may take Vert and Veniſon.

30. I will that every Freeman may take his own Vert or Veniſon, or Hunting that he can get upon his own Ground, or in his own Fields, being out of my Chace; and let all Men refrain from my Venary in every Place where I will have the ſame.

This is the Canon that is ſuppoſed to differ from the Lord Coke's 4 Inſt. 320. *before obſerved.*

Forfeiture for keeping Greyhounds in the Foreſt, their Knees being uncut.

31. No mean Perſon ſhall have or keep any ſuch Dogs as the *Engliſh* call *Greyhounds*, except Freemen; yet ſuch their Dogs Knees ſhall be cut before the Chief Men, unleſs the Dogs be removed, and kept Ten Miles from the Bounds of the Foreſt; but when the Dogs come nearer, the Forfeiture ſhall be One Shilling for every Mile. And if any of the ſaid Dogs be found within the Limits of the Foreſt, the Maſter or Owner of the Dog ſhall forfeit his Dog, and pay Ten Shillings to the King.

But Velterers, *&c.* may be kept uncut.

32. But the little Dogs, called *Velterers*, or *Langeran*, becauſe it manifeſtly appears there is no Danger from them, they may be kept without cutting their Knees, and the like concerning the Dogs called *Ramhundt*.

Aliter, if ſuch Dogs become mad.

33. But if it happen ſuch ſort of Dogs become mad, and run up and down every where by the Negligence of their Maſters, they ſhall become unlawful; and the King ſhall be recompenced for ſuch their Unlawfulneſs: But if they ſhall be found within the Circuit of the Foreſt, the Owner alſo ſhall be found out, and make Amends according to the Eſtimation of a mean Man; which, according to the Law called *Lex Merimorum*, amounts to Two hundred Shillings.

If found within the Circuit, the Maſter forfeits 10 *l.*

If ſuch mad Dog bites a Beaſt.

34. And if a mad Dog bites a Beaſt of the Foreſt, then the Owner ſhall make a Recompence, according to the Price of a Freeman; that is to ſay, Twelve times One hundred Shillings: But if a Royal Beaſt ſhall be bitten, then the Owner ſhall anſwer, as for the greateſt Offence in the Foreſt.

If he bites a Royal Beaſt.

A Caution againſt theſe Laws ſuppoſed to be of King *Canutus*.

Note, The Lord *Coke*, in 4 *Co. Inſt.* 320. adviſes to beware to give Credit to this *Carta de Foreſta* of King *Canutus*, ſaid to be made at a Parliament holden at *Wincheſter*, *Anno Dom.* 1016. becauſe in that Year, the King, at a Parliament at *Wincheſter*, made divers Laws which he publiſh'd in the *Saxon* Tongue; but ſays, He never read that he ever publiſh'd any Law for *England* in the *Daniſh* Tongue, as it is affirmed this was; and that in all theſe Laws the King never maketh mention of this *Carta de Foreſta*, or any of the ſuppoſed Laws of the Foreſt therein contained; though amongſt his other Laws at the ſame Parliament, *Chap.* 77. he made the Law of Hunting, * *in propriis prædiis, tam in agris quam in ſilvis*, &c. which differs much from that ſuppoſed one of *Canutus*, *Chap.* 30. *&c.*

* *See a like Grant from the Empreſs* Maud *to* Miles *of* Glouceſter. *Co.* 4 *Inſt.* 293.

The Charter of K. *Canutus* ſuſpected.

Therefore he leaves this *Carta de Foreſta* of King *Canutus*, as juſtly ſuſpected; and concludes, That whatſoever it be, it is of little Uſe; for ſo many Chapters therein as be contrary to, or differing either from our *Magna Charta de Foreſta*, or any other Act of Parliament, are certainly of no Force.

CHARTA de FORESTA

Abridgment of the Charter of the Foreſt, publiſhed in the Ninth Year of King Henry III. *and alſo of other Statutes.*

Chap. I.

The diſafforeſting of ſeveral Foreſts.

Saving of Common.

THAT all Foreſts which King *Henry* the Second afforeſted, ſhould be viewed by lawful Men; and if he had made Foreſt of any other Woods but his own Demeſn, whereby the Owner received Hurt, they ſhould be diſafforeſted, ſaving the Common of Herbage, and other Things in the ſame Foreſt, to ſuch as had been accuſtomed to enjoy them.

Chap. II.

Out-dwellers how liable to Summons.

That none dwelling out of the Foreſt, ſhall come before the Juſtices of the Foreſt by common Summons, unleſs they be impleaded there, or be Sureties for others that are attached for the Foreſt.

Chap. III.

Foreſts made from Woods diſafforeſted.

That all Foreſts converted from Woods by King *Richard* I. or King *John*, ſhould be diſafforeſted, except they were the King's own Demeſn Woods.

Chap. IV.

Prelates, and Peers, *&c.* to enjoy their Woods.

That all Archbiſhops, Biſhops, Abbots, Priors, Earls, Barons, Knights, and other Freeholders, having Woods in Foreſts, ſhould enjoy them as they did at the Coronation of King *Henry* the Second, acquitted of all Purpreſtures, Waſtes and Aſſerts made after, until the ſecond Year of the Coronation of the ſaid King *Henry* III. and they that made ſuch afterwards, ſhould be anſwerable to the King for the ſame.

Chap. V.

Rangers Exerciſe.

That the Regardors (or Rangers) of the Foreſts, ſhould exerciſe their Regard, as was uſed at the Coronation of King *Henry* II. and not otherwiſe.

Chap. VI.

The View for Lawing of Dogs, *&c.*

The manner of Lawing Dogs.

That the View for Lawing of Dogs, ſhall be made in Foreſts, at the Regard every third Year, by the View and Teſtimony of honeſt Men, and not otherwiſe; and then he that hath not his Dog lawed, ſhall be amerced 3 *s.* And that no Ox ſhall be taken for lawing of a Dog; and ſuch Lawing ſhall be done by the uſual Aſſize, *viz.* That Three Claws of the Fore-foot be cut off by the Skin; yet ſuch Lawing ſhall not be, but where it had been accuſtomed from the Coronation of the ſaid King *Henry* II.

Chap. VII.

Concerning Scot-Ale, *&c.*

Number of Foreſters.

That no Foreſter or Beadle make Scot-Ale, or gather Garb, Oats, Corn, Lamb or Pig, but by the Sight, and upon the Oath of the Twelve Regardors, when they ſhall make their Regard. Alſo there ſhall be ſo many Foreſters aſſign'd for keeping the Foreſt, as ſhall be thought ſufficient for the ſame.

Chap. VIII.

The Courts of Swainmote, when and how to be kept.

Attachments for Green-hue and Hunting.

The Court of Swain-mote ſhall be kept only three Times in the Year, *viz.* The firſt fifteen Days before *Michaelmas*, another about *Martinmas*, and the third, fifteen Days before *Midſummer*; at the firſt Two of which, none ſhall appear by Diſtreſs, but the Foreſters, and Verderors and Geſtakers, and at the others only the Foreſters and Verderors; moreover, the Foreſters and Verderors ſhall meet every forty Days to ſee the Attachments of the Foreſt, as well for Green-hue as Hunting, by the Preſentment of the Foreſters, and afore them attach'd. And the Swainmotes ſhall not be kept but in the Counties where they have been uſed to be kept.

Chap. IX.

Free Owners of Woods may agiſt them.

Every free Owner of a Wood within the Foreſt may agiſt it, and at his Pleaſure take the Pawnage; he may alſo drive his Hogs thro' the King's Woods to agiſt them where he will; and if they lie one Night in the Foreſt, he ſhall not be queſtioned for it.

Chap. X.

Penalty for killing the King's Deer.

That no Man ſhall loſe either Life or Member for killing the King's Deer; but if he be taken with it, and convict, he ſhall be fin'd, if he hath any Thing; if not, he ſhall be impriſoned a Year and a Day: And then, if he can find good Sureties, ſhall be delivered; but if not, he ſhall abjure the Realm.

Chap. XI.

Liberty for Biſhops and Peers to kill a Deer or two, and when.

That an Archbiſhop, Biſhop, Earl or Baron, being ſent for by the King, at his coming or returning may kill a Deer or two in the Foreſt by which he paſſeth, in view of the Foreſter, if preſent; but if abſent, he muſt cauſe a Horn to be blown for him.

Chap. XII.

Freemen may make Dikes, *&c.*

That every Freeman may within the Foreſt, upon his own Ground, make Mills, Springs, Pools, Marlpits, Dikes, or arable Ground, without incloſing ſuch arable, ſo that it be not a Nuſance to his Neighbours.

Chap. XIII.

He may have Ayries, *&c.*

Every Freeman in his own Woods may have his Ayries of Hawks, Eagles and Herons, and alſo the Honey that is found in his Woods.

Chap. XIV.

None but a Foreſter may take Chiminage or Toll.

None but a Foreſter in Fee, that farms his Bailiwick, ſhall take any Chiminage in Foreſts, and that only of ſuch as buy their Buſhes, Timber, Bark or Coal, to ſell it again, *viz.* 2 *d.* for a Cart, and 1 *d.* for a Horſe, to be taken Half-yearly where it hath been uſed to be taken, but not elſewhere: And thoſe that carry upon their Backs Burthens of Buſhes, Bark or Coal, to ſell for a Livelihood, ſhall have no Chiminage, except they take them out of the King's Woods.

Chap. XV.

Releaſe of Perſons outlawed.

All Perſons outlawed for Treſpaſſes in Foreſts, from the Time of King *Henry* II. unto the Coronation of K. *Hen.* III. were to be releaſed upon finding Sureties to offend no more.

Chap. XVI.

Foreſters in Fee are to attach for Green-hue, *&c.* and to preſent to the Verderors, *&c.*

That no Conſtable, Caſtellian or Bailiff, ſhall hold Plea of Foreſts for Greenhue or Hunting, but the Foreſter in Fee ſhall make Attachments for Pleas of the Foreſt, and preſent them to the Verderors of the Provinces, who ſhall enroll them, and preſent them, encloſed under their Seals, unto the Chief Juſtices of the Foreſt, when they come into thoſe Parts to hold Pleas of the Foreſt, to be determined before them.

Chap. XVII.

Theſe Liberties granted to all Men, ſaving, *&c.*

The King granted theſe Liberties of the Foreſt to all Men; yet ſaving to all Perſons the Liberties and free Cuſtoms in Foreſts, Warrens, and other Places which they had formerly enjoy'd.

In 4 *Co. Inſt.* 300. it is ſaid to be obſervable, That if any Act of Parliament hath been made againſt any of the Articles of the Statute of *Charta de Foreſta*, by the Act of Parliament of 42 *E.* 3. the ſame is made void; and ſo are all Judgments againſt it made void by the Statutes of *Confirmationes Cart.*

Aſſiſa & Conſuetudines Foreſtæ, publiſhed *Anno* 9 *Ed.* 6.

Attachment of one for Damage to Vert in the Foreſt.

1. If any Foreſter ſhall find any Man attachable for Vert in the Foreſt, he ſhall firſt attach him by two Pledges, if he can procure them; for the ſecond Offence, he ſhall attach him by four; and the third Time, he ſhall be proſecuted before the Verderors, and be put by eight Pledges; and if he offend any more, his Body ſhall be attached, and retained, that he may remember what Vert is.

What is Vert.

2. Be it known, That all Trees not bearing Fruit, and thoſe which bear Fruit at any time in the whole Year, and an Aſh, if it be old, ſhall remain in the Foreſt, and in the arable Land, they be all Vert, becauſe our Lord the King is in the Poſſeſſion of them.

Felling an Oak within the Regard of the Foreſt.

3. If any Man ſhall be found felling an Oak without the Demeſn Wood, and within the Regard of the Foreſt, without the View or Delivery of the Foreſter or Verderor, he ſhall be attached by four Pledges; and by the View of the Verderor the Oak ſhall be valued, and the Names of the Sureties ſhall be entred in the Roll of the Foreſters and Verderors.

For aſſarting or doing Purpreſture.

4. If any Perſon ſhall be found in the King's Demeſns aſſarting or doing Purpreſture, he ſhall be forthwith retain'd; but if without the Demeſns, within the Regard, he ſhall for the firſt Time be put to ſix Sureties; for the ſecond Time, he ſhall double his Pledges; and for the third, his Body ſhall be retained.

Of one offending *contra Vad. & Pleg.*

5. And he that is found attachable, contrary to his Sureties and Pledges, ſhall be diſtrained by his Chattels found within the Bounds of the Foreſt; and if he have none, he ſhall be detained, until Satisfaction; and if he live without the Foreſt, his Name, and the Name of the Town from whence he is, ſhall be inrolled.

Houſeboot to be delivered.

6. Delivery of Houſeboot and Heyboot ſhall be made, as the Wood may conveniently afford, and not at the Requeſt of the Demandant; neither may he give or ſell any of the Wood, without the King's Warrant.

Diſpoſal of a Deer found dead.

7. If any Deer be found dead, or wounded, there ſhall be an Inquiſition made by four of the next Villages in the Foreſt, which ſhall be entred in the Roll. The Finder ſhall be put by ſix Pledges, and the Fleſh ſhall be ſent to the Spittlehouſe, if there be any nigh; if none, then the Fleſh ſhall be given to the Poor, the Head and Skin to the Poor of the next Town, and the Arrow (if any be found) ſhall be preſented to the Verderor, and this to be inrolled in his Roll. (Yet it is ſaid, the Juſtice of the Foreſt may diſpoſe of it at his Pleaſure, *Manw.* 17.)

Of ſeizing and retaining Greyhounds.

8. If there be any Greyhounds running to do Hurt, the Foreſter ſhall retain them, and preſent them in the Preſence of the Verderors, and them to the King, or Chief Juſtice of the Foreſt.

Maſtiffs faſtning upon Deers.

9. If any Maſtiff be found upon a Deer, if he be expeditated, his Maſter ſhall be excuſed; but if not, his Owner ſhall be charged, and ſhall find ſix Pledges, and his Name, with a Deſcription of the Dog, ſhall be written down.

Deer-Stealers arreſted.

10. If any Perſon take a Deer in the Foreſt, his Body ſhall be arreſted, if found within the Limits of the Foreſt; and he ſhall not be deliver'd without the ſpecial Command of the King, or Chief Juſtice of the Foreſt.

Neglect of ſeizing ſuch Offenders.

11. He that ſees Offenders to take or carry away any Deer, he ſhall do what he can to ſeize them; and if he cannot,

he ſhall make Hue and Cry; but if he neglect ſo to do, he ſhall be at the King's Mercy.

Forfeiture of a Woodward neglecting his Duty.

12. If any Woodward ſhall ſee Treſpaſſers within his Ward, or find any dead wild Beaſt, he ſhall ſhew him to the Chief Foreſter or Verderor; but if he neglect it, and the Foreſter find it out within the Precinct of the Regard, the Wood ſhall be taken into the King's Hands by Commandment of the King, or his Chief Juſtice, and the Woodward is to be attach'd by four Pledges.

How Owners of Woods may have Pawnage of Swine.

13. Such Perſon as hath a Wood near unto the King's Demeſn Wood, may (after that the Demeſn Hedges are agiſted) have in the time of Pawnage ſo many Swine as the Wood may allow, by the View of the Foreſters, Verderors, Regardors, Agiſtors, and other lawful Men.

The Juſtices Conſent for Agiſtment and Pawnage.

14. That in the time of Pawnage, when the Agiſtment ought to be made, the Foreſters, Verderors and Agiſtors, ought to have the Aſſent and Approbation of the Juſtices of the Foreſt, by their Letters, and the Agiſtment is to be made, as well within the Demeſn Hedges and Woods, as without, and the Letters are to be produced before the Juſtices in the next Circuit; and as much as may be is to be taken for a Hog, but for Pigs as uſual.

Strangers Cattle treſpaſſing within the Bounds of the Foreſt.

15. If any Perſon of another County wilfully put, or ſuffer his Cattle to go, within the Bounds of the Foreſt, the Foreſter may retain the Cattle by Sureties and ſafe Pledges; which if he cannot do, by the Teſtimony of the Verderors, he ſhall Inform the Sheriff of the County thereof, that he may make Diſtreſs until he find Pledges; and if the Sheriff do it not, then the Foreſter ſhall inform the Juſtices thereof.

Mowers bringing great Dogs.

16. No Mower ſhall bring with him a great Maſtiff, to drive away the King's Deer; but little Dogs, to look to Things without the Covert.

Privilege of keeping Dogs.

17. Nothing, without the King's Warrant, ſhall be done to ſuch as claim the Privilege of keeping Dogs and Greyhounds unlawed within the Foreſt.

Of a Wood remaining in the King's Hands.

18. A Wood remaining in the King's Hands by a Year and a Day, is in the Kings Pleaſure, except it be recovered by the Judgment of the Juſtices.

Whoſe are all the Bounds.

19. All the Bounds of the Foreſt are wholly the King's (i. e. *quoad juriſdictionem & imperium, & non quoad dominium*, 4 Co. Inſt. 318.)

Liberty to an Abbot.

20. By this Article, a Liberty was reſerved to the Abbot of the Borough of St. *Peter*, to hunt in the Foreſt, and to unlawed Dogs.

How an Inqueſt is to be ſigned, and preſented.

21. When Verderors have taken an Inqueſt, one of them muſt ſet to his Seal, and the other muſt keep the Roll; and ſo from Time to Time, until the coming of the Juſtice: Then the firſt Day he and all the Miniſters are to preſent the Roll, or elſe they ſhall be amerced; and Mainpernors that Day are to be tendred for Matters of the Foreſt, or elſe they ſhall incur a Seiſure.

Attachment for cutting Boughs.

For felling of an Oak.

22. If a Man be attach'd for cutting of Boughs, that Plea appertaineth to the Swainmote before the Steward; but if for felling an Oak in the Demeſn of the King, or of any other Perſon, it is to be tried before the Juſtice: And if he do it in the Night-time, he ſhall be impriſoned.

Acquittal of a Perſon only attach'd.

23. If a Perſon be attached for Greenhue, and not preſented at the Swainmote; if it be at another Time, he ſhall be acquitted, and it ſhall be looked upon as the Foreſter's Default and Concealment.

Forfeiture of Office by Foreſter.

24. If a Foreſter do agree unto an Offence in the King's Demeſn Woods, the King ſhall take from him his chief Office, if the Keeper be living. And becauſe the King's Foreſt is waſted at every *Iter* of the Juſtice of the Foreſt, they ſhall pay to the King half a Mark.

Abridgment of other Ordinances and Statutes.

Impriſonment of Treſpaſſers denied to the Lords.

BY *Stat. Merton, cap.* 11. *Anno* 20 *H.* 3. It appears the Lords demanded the Impriſonment of Treſpaſſers in their Parks and Ponds; but it was then denied by the King, and ſo deferred.

Relief therein granted.

Abjuration, and Outlawry.

But by *Weſtm.* 1 *cap.* 20. 3 *Ed.* 1. Treſpaſſers in Parks and Ponds ſhall pay treble Damage to the Party grieved, ſuffer Three Years Impriſonment, be Fined at the King's Pleaſure, and give Surety never to offend in the like Manner again; and if they cannot find Surety, they ſhall abjure the Realm; and if they become Fugitives, they ſhall be outlaw'd.

When a Foreſter kills a Treſpaſſer.

By *Stat.* 21 *Ed.* 1. Neither a Foreſter, Parker, or Warrener, nor their Aſſiſtants, ſhall be queſtion'd for killing a Treſpaſſer; who (after the Peace cried unto him) will not yield himſelf, ſo it be not done out of ſome other former Malice.

Perſons having *Purlieu*, loſe their Common.

Ordinatio Foreſtæ, 33 *Ed.* 1. *Stat.* 5. Thoſe to whom the King hath granted *Purlieu* (whereby their Words are diſafforeſted) ſhall be quit of the Charge of the Foreſt, but then they are to have no Common there: Howbeit, ſuch as are willing to return their Woods into the Foreſt, ſhall enjoy Common and other Eaſements there as they did before.

Preſentments of Treſpaſſes at the Swainmote.

What Indictments to be void.

By an Ordinance, made *Anno* 34 *Ed.* I. *Chap.* I. Preſentment of Treſpaſſes, of Green-Hue, and Hunting in Foreſts, ſhall be made at the next Swainmote by the Foreſters, within their ſeveral Bailywicks, before the Foreſters, Verderors, Regardors, Agiſtors, and other Miniſters of the Foreſt; and they ſhall be alſo inquired of, as well by the Oaths of Knights, as other lawful Men (not ſuſpected) of the neareſt Parts where the Treſpaſſes were committed: And the Preſentments ſo inquired of ſhall be ſolemnly confirm'd, and ſealed by the Seals of the ſaid Miniſters; and if the Indictment be made otherwiſe, it ſhall be utterly void.

Under Officers to be made.

Verderors, by Election, *&c.*

Chap. II. If any Officer die, or be otherwiſe hindred, that he cannot be preſent at the Swainmote, the Juſtice of the Foreſt, or his Lieutenant, ſhall put another in his Place, that the Indictment may nevertheleſs be made by all, in the Form aforeſaid: Alſo Officers which are to be placed, ſhall be put as hath been uſed, except the Verderors, who ſhall be ordain'd by Election or Writ.

Not to be put upon Foreign Inqueſts.

Chap. III. No Miniſter of the Foreſt ſhall be put upon any Aſſize, Jury or Inqueſt, to be taken without the Foreſt.

Officers ſurcharging the Foreſt.

To be enquired of at the Swainmote.

Chap. IV. No Officer of the Foreſt ſhall ſurcharge the Foreſt, in Pain to be impriſon'd by the Juſtice of the Foreſt, or his Lieutenant; and he by whom they were placed, ſhall be alſo puniſh'd at the King's Pleaſure. And at every Swainmote, Enquiry ſhall be made of Surcharges, Foreſters, and other Miniſters there, and of Oppreſſions done to the People, that Reformation may be made.

Of former Treſpaſſes committed.

Chap. V. That Treſpaſſes committed in Grounds diſafforeſted ſhould be pardon'd, yet ſo as the Hedges and Ditches ſhould be caſt down and removed, ſaving the King's Arrentations, which ſhould remain according to the Aſſize of the Foreſt: Alſo, That the Wood fell'd in the Foreſt ſhould be carried away; but that ſtanding, though ſold, ſhould be preſerved.

Fines therefore to be taken.

Commoners reſtored.

Chap. VI. That the Juſtice, or his Lieutenant, ſhould take Fines and Amercements of the Perſons indicted for Treſpaſſes there, and ſhould not tarry for the Eyre: And that Commoners reſtrain'd from their Commons by the Perambulation, ſhould be reſtored to them again, ſaving the King's Arrentations as aforeſaid.

Of the Ord. Foreſt, 34 *Ed.* I. made by the King only.

By 4 *Co. Inſt.* 292. It is ſaid, this Ordinance being made by the King only, without Authority of Parliament; albeit it was in Affirmance of the Law, did not bind, and therefore was not executed: And that it was but an Ordinance or Declaration made by King *Ed.* I. appeareth expreſly by the Statute of 1 *Ed.* 3. And by that Act of 1 *Ed.* 3. the ſaid Declaration is rehearſed as a Law; the Obſervation whereof (ſays he) is alſo an excellent Preparation for a Juſtice-Seat.

Treſpaſſers taken in the Manner.

Anno 1 *Ed.* 3. *Stat.* 1. *Cap.* 8. None ſhall be taken or impriſon'd for Vert or Veniſon, unleſs he be taken with the * Manner, or elſe indicted, according to the *Stat.* 34 *Ed.* I. and then the Warden of the Foreſt ſhall let him to Mainprize until the Eyre of the Foreſt, without taking any Thing for his Deliverance; and if the Warden will not ſo do, he ſhall have a Writ out of the *Chancery* of Old, ordained for Perſons indicted, to be bail'd till the Eyre.

> * *Note:* 'A Treſpaſſer with the Manner 'may be of Four Sorts for Veniſon, *viz.* Dog-draw, or Staple-ſtand, 'Back-bear, and Bloody-hand; and 'of Two Sorts for Vert, *viz.* Cutting of it, and carrying of it away.'

Such Treſpaſſers are to be let to Mainprize.

Elſe they may have an Attachment to the Sheriff againſt the Warden, *&c.*

And if the Warden, after the Writ ſerved, deliver not the Perſon indicted to Mainprize, the Plaintiff ſhall have a Writ out of the *Chancery*, directed to the Sheriff, to Attach the Warden to anſwer his Default before the King at a certain Day; and then the Sheriff (the Verderors being called to him) ſhall deliver the Perſon indicted by good Mainprize, in the Preſence of the ſaid Verderors, and ſhall deliver the Names of the Mainpernors to the ſaid Verderors, to anſwer in the Eyre before the ſaid Juſtices. *Ibid.*

And the Warden may be puniſhed.

And if the Warden thereof be attainted, he ſhall be awarded to pay treble Damage to the Party grieved, committed to Priſon, and ranſom'd at the King's Will. *Ibid.*

Charters confirm'd.

The Perambulations and Boundaries continued.

Anno 1 *Ed.* 3. *Stat.* 2. *Cap.* 1. The Great Charter, and alſo that of the Foreſt, are confirm'd; and enacted, That the Perambulations of Foreſts ſhould continue as they were bounded in the Time of *Edward* the Firſt, and that every County ſhould have a Charter thereof, and where they were not bounded, it ſhould be then done, and that a Charter thereof ſhould be alſo made accordingly.

Owners may take Houſe-Boot, *&c.* in their Woods

Anno 1 *Ed.* 3. *Stat.* 2. *Cap.* 2. Every Man having Wood within the Foreſt, may take Houſe-Boot and Hey-Boot in his ſaid Wood, without being attached for the ſame by the Miniſters of the Foreſt, ſo that it be done by the View of the Foreſters. 4 *Co. Inſt.* 299.

Foreſters not to gather Victuals, *&c.*

Anno 25 *Ed.* 3. *Stat.* 5. *Cap.* 7. No Foreſter or other Miniſter there ſhall, againſt any Man's Will, gather any Victuals, or other Thing by Colour of his Office, but what was due of Old Right.

How a Jury ſhall give up their Verdict.

By *Stat. Anno* 7 *Rich.* 2. *Cap.* 3. A Jury, for the Trial of a Treſpaſs within the Foreſt, ſhall give up their Verdict where they receiv'd their Charge, and ſhall not by Menace or otherwiſe be conſtrain'd to give their Verdict of a Treſpaſs done in the Foreſt, otherwiſe than their Conſcience will clearly inform them.

Impriſon'd when indicted, or taken with the Manner.

By *Stat.* 7 *Rich.* 2. *Cap.* 4. No Officer of the Foreſt ſhall take or impriſon any without due Indictment, or *per main Ovre*, with his Hand at the Work, (that is, being taken with the Manner) or treſpaſſing in the Foreſt; nor ſhall conſtrain any to make Obligation of Ranſom againſt his Will, and the Aſſize of the Foreſt, in Pain to pay the Party grieved double Damages, and be ranſomed at the King's Will.

When Owners of Woods may keep them ſeveral, *&c.*

For the next Seven Years.

By *Stat.* 22 *Ed.* 4. *Cap.* 7. If any having Woods in his own Ground within any Foreſt, Chaſe or Purlieu, ſhall cut, or cauſe the ſame (or any Part thereof) to be cut by the King's Licence, (where ſuch Foreſts, Chaſes, or Purlieus, are his) or without Licence, (where they belong to others) he may keep them ſeveral and incloſed during Seven Years next after their Felling.

The Juſtices Deputies.

By *Stat.* 32 *Hen.* 8. *Cap.* 35. Every Juſtice of the King's Foreſts, Chaſes and Parks, by Writing under the Seal of his Office, may make as many Deputies as he pleaſes; which ſhall have like Power as the Juſtice himſelf hath.

Of Keeping of Dogs within the Foreſt, and of Lawing, Hambling, or Expeditating Maſtiffs, &c.

Who may keep Maſtiffs that are expeditated.

FRom what is before cited concerning the Laws of the Foreſt, it may be obſerved how ſtrict and ſevere they are againſt keeping great Dogs and Maſtiffs within the Bounds and Limits thereof: Yet having a Reſpect to the neceſſary Uſe and Service of ſuch Dogs, for the Preſervation of Men's Houſes and Goods, therefore it is allowed, That Farmers and ſubſtantial Freeholders may keep Maſtiffs, for the Defence of their Houſes within the Foreſt, provided ſuch Dogs be expeditated, and duly Lawed for ſuch a Tolleration.

The Manner of Expeditating.

The Way of Expeditating of Maſtiffs or great Dogs, is done after this Manner; *viz.* Three Claws of the Fore-Foot are cut off by the Skin; and this, by ſetting one of his Fore-Feet upon a Piece of Wood of about 8 Inches thick, and a Foot ſquare, and with a Mallet (ſetting a Chiſſel of Two Inches broad upon the Three Claws of his Fore-Foot) to cut them off at one Blow.

When and where to be.

And this Expeditating (formerly called Lawing or Hambling of Dogs) is to be inquired of by the Regarders of the Foreſt every third Year; and after they have made their Inquiry, and delivered their Verdict in the Court of Swainmote, at the next Court of Attachment holden after ſuch Court of Swainmote, the Maſtiffs are to be expeditated, and the Owners of ſuch Maſtiffs, as were return'd in the Regardor's Inquiſition to have been kept in the Foreſt unexpeditated, are to be amerced 3 *s.* to be levied of the Goods and Chattels of the Owners, and to be paid to the Verderors, for the Uſe of the King.

If ſuch Dogs chance to faſten on the Deer.

And whereas by the Laws of the Foreſt, If any Maſtiff that is expeditated be found upon a Deer, yet the Owner of ſuch Maſtiff ſhall be quit of the Fact: This makes it appear, That the Inhabitants may keep Maſtiffs expeditated, tho' they ſhould chance to faſten upon the Deer of the Foreſt.

When a Dog unexpeditated does Hurt.

And it is further provided by the Laws of the Foreſt, That if any Maſtiff kept therein unexpeditated, do hurt or kill any wild Beaſt of the Foreſt, the Owner ſhall be puniſhed for ſuch Offence according to the Quality thereof, beſides the Forfeiture of 3 *s.* for keeping ſuch Maſtiff unlawed.

The King's Grantee may keep Maſtiffs, *&c.* unexpeditated.

Notwithſtanding, it alſo appears by the Laws of the Foreſt, That he who hath a lawful Claim by good Title, may keep Maſtiffs within a Foreſt unexpeditated; ſo by the like Claim he may keep Greyhounds. And although Greyhounds and Spaniels are generally, and Maſtiffs unlawed are expreſly, forbidden to be kept within a Foreſt; however there is thought to be leſs Danger in Maſtiffs than from Greyhounds, and yet there is no Law to expeditate the latter, becauſe they are forbidden to be kept within the Foreſt: Therefore no Perſon may keep any of them there, except ſuch as have obtain'd Grants from the King for that Purpoſe.

Drift of the Foreſt.

To what End and Purpoſe the Drift of Foreſt is made.

THere is alſo a Law, by *Stat.* 32 *Hen.* 8. *Cap.* 35. made for the Drift of the Foreſt; by the Officers taking an exact View or Examination once, twice, or oftner in the Year as Occaſion ſhall require, what Beaſts there are in the Foreſt, to the End, that the Common in the Foreſt be not overcharged; That Beaſts of Foreigners that have no Common there may be avoided; That Stoned Horſes under 15 Hands high, and infected Cattle, may be put out; and other unprofitable Beaſts, as Mares, Filly-foles or Foles, and Geldings, that ſhall be thought not able, nor like to grow to be able, to bear Foles of reaſonable Stature; or not able, or not like to grow to be able, to profitable Labours, may be deſtroyed at the Diſcretion of the Drivers. See the *Stat. & vide Manwood, fol.* 27. *& eund. cap.* 15. *&* 4 *Co. Inſt.* 309. See more at the latter End of this Treatiſe of a Penalty, by 9 *&* 10 *Wil.* 3. for not making Drifts of the Foreſt.

Of the Courts belonging to the Foreſt; of the Judges thereof, and the Officers attending the ſame.

Three Principal Courts.

THere are Three Principal Courts uſually kept for the Matters of the Foreſt, *viz.*

I. The Court of *Attachments* (or *Woodmote*-Court.)

II. Court of *Swainmote.*

III. The High Court of the Lord Juſtice in Eyre of the Foreſt, commonly called, *The Juſtice-Seat.*

Note: Co. Inſt. 4. *fol.* 289. *cap.* 73. mentions the Court of *Regards*, or Survey of Dogs, to be holden every third Year. *Chart. de Foreſt. cap.* 6.

Of different Natures.

And theſe Three ſeveral Courts are each of them of a ſeveral Nature.

I. *The Court of* Attachments.

1. The Court of *Attachments.*

The Officers Buſineſs there.

This Court is the moſt Inferior of them all, and cannot determine the Offence or Treſpaſs of the Foreſt, if the Value thereof be above 4 *d.* for all above that Value muſt be inrolled in the Verderor's Roll: So that the Officers of this Court have little more to do than to receive the Attachments of the Foreſters, and inroll them in the Rolls of the Verderors, to have them in a Readineſs againſt the Time that the Court of Swainmote is kept, there to have an orderly Trial according to the Laws of the Foreſt.

Conviction to be at the Court of Swainmote, *&c.*

And notwithſtanding the greateſt part of all the Preſentments do firſt begin in this Court, yet they cannot proceed farther therein; neither is a Preſentment in this Court any Conviction againſt the Offender, becauſe he may traverſe that Offence until it hath paſſed the Court of Swainmote, to which all Treſpaſſes preſented at the Court of Attachments muſt neceſſarily proceed, before the Offenders can be puniſh'd, or ſtand convicted, as Guilty in Law, of their Offences. *Vide Poph. Rep.* 150. *Manw.* 400, &c.

Officers to appear at this Court of Attachments.

Woodwards to preſent, *&c.*

But cannot make Attachments.

This Court of Attachments is kept by the Verderors, and therefore ſometimes called the Verderors Court: And yet at this Court all the Foreſters, and other Officers and Miniſters of the Foreſt, ought to appear and give their Attendance: And here the Woodwards muſt preſent all Offences committed within their Charge, and the Death of wild Beaſt of the Foreſt to the Chief Foreſter or Verderor; but they cannot attach Offenders, or make any Attachment, for that muſt be left to the Foreſters, whoſe Office it is to perform the ſame.

The Words of a Preſentment in the Court of Attachments are, *Præſentat' eſt per Foreſtarios*, &c.

II. *The Court of* Swainmote.

2. The Swainmote-Court.

Here the Conviction of Offenders is pronounced.

And to be delivered over.

THough this Court is much Inferior to the *Juſtice-Seat*, yet it is higher than the Court of *Attachments*; for when the Preſentments of the Court of Attachments and Swainmote have had their Proceedings, (which are chiefly to preſent Agiſtors, Regardors, *&c.*) yet cannot the Court of Swainmote determine the ſame, or aſſeſs Fines for any of the Offences ſo preſented, or give any Judgment thereupon, other than to pronounce them convicted: But the ſame Preſentments and Convictions muſt be delivered in to the Lord Juſtice in Eyre, at the Court of Juſtice-Seat, on the firſt Day of that Court's Sitting, when the ſame are called for, according to the Laws and Ordinances of the Foreſt.

Who owe Suit and Service here.

The Plea of the Foreſt runs thus; *Præſentatum per Foreſtarios, & convictum per Viridarios.* Alſo, the Swainmote is a Court unto which all the Freeholders within the Foreſt do owe Suit and Service: And there ought to be a Steward at every Swainmote, *per Aſſiſ. & Conſ. Foreſt.* 22.

When the Two Courts are to be kept.

And *Note*, That by the Charter of the Foreſt, *cap.* 8. the Court of Attachments are to be kept every Forty

Days throughout the Year, and the Court of Swainmote thrice in the Year; and theſe Two Courts are but as it were Two Hands to deliver Matters to the Court of Juſtice-Seat, that from thence Judgment may be had.

Judges.

Chief Warden.

The Verderors are the Chief Judges of the Swainmote, although the Chief Warden of the Foreſt or his Deputy doth uſually ſit there; but, it ſeems, not as any Judicial Officer, for that no Judicial Officer may by the Common Law make a Deputy. And though they are the Judges, yet 'tis obſervable that the Preſentments there are as well by them as Verderors, as by the Foreſters, Keepers, Regardors and Agiſtors. *Vide Manw.* 410.

What Miniſters, *&c.* to appear at the Swainmote.

At this Day all the Officers and Miniſters of the Foreſt ought to appear at every Swainmote; not only the Verderors, Regardors, Agiſtors, Woodwards, and all other Perſons within the Circuit of the Foreſt, which are Freeholders; but alſo out of every Town and Village within the Foreſt, Four Men and a Reeve: And if any of theſe make Default, he ſhall be amerced, and ſuch Amercement eſtreated to the Chief Warden of the Foreſt, to levy the ſame by Diſtreſs.

Reeve.

Stewards of the Court.

By the Words, Miniſters of the Foreſt are intended the Stewards of the Court of Swainmote, who ought to be Men of Learning, and well ſkill'd in the Laws; for that ſome Pleas of the Foreſt are triable in the Court of Swainmote only: As if a Man be attached for cutting of Boughs within the Foreſt, that Plea appertains to the Court of Swainmote before the Steward there, as appears by the Aſſizes and Cuſtoms of the Foreſt, *cap.* 22.

Some Pleas determinable in this Court.

III. *Of the Court of* Juſtice-Seat.

3. The High Court of *Juſtice-Seat.*

THIS is the chiefeſt and moſt Supreme Court of the Foreſt, wherein the Lord Chief Juſtice, or Juſtice of the Foreſt, doth ſit; unto whom it belongs to give Judgment of all Offences, and to aſſeſs Fines, and puniſh the Offenders, as in Part is before obſerved. And this Court, it's ſaid, cannot be kept oftner than every third Year. *Co.* 4. *Inſt.* 291.

To be kept every Third Year.

The Lord Chief Juſtice of the Foreſt.

The Lord Chief Juſtice of the Foreſt, is uſually a Noble Peer of the Realm, and it's ſaid, may keep his Court at any Place out of the Foreſt. 1 *Cro.* 405. That he hath an abſolute Authority appointed to determine Offences committed within the King's Foreſts, either in Vert or Veniſon; and the ſame Offences are to be determed before him, and not before any other Juſtices, except ſuch as are appointed by his Majeſty's Commiſſion to aſſiſt him therein. *Vide* 4 *Co. Inſt.* 291. where it's ſaid, the King by Patent grants unto him *Officium Gardiani Capitalis Juſticiarii*, &c. *habend' & exercend' officium prædict' per ſe vel per ſufficien' Deputatum ſuum*, &c.

His Aſſiſtants.

Juſticiar' citra Trentam.

That there is but one Chief Juſtice of the Foreſt on this ſide *Trent*, and he is named, *Capitalis Juſticiarius itinerans Foreſt'*, &c. *citra Trentam.*

Juſticiarius ultra Trentam.

And that there is another *Capitalis Juſticiarius*, and he is *Itinerans omnium Foreſt'*, &c. *ultra Trentam*, who hath uſually Aſſiſtants aſſociated to him; and therefore, when Juſtice-Seats are to be holden, the King appoints Aſſociates to the Chief Juſtice, who, together with him, may determine all Pleas of the Foreſt, with a Patent of *Si non omnes*, &c. and a Writ *de Admittendo*, &c. And the Chief Juſtice of the Foreſt, and theſe Aſſociates, are named *Capitales Juſticiarii Foreſtæ*; and they are named *Capitales*, in reſpect of the Verderors and others, that to ſome Purpoſes have Judicial Places. 4. *Co. Inſt.* 314.

The Juſtice's Aſſociates.

Capitales Juſticiarii.

Chief Warden.

The Chief Warden of the Foreſt appears to be a great Officer, but yet he is no Judicial Officer: However he ſeems to be next to the Juſtice of the Foreſt, as appears by his being appointed next to him, to bail and diſcharge Offenders, and in ſome Matters he is named firſt; alſo he hath a Deputy or Lieutenant. *Vide Manw.* 33. & 462, 463.

Where a Foreſt is appendant to a Caſtle.

Conſtabulat & Cuſtos. 4 *Co. Inſt.* 312.

It is to be obſerved, ſays 4 *Co. Inſt.* 313. That where the Foreſt of *Pickering* was appendant or belonging to the Caſtle of *Pickering*, that he that is the Conſtable of the Caſtle, is ever by the Law of the Foreſt, Chief Warden of that Foreſt; and ſo it is of the Foreſt of *Windſor*, belonging to *Windſor* Caſtle; of the Foreſt of *Rockingham*, belonging to the Caſtle of *Rockingham*; and all other Foreſts belonging to Caſtles.

The Office of Chief Warden, *&c.*

And in 4 *Co. Inſt.* 299. it is ſaid, The Chief Warden, Chief Juſtice, and Juſtice *Itinerant*, are to deal concerning the Preſervation and Maintenance of the Game, in reſpect of the Shades, Coverts, Pawnage, and ſuch-like, for Deer.

Cuſtos totius Foreſtæ.

Supervisor Foreſtariorum.

Alſo Mr. *Manwood*, *cap.* 25. obſerves, That there were alſo Two other Great Officers belonging to the Foreſt; the one called *Cuſtos totius Foreſtæ*, (this ſeems to be the Chief Warden) and the other *Superviſor Foreſtariorum.*

Proto-foreſtarius.

Alſo it is ſaid, *Proto-foreſtarius* was heretofore a great Officer in *Windſor* Foreſt.

High Steward.

Under Steward.

See at the latter End of this Treatiſe, concerning an Act made 9 & 10. *Wil.* 3. *cap.* 36. and therein of the Payment of Penalties to the High and Under Steward of *New* Foreſt.

Of the Inferior Miniſters, *&c.*

And here Occaſion is offered to ſpeak of the Inferior Officers and Offices, and other Miniſters of the Foreſt, whoſe Perſonal Attendance is required at the ſaid Courts, for putting the Foreſt Laws in Execution. Such are the Vederors, Regardors, Agiſtors and Foreſters, *&c.*

A Verderor.

A Verderor's Place and Office.

A Verderor, *Veredarius a viridi*, Vert or Green-Hue, for that his Office principally is concern'd in looking to the Vert or Green, and to ſee that it be maintain'd: He is farther deſcribed to be a Judicial Officer of the King's Foreſt, chosen by the King's Writ in the full County Court of the Shire where the Foreſt is, and ſworn before the Sheriff to maintain and keep the Aſſizes or Laws of the Foreſt; and alſo to View, Receive, and Inroll, the Attachments and Preſentments of all manner of Treſpaſſes of the Foreſt, relating to Vert and Veniſon. 4 *Co. Inſt.* 292. And there are moſt commonly in every Foreſt, Four of theſe Officers.

How choſen.

Four in a Foreſt.

How his Office reſembleth that of a Coroner.

The Office of a Verderor much reſembles that of a Coroner, eſpecially in this Reſpect; That as a Coroner, upon Notice of a Perſon ſlain, is to go to and View the dead Body, and to make Inquiry, by the Oath of 12 Men, how and by what Means the Perſon came to his Death, and who or what was the Occaſion thereof: 4 *Co. Inſt.* 292. So it is the Duty of a Verderor, by his Office, to look after and view the wild Beaſts of the Foreſt; for if any of them be found ſlain, wounded or hurt, upon Notice given to the Verderor, he is to go unto and view the ſame, and cauſe an Inquiſition to be made by a Jury of 12 Men, out of Four of the next Towns to the Foreſt, to know how and by whom the ſame Beaſt was kill'd, wounded, or hurt. Alſo if an Oak, being Oververt, within the Foreſt, be fell'd or cut down out of the King's Demeſn Woods, the ſame is to be appraiſed by the View of the Verderors.

His View and Appraiſement.

His Office at the Court of Attachments.

The Office of the Verderor at the Court of Attachments is, to ſit there to ſee the Attachments of the Foreſt, as well of Vert as Veniſon, and receive the ſame of the Foreſters and others that preſent them there, and then to enter them in their own Rolls.

His whole Office conſiſts in Six Things.

The whole Office of a Verderor is ſaid to conſiſt in theſe Six Things, *viz.*

1. *Ad Videndum.*	1. To See, and to View.
2. *Ad Inquirendum.*	2. To Inquire.
3. *Ad Recipiendum.*	3. To Receive.
4. *Ad Imbreviandum.*	4. To Inroll.
5. *Ad Judicandum.*	5. To Judge.
6. *Ad Certificandum.*	6. To Certify.

Manwood, L. For. 407. but 4 *Co. Inſt.* 292. mentions only, That he is to View, Receive and Inroll, and to do equal Right and Juſtice.

A Regardor.

The Office of a Regardor.

A Regardor is an Officer of the King's Foreſt, ſworn to make the Regard thereof, as the ſame had been uſed in former Time; and alſo to view and inquire of all the Offences of the Foreſt, as well touching Vert as Veniſon, and of all Concealments of Offences, or Defaults of Foreſters, and all other Officers of the Foreſt, concerning the Execution of their Offices.

His whole Office conſiſts in Four Things.

In the Words, *to make Regard*, is comprehended his whole Office, which conſiſt in Four Things, *viz.*

1. To See, or View.
2. To Inquire.
3. To Inroll.
4. To Certify.

} *Manw.* 421.

Conveniunt Rebus nomina ſæpe ſuis.

4 *Co. Inſt.* 291. ſays, a Regardor is derived from the *French* Word, *Regardeire*, to View or See, becauſe he cannot preſent any Thing but upon his own Sight and View; and he further adds, To ſpeak once for all, the Names of all the Officers from the higheſt to the loweſt, put them in Mind of their Duty.

Three Sorts of Regardors.

There are ſaid to be Three ſorts of Regardors, *viz.*

One made by Letters-Patents.

1. One made by the King by Letters-Patents, whereby the ſaid Office is ſometimes granted for Life, and ſometimes in Fee.

Another by the Chief Juſtice, or by Writ.

2. Another Sort made by the Lord Chief Juſtice in Eyre, or by Writ directed to the Sheriff; who is to exerciſe the ſaid Office during the King's Pleaſure only.

Another *pro hac Vice tantum.*

3. Another ſort of Regardors, made *pro hac vice tantum* for the preſent Service of the Court of Swainmote, or to ſerve ſome other Time in the Abſence of ſome of the Regardors that are ſick, or otherwiſe not able to ſerve at that Time. 4 *Co. Inſt.* 291.

Court of Regards, for Lawing Dogs.

4 *Co. Inſt.* 289. Mention is made of the Court of Regards, or Survey of Dogs, to be holden every Third Year, for Expeditating or Lawing of Dogs by that Court; the Manner whereof is beforemention'd in *Chart. de Foreſt. cap.* 6. *& aliter*, concerning Keeping and Lawing of Dogs, *&c.*

In 4 *Co. Inſtit.* 292. Eleven Particulars are ſet forth, which are to be made upon View of the Regardors.

1. The Firſt View mentioned, relates to Aſſarts.

2. To Purpreſtures in Woods.

3. To Purpreſture in Arable.
4. To Waſte of Woods.
5. To the King's Woods.
6. To the Hedges of the King.
7. Is General to all Purpreſtures, Aſſarts and Waſtes.
8. Relates to the Ayeries of Hawks.
9. To Forges and Mines.
10. To the Havens of the Sea.
11. Relates to Honey, *&c.*

And in this reſpect of View, it is ſaid, he is reſembled to a Coroner *ſuper viſum al'*.

That a Regarder may not officiate until he be ſworn by the Sheriff. *Manw.* 427.

A Foreſter.

A Foreſter is made by Letters Patents.

In Fee for Life, or *durante Beneplacito.*

Sometimes by Preſcription.

A Foreſter is an Officer of the King's Foreſt, made by Letters Patents, to hold his Office either in Fee, paying a certain Fee Farm-Rent yearly for the ſame; or elſe to have the ſame for Life, or *durante Beneplacito*: And ſometimes they claim to hold the ſame Office by Preſcription. And thoſe that are Servants to ſuch Foreſters, to look to the Foreſt, and attend the Deer for them, are not properly called Foreſters, but *Walkers*, or *Under-keepers*.

His whole Office conſiſts in Four Things.

The whole Office of a Foreſter doth conſiſt in theſe Four Things:

To
- Preſerve—the Vert and Veniſon.
- Watch —and be careful in attending their Preſervation.
- Attach —Offenders or Treſpaſſers in the Foreſt.
- Preſent —the Offenders and the Attachments he has made, at the Forty Day Court, and at the Court of the Swainmote, according to the Aſſizes and Laws of the Foreſt. *Manw. L. For.* 429.

But 4 *Co. Inſt.* 293. ſaith, His Duty appeareth by his Oath, and it conſiſteth of five Parts: 1. That he will be true to the Maſter of the Foreſt. 2. That he will truly Walk and Watch. 3. To Attach and Preſent all Treſpaſſes. 4. To keep the King's Counſel, and that of Himſelf and Fellows. 5. No Concealment to make for Favour or Dread, but truly to behave himſelf in his Office, *&c.*

Where the Foreſter may rechaſe the wild Beaſts into the Foreſt.

The Foreſter alſo hath an Authority to follow the wild Beaſts that eſcape out of the Foreſt, and to rechaſe them back again: But this Power is reſerved to him only for ſuch Foreſts as have no Pourallees; for where there are Pourallees belonging to the Foreſt, there are alſo Rangers, whoſe Office is purely to rechaſe the wild Beaſts into the Foreſt; and in ſuch Caſe the Foreſters are not to meddle, unleſs that ſuch Foreſters do follow them with freſh Purſuit within their View.

If no Rangers.

4 *Co. Inſt.* 293. ſaith, He is taken for a Woodward, not only of the King, within his Foreſt, but *ex vi Termini* of any Subject of his Woods whereſoever they lie.

A Woodward.

The Office of a Woodward.

A Woodward is an Officer attending the Woods in the Foreſt, and he is alſo to preſent at the Court of Attachments, all the Offences done within his Charge; but he cannot make any Attachment, nor attach any Offender within his Charge: For the Words of the Aſſizes, and Cuſtoms of the Foreſt, *Articulo* 12°, are, That if he ſhall ſee a Treſpaſſer in his Ward, or a Beaſt dead, he ought to ſhew it to the Chief Foreſter or Verderor: So that it ſeems he may preſent Offenders, but not attach them.

A Beadle of the Foreſt.

The Office of a Beadle is to make Summons and Proclamations.

He is an Officer or Servant that doth Warn or Summon all Perſons to appear at the Courts of the Foreſt; he is alſo to make all manner of Proclamations, as well within the Courts of the Foreſt, as without; and executes all the Proceſs of the Foreſt, as Bailiffs of Liberties, or Itinerant of the Sheriff doth in his County.

An Agiſtor.

The Office of an Agiſtor.

To take Cattle into the Foreſt to agiſt.

He is an Officer that doth attend upon the King's Woods and Lands in the Foreſt, to receive and take in the Beaſts and Cattle of every Perſon, being an Inhabitant of the Foreſt, that may for their Money (and for the King's Benefit and Profit) have Common of Herbage there for ſuch Beaſts as are commonable within a Foreſt: And this taking in of Cattle to Paſture or Feeding by the Week, Month, or otherwiſe, is called *Agiſting of Cattle*; and the Common of Herbage is called *Agiſtment*.

Agiſtment, what.

1. Agiſtment of the Herbage.

2. Agiſtment of Woods, *&c.*

And it is to be noted, That Agiſtment is in two Sorts, *viz.* The Agiſtment of the Herbage of Woods, Lands and Paſtures; and alſo the Agiſtment of the Woods and Hedge-rows, which is called Pawnage, for the Feeding of Hogs or Swine with the Maſt of the Woods.

How conſtituted, *&c.*

This Officer, it's ſaid, is conſtituted by the King's Letters Patents; and of theſe, in ſuch Foreſts where there is any Pawnage, there are Four in Number. 4 *Co. Inſt.* 293.

Difference between Pawnage and Agiſtment.

And therefore this is the Difference between Pawnage and Agiſtment; That Pawnage is the Agiſtment of the Maſt of the Trees, or the Profit that is made of it; and Agiſtment is the Herbage of the Ground, or the Profit that is made thereof.

A Ranger.

A Ranger is by Letters Patents.

Tho' he is not properly an Officer in the Foreſt, yet he is a conſiderable Officer of and to the Foreſt, his Charge being only concerning the Veniſon coming out of the Foreſt into the Pourallees.

Fee Deer.

He is appointed by the King, or his Chief Juſtice in Eyre, and made by Letters Patents under the Great Seal, with a yearly Fee, payable out of the Exchequer, as alſo certain Fee Deer, both Red and Fallow, to be taken annually out of the Foreſt, at proper Seaſons of the Year.

How he is to rechaſe out of the Pourallees.

By the Oath of his Office, he is to rechaſe, and with his Hounds drive back the wild Beaſts of the Foreſt, as often as they range out of the ſame into his Pourallee.

And to preſent Offenders.

He is to preſent all unlawful Hunting and Hunters of wild Beaſts of Venary and Chaſe, as well within the Pourallees, as within the Foreſt; and his Preſentments are to be made at the next Court of Attachments or Swainmotes, which ſhall firſt happen.

Now we will return to the High Court of Juſtice-Seat, and the Lord Chief Juſtice of the Foreſt.

The Honour and Authority of the Lord Chief Juſtice.

When made by ſpecial Commiſſion.

May puniſh all Treſpaſſes, and may determine all Claims, &c.

He is to be created by Letters Patents.

The Office of the Lord Chief Juſtice of the Foreſt (as before obſerv'd) is a a Place of great Honour and Authority, always executed by ſome of the Chiefeſt of the Nobility, who is of the King's Privy-Council. And when he is made Lord Chief Juſtice in Eyre of the Foreſt by the King's Special Commiſſion, he hath thereby as great an Authority (if not greater) as any Juſtice of Oyer and Terminer hath, to hear and determine Matters at Common Law: For then he may puniſh all Treſpaſſes and Offences of the Foreſt, according to the Laws of the ſame; and may hear and determine all Claims touching the Liberties and Franchiſes within the Foreſt, as to have Parks, Warrens and Vivaries therein; alſo of them that claim to be quit of Aſſarts and Purpreſtures, or of ſuch as do claim Leets, Hundreds, Goods of Felons, Fugitives and Outlaws, *Felo's de ſe*, Waifs, Eſtrays, Deodands, and ſuch-like Immunities, and other Liberties within the Foreſt. As alſo of ſuch Perſons that claim to kill Hares, and other Beaſts of Chaſe and Warren within the Foreſt. *Note*, the Chief Juſtice was anciently created by Writ, as other Juſtices in Eyre were; but now by *Stat.* 27 *H.* 8. *Cap.* 24. he is to be created by Letters Patents. *Co.* 4 *Inſt.* 291.

He may make Deputies by Statute-Law.

Aliter, of the Chief Warden, and yet he hath a Deputy, &c.

The Statute of 32 *H.* 8. *Cap.* 35. before cited, did authorize ſuch Lords Chief Juſtices to make Deputies to execute their Office, by Writings or Inſtruments under their Hands, and ſealed with the Seals of their Offices, and not otherwiſe: But there is no ſuch Power given by any Statute to the Chief Warden of the Foreſt, to make any Deputy to execute his Office. And notwithſtanding, there are commonly two Deputies in every Foreſt, which are called Lieutenants, *viz.* The Lieutenant of the Lord Chief Juſtice, or Lord Juſtice in Eyre of the Foreſt, and the Lieutenant of the Chief Warden of the Foreſt.

Proceedings by the Juſtices, &c.

Proceedings by the Juſtices.

General Summons.

After the Commiſſions for holding the Court of Juſtice-Seat of the Foreſt are given out, the Juſtices make out their Precept to the Sheriff of the County wherein the Foreſt lies, and the Juſtice-Seat is kept, commanding him to ſummon all the Prelates, Nobility, Knights, Gentlemen and Freeholders, that have Lands within the Bounds of the Foreſt, and out of every Town and Village, Four Men and a Reeve; and out of every Borrough Twelve Lawful Men, and all Perſons that claim to hold Pleas of the Foreſt before the Juſtices, to appear at a certain Day and Place appointed, before the Juſtice in Eyre of the Foreſt, or his Deputy, to hear and do ſuch Things as appertain to the Pleas of the Foreſt.

Proclamation by the Sheriff.

For all claiming Liberties, &c. to appear.

Alſo Perſons attach'd, and their Pledges.

Alſo the Sheriff and his Bailiffs.

And likewiſe, that the ſaid Sheriff do make Proclamation in all Boroughs, and other Towns, Fairs, Markets, and publick Places throughout his Bailiwick, That all Perſons who claim to have any Liberties, Franchiſes or Free Cuſtoms of the Foreſt, may be there, at the Time and Place appointed, to make good their Claims; and that all Perſons attached ſince the laſt Court, touching Vert or Veniſon, and their Pledges and Mainpernors, who had a Day given them until this Court for their Appearance, be there alſo, to ſtand to and abide the Judgment of the Court; and that the Sheriff be there with his Bailiffs to execute and certifie thoſe Things which appertain to his Office.

Day of Warning to Officers, &c.

Upon this General Summons, a reaſonable Day of Warning, by the Space of Forty Days at the leaſt, is uſually given to the Officers, and all other Perſons that are to appear at this Court, to hold their

Seſſions in, in the ſame Manner as the Juſtices at large do; and they may hold Pleas of *Quo Warranto*, as the other Juſtices do.

Another Summons to the Chief Warden, *&c.*

For the Officers to bring in their Rolls and Attachments, *&c.*

There is alſo another kind of General Summons, which the Juſtices of the Foreſt cauſe to be made to the Chief Warden or Keeper of the Foreſt, to warn all the Foreſters, Verderors, Regardors, Woodwards, and other Miniſters of the Foreſt, to come to the ſaid Court, and bring with them all the Rolls, Writings and Attachments of the Foreſt, as well relating to Vert as Veniſon, made ſince the laſt Court, or left there undetermined; and that the Regardors do likewiſe come thither, and bring with them all the Regards made and inroll'd ſince the laſt Court. And that likewiſe the Agiſtors do appear there with their Attachments, and Rolls of Agiſtments, to perform ſuch their Duty concerning the ſame as ſhall be enjoin'd them, or which they ought to do, according to the Law of the Foreſt.

And other Perſons claiming of Liberties.

And alſo to cauſe all ſuch Perſons to appear at the ſaid Court, as claim any Liberties or Franchiſes within the Foreſt, to ſhew how, and by what Warrant, they claim the ſame.

All to appear in proper Perſon.

By theſe General Summons, all Perſons, whether they dwell within the Foreſt, or without, if they be ſummoned to appear at the Juſtice-Seat of the Foreſt, in reſpect of their Lands within the ſame, ought to appear in their own proper Perſon.

Except Claimers.

But all ſuch Perſons which are to appear there, in reſpect of making their Claims, to have any Liberties or Privileges within the Foreſt, may (at their own Elections) appear there, either in their proper Perſons, or by their Attornies lawfully conſtituted for that Purpoſe. *F. N. B.* 26. *G.*

All the Rolls of Offences, *&c.* to be preſented to the Lord Juſtice.

At this Court are to be preſented to the Lord Juſtice in Eyre, all the Rolls of ſuch Offences as have paſſed the Courts of Attachments and Swainmote, which are to be ſealed up by the Verderors, and kept for this Purpoſe.

The Puniſhment of ſuch as bring not in their Rolls.

And ſo great is the Charge for the Preſervation of theſe Rolls, That if any Officer or Miniſter that hath the Cuſtody thereof, (at ſuch Time as the Court of Juſtice-Seat is holden, their Heirs, Executors, Aſſigns, or Tenants of their Lands, in what County ſoever they be) do not bring in ſuch Rolls the firſt Day of holding the ſaid Court, there ſhall iſſue out a Precept to the Sheriff of the County where ſuch Lands do lie, commanding him, That the Wife and Children of ſuch Offender, being firſt by him turn'd out of Doors, he cauſe to be ſeized all the Lands and Tenements of ſuch Offender in his Bailiwick, ſo that he be reſponſible to the Lord Chief Juſtice in Eyre of the Foreſt, as to the Value of them, for a Year, unleſs the Tenants of ſuch Lands come before the End of the Year, and bring in the ſaid Rolls.

A Fine made for Rolls loſt.

Alſo ſuch is the Severity of the Laws of the Foreſt, touching this Matter, That if the Rolls of the Foreſt ſhould happen to be caſually loſt, yet the Officers by whom they were ſo loſt, their Heirs, Executors or Tenants, muſt make a Fine with the King for the ſame.

Or if burnt, or deſtroyed.

The like of Agiſtors.

Or if it happen ſuch Rolls be burnt, or otherwiſe deſtroyed by the Common Enemy of the Nation, yet by the Laws of the Foreſt, that ſhall not avail for an Excuſe (though at Common Law it would be allowable); for in this Caſe, the Officer, in whoſe Cuſtody they were, or had the Charge of them by the Direction of the Court, muſt make his Fine for the ſame, or elſe his Land ſhall be ſeized. And ſo it is of Agiſtors, if they fail of their Rolls or Accompts.

Verderors making Default, to be diſtrained.

And likewiſe if the Verderors make Default at the Court of Juſtice-Seat, they ſhall be amerced for the ſame, and diſtrained by their Lands, to bring in their Rolls, Indictments, and other Writings relating to the Foreſt.

If a Verderor die.

By 4 *Co. Inſt.* 312. the Law of the Foreſt is, That if a Verderor die, his Heir is to bring in the Rolls of his Anceſtors Time.

If the Verderor alien, or die.

If the Verderor alien his Lands, or die ſeiſed, and no Man bringeth in the Rolls, then ſhall the Lands, by the Law of the Foreſt, be ſeized by the Sheriff, which the Verderor had, until the Rolls be brought in; and if the Rolls be loſt, then till he make his Fine, and have his *Ouſter le main.* Ibid.

If the Chief Warden die, *&c.*

And if the Warden of the Foreſt die, and his Heir or Tertenant bring not in the Rolls, *&c.* his Heir or Tertenant ſhall anſwer for the ſame. *Id.* 313.

How the Regardors muſt make their Regards.

To be firſt affirmed at the other Two Courts.

Now before any Juſtice-Seat of the Foreſt can be holden, the Regardors muſt make their Regard, which is done by the King's Writ ſent by the Lord Juſtice in Eyre, to the Sheriff of that County where the Foreſt is, and in which the Court of Juſtice-Seat is to be kept, together with an Abſtract of all ſuch Matters as the Regardors ſhall enquire of: Who, when they have made their Range, and affirmed at the Courts of Attachments and Swainmote, ſuch Matters as they ſhall have found in their Survey, are to preſent the ſame under their Hands and Seals unto the Lord Chief Juſtice of the Foreſt, at the High Court of Juſtice-Seat.

The Officers and Freeholders, *&c.* to be call'd.

And a Jury choſen.

Whereupon the Lord Chief Juſtice in Eyre, or his Deputy, being ſet in Court, together with his Aſſociates and Aſſiſtants, after the Commiſſion read, and the Officers of the Foreſt called over, order, That the Freeholders of the Foreſt be called, and ſuch other Perſons as were ſummoned to appear at that Time; out of which there is then choſen

ſen a ſufficient Jury, not under the Number of Eighteen, or exceeding Four and Twenty, and theſe of the diſcreeteſt Men.

And a Charge given them.

In a Summary Account of the ſeveral Offences againſt the Laws of the Foreſt.

And the ſaid Jury being ſworn, then the Lord Chief Juſtice in Eyre, or his Deputy, or ſome other Perſon by his Appointment, skill'd in the Laws of the Foreſt, give in Charge to the Jury the chiefeſt Matters that they are to inquire of, and that in a ſummary Account, of the ſeveral Offences that have been committed againſt the Laws of the Foreſt. [Of which, there are ſome that reſpect the Court of Juſtice-Seat only; as the Account of Money received by the Verderors for Dogs kept unexpeditated. *Vid. Manwood's For. Law.* 114. The like for puniſhing Nuſances of the Foreſt, *Id.* 120, 121, *&c.* alſo unlawful Hunting in the Foreſt will be puniſhed at this Court, *Idem* 124. as alſo Offenders in the *Purlieu's* of the Foreſt, *Id.* 184, 185. *cum multis aliis.*] For which, ſee a Summary of the Charge afterwards.

An Oath given by the Steward to the Inhabitants of the Foreſt, being aged Twelve Years, *&c.*

When the Jury have brought in their Verdict, and the ſame is recorded, the other Buſineſs being over, the Steward gives an Oath to the Inhabitants of the Foreſt, of the Age of Twelve Years and upwards; *That they ſhall be true Liegemen unto the King, to do no Hurt to the wild Beaſts, or any Thing elſe belonging to the Foreſt: Not to conceal any Offences committed by others, but to the utmoſt to reveal them unto the Officers of the Foreſt, or ſuch Perſons as ought to ſee the ſame redreſs'd.*

The Chief Juſtice his Certificate (or Report) made to the King.

After the Court of Juſtice-Seat is over, the Lord Chief Juſtice of the Foreſt certifies the King of the Offences committed in the Foreſt ſince the laſt Court before; and how the Offenders had been proſecuted, and what Officers had well diſcharged their Truſts, according to their Duties; and who had been remiſs therein, that they may be encouraged or diſcouraged according to their Demerits.

Demurrer.

Note, If a Demurrer happen between the King and a Subject, before the Chief Juſtice, *&c.* they may adjourn it into the *King's Bench*, there to be determined. *Itin. Pick. fo.* 21.

Revivor.

That if the Juſtice-Seat be diſcontinued by the not coming of the Juſtice, the King may revive it by Writ; likewiſe the Pleas of the Foreſt, if diſcontinued, may be revived by a Writ of Reſummons. *Ibid. fo.* 15. 4 *Co. Inſt.* 313.

Sticking to allow Liberties.

It is noted, That if the Juſtices of the Foreſt do ſtick at the allowing of any Man's Liberties that are claimed before them, then may the Party grieved have a Writ of Allowance, or a Writ to proceed to Allowance. *Itin. Pick. fo.* 182.

Making a long Stay, *&c.*

Remedy.

That where the Juſtice of the Foreſt doth ſtay over-long in allowing a Liberty that is claimed, then may the Party grieved purchaſe the King's Writ of Allowance, directed to the Juſtice of the Foreſt, commanding him to allow the ſame; as appears by the Tenor thereof. *Anno* 10 *E.* 3. *Itin. Lanc. fo.* 65.

Liberties allowed, how.

If at one Juſtice-Seat certain Liberties be allowed, at another Time the ſame Allowance may be pleaded; and the Record of the Allowance ſhall be ſent down by Writ unto the Juſtices. *Ibid.* 98.

When the Party, after a Claim, makes Default.

Seizure.

It is alſo noted, That if any Man do make a Claim, and do after make Default, their Liberty ſhall be ſeized into the Lord's Hands; for Default is a Cauſe of Seizure: As where a Woman, Tenant for Term of Life of a Park within the Foreſt of *Lancaſter*, made her Claim for that, and alſo for a Free Warren; and after, made Default: Whereupon one *L.* being Tenant in Reverſion, was receiv'd, and made Claim for both; and becauſe he did not ſhew good Matter to warrant his Title, it was adjudged, *Quod clauſus prædict' proſternatur & remaneat Foreſta, ut prius: Et quod Warrena prædict' capiatur in manus Domini*, &c. *Itin. Lanc. f.* 5.

Falſe Claim only finable.

Tythe of Veniſon.

Yet it ſeems, that the Puniſhment for the Offence of making falſe Claim, is for the Party to make a Fine; but that which he ought to have, ſhall not be ſeized: As where a Prior having the Tenth of Veniſon *in Carne tantum*, claimed to have it as well *in Carne*, as in *Corio*; therefore he was in *Miſericodia de Decima Venationis ſuæ in Corio non percipiendo*, &c. *Itin. Lanc. f.* 3. 64. *Pick. fo.* 15. 4 *Co. Inſt.* 297.

If Claim be not made the firſt Day.

Finable.

It is noted, That ſuch as ought to make Claim, *&c.* by the Aſſizes of the Foreſt, they ought to put in their Claim the firſt Day of the Juſtice-Seat; or elſe at any Day after, their Claim ſhall not be receiv'd without Fine: And when the Claim is once put in, if it be faulty, and they are willing to amend, the Party muſt make Fine. *Pick. fol.* 10, 15, 69.

Where the whole Commonalty claimed under a Grant.

A Subject may be Lord of a Foreſt.

It is alſo noted, That all the Inhabitants within the Foreſt of *Lancaſter*, being Freeholders, did make Claim to be acquitted of all Manner of Vert, and of Regard, and divers other Things; and this Claim was allowed of in Eyre, by Reaſon that *J. T.* of *M.* being Lord of the Foreſt of *Lancaſter*, did by his Charter grant the ſame to them. By which it appears, that a Grant was made unto a Commonalty, and good; alſo, that a Subject may be Lord and Owner of a Foreſt.

See after, concerning Claims amongſt the Reſolutions and Notes.

Claim by Attorney.

By 4 *Co. Inſt.* any Perſon may make his Claim the firſt Day in Perſon, or by Attorney. And he that appears upon a Preſentment or Indictment taken before

fore the Juſtices in Eyre, and traverſeth the Indictment, may after appear by Attorney.

How Claims by Preſcription, Tenure and Grant, ſhall be tried.

In caſe one claim by Preſcription, by Tenure, or by Grant, to be Foreſter of Fee, and prayeth it may be enquired of by the Miniſters of the Foreſt; in this Caſe the Verderors, Regardors and Agiſtors, ſhall try the Title: But if he claim by Inheritance or otherwiſe any Profit *apprendre* within the Foreſt; as Common of Eſtovers, or a Paſture, or ſuch-like; the Trial ſhall be by the Foreſters, Verderors and Regardors, but not by the Agiſtors. But if the Matter of the Claim do require a Trial by the Country, then, 'tis ſaid, the Verderors, Regardors and Agiſtors, ſhall only try the Title: Yet 'tis in the Election of the Juſtices, whether the Miniſters of the Foreſt, with other lawful Men, may be impannell'd to inquire, *&c.*

Pardon pleaded.

How to plead a Pardon of a Treſpaſs in a Foreſt, at the Juſtice-Seat, *&c.* 4 *Co. Inſt.* 313.

Chief Juſtice his Warrant thro' *England.*

Manwood's Leg. For. 140. concerning the Lord Chief Juſtice of the Foreſt his Warrant to arreſt Offenders wheresoever in *England.*

Claim allowed where it ought not.

Certiorari.

Alſo it is by him noted, 526. That if the Juſtices-Seat do Wrong or Injuſtice, by allowing a Claim where it ought not, *&c.* the Record, *&c.* may be removed by *Certiorari*, (which in the *Foreſt Law* is called a *Venire fac. Record.* into the *King's Bench*, and there the Wrong ſhall be redreſs'd: The Manner whereof, appears 21 *E.* 3.48. *Co.* 4. *Inſt.* 292, 294.

Lawful Claim diſallowed.

And that if the Court will diſallow of a lawful Claim, the Party grieved may have a Writ *de Libertatibus allocand.* directed to the Juſtices of the Foreſt. *Co.* 4 *Inſt.* 297.

When a Writ of Error lies.

And in caſe of an Erroneous Judgment there given, that a Writ of Error lies thereof. *Co.* 4. *Inſt.* 297.

Where other Juſtices will not intermeddle.

Note, That a Man, before two Juſtices in Eyre, claimed, according to the Courſe of the Common Law, to be quit of Pawnage in the King's Foreſt; and alſo he claimed in the ſame Foreſt, Pawnage for the Hogs of his Tenants for Agiſtment; and becauſe it belong'd to the Juſtices of the Foreſt, they would not meddle with it. 4 *Co. Inſt.* 315.

Concerning Arreſts and Attachments, Bail and Mainpriſe, &c.

How the Party attach'd, and impriſon'd, may be deliver'd before the Juſtice-Seat is held.

IT is ſaid before, That a Foreſter or Keeper may arreſt any Man that chaſeth or killeth any Deer within the Foreſt, when he is there taken with the Manner; or if the Offender be indicted, then there ariſeth this Queſtion, *viz.* *Q.* What if a Man be ſo impriſoned, and after offer ſufficient Pledges, and they are not taken? *Q.* What Remedy for the Party, ſeeing the Juſtice-Seats for Foreſts are but ſeldom held? For it cannot be kept oftner than every third Year. *Co.* 4 *Inſt.* 291.

He may have a *Habeas Corpus.*

And be bail'd to appear.

R. In the Term-Time he may have, *ex merito Juſticiæ*, a *Habeas Corpus* out of the *King's Bench*; or, if he have Privilege, out of the Court of *Common Pleas*, or of the *Exchequer*, or out of the *Chancery* without any Privilege, either in the Term-Time, or in Time of Vacation; and upon the Return of the Writ, he may be bailed to appear at the next Eyre to be holden for the Foreſt, *&c.*

Or a Writ *de Homine Replegiando.*

And he may alſo be bailed by Vertue of a Writ *de Homine Replegiando*, directed *Cuſtod. Foreſtæ*, if he be arreſted by the Officers of the Foreſt for Hunting, *&c.* whereof he ſtands indicted or preſented, taken with the Manner, he finding Twelve Pledges.

Unleſs, *&c.*

But if he be adjudged by the Juſtices in Eyre, and impriſoned, he cannot be bailed by that Writ *de Homine Replegiando*, directed *Cuſtod. Foreſtæ*: And if he be injuſtly proceeded withal there, he hath Remedy, as is before mentioned, by *Certiorari*, &c.

Writ *de Homine Replegiando*, how to be directed.

Alſo it is obſerved, That there is a Diverſity between the Writ *de Homine Replegiando*; for if it be directed to the Sheriff, he is reſtrained by the Statute of *W.* 1. *cap.* 15. to replevy any Man impriſoned for the Foreſt, being taken with the Manner, or indicted; but this Statute extends not to the Writ *de Homine Replegiando*, directed *Cuſtod. Foreſtæ*, &c. *Manw. L. For.* 410, 411.

Three Manner of Attachments of the Foreſt.

There are obſerv'd to be Three Manner of Attachments of the Foreſt, *viz.*

To attach,
1. By Goods and Chattels, upon Notice of an Offender.
2. By Body, Pledges and Mainpriſe, when taken with the Manner, but not otherwiſe.
3. By the Body only, without Pledges or Mainpriſe.

The firſt Manner by the Foreſter, concerning Nether-Vert.

The firſt Manner by Goods and Chattels, is after the ſame Manner as the Sheriff doth at Common Law in Debt or Treſpaſs in the County-Court; and may be made by the Foreſter for an Offence in Nether-Vert, after he hath Knowledge thereof, by attaching the Offender's Horſe, Cow, or other Goods within the Foreſt, declaring to the

Owner the Cauſe thereof, and willing him to appear at the next Court of Attachments, there to find Pledges to anſwer the ſame Offence: At which Court, if the Offender do not appear, his ſaid Goods attach'd are forfeited to his Majeſty; and the Offender is to be attach'd again and again by other Goods, until he do appear at the Court of Attachments, to put in Sureties or Pledges, to anſwer the ſaid Offence at the next Juſtice-Seat of the Foreſt.

To cauſe Appearance.

Upon Appearance, *&c.*

His Goods to be delivered.

But if he does appear at the Court of Attachment, and find Pledges to anſwer as aforeſaid, his Goods attach'd are to be deliver'd to him again: Yet if upon the Preſentment by the Foreſter, at the Court of Attachments, it doth appear that the Value of the Vert is under 4 *d.* then the Verderors may determine the ſame there, aſſeſs the Fine, and cauſe it to be levied for his Majeſty's Uſe.

Small Offences determin'd.

And this manner of Attachment may be uſed for moſt ſmall Offences and Treſpaſſes in Vert or Veniſon, where the Offender is not taken in the Manner, to compel him to appear, and find Sureties, to anſwer at the next Juſtice-Seat of the Foreſt.

The Second is, when taken with the Manner, how he is to be attach'd.

The Second is, when a Treſpaſſer in Vert is taken with the Manner doing the Offence, (ſo that the ſame be not in the King's Demeſn Woods, making Aſſarts or Purpreſtures there) then the Foreſter may attach him by his Body, and cauſe him to find Two Pledges to anſwer at the Court of Attachments; and then, upon his Appearance there, to be mainprized, until the coming of the Lord Chief Juſtice in Eyre of the Foreſt.

Aſſiſ. Foreſt.

And this is according to *Stat. Aſſiſ. & Conſuetud. For. Art. Primo, viz.* For the firſt Offence he is to be attached by his Body, and find Two Pledges; for the Second Time, Four Pledges, to appear at the Court of Attachments; and for the Third time, to attach him by the Body, and cauſe him to be brought before the Verderors, and there to be mainprized by Eight Pledges. And this ſort of Attachment by the Body and Pledges may not be, unleſs the Offender be taken with the Manner, according to *Stat.* 1 *Ed.* 3. *cap.* 8. & 7 *Rich.* 2. *cap.* 4. That no Man ſhall be taken nor impriſon'd for Vert or Veniſon, unleſs he be taken with the Manner, or indicted, as 1 *Ed.* 3. *cap.* 8. directs: So that *Aſſiſ. & Conſuetud. Foreſt.* is altered in this Point.

1 *Ed.* 3. *c.* 8. & 7 *R.* 2. *c.* 4.

What, if this ſecond Way will not do.

But when the Offender is not taken with the Manner, nor the Offence preſently known, yet the Foreſter may attach him by his Goods, as is aforeſaid, and ſo cauſe him to find Pledges to anſwer the Offence, or elſe to forfeit his Goods and Chattels ſo attach'd, until he do it.

The Third Manner by Body only, has Six Degrees.

The Third Manner of Attachment by the Body only, without any Pledges or Mainprize, is warranted by the Statute of *Aſſiſ. & Conſuetud. Foreſt.* and in ſome part confirm'd by 1 *Ed.* 3. *cap.* 8. and is there expreſſed and declared to be for Offenders in the Foreſt, that are in Six Degrees.

Firſt Degree relates to Vert.

The Firſt Degree, is ſpecified in *Aſſiſ. & Conſ. Foreſt. Art.* 1. *Poſtea, &c.* afterwards, (*Viz.*) After the third Attachment, his Body ought to be attach'd and held, that he may remember what Vert is; and then, he that is ſo attach'd and impriſon'd, may not be deliver'd or bail'd without the King's Special Warrant, or that it be done by the Lord Chief Juſtice, or Chief Warden of the Foreſt; for otherwiſe no Officer may deliver him out, or let him to Mainprize.

Who may bail the Offender.

Second Degree relates to Purpreſtures, and taken with the Manner.

The Second Degree, is alſo ſpecified in *Aſſiſ. & Conſ. Foreſt. Art.* 4. (*viz.*) That if any Man be found or taken with the Manner, making of Purpreſture in the King's Demeſn Woods, his Body ſhall be forthwith taken, *&c.* and then he is to be detained in Priſon for the ſame Offence, and ſhall not be deliver'd or bail'd without Special Warrant from the King, or by the Lord Chief Juſtice in Eyre, or by the Chief Warden of the Foreſt; for in this Caſe no other Perſon can deliver him by Bail or otherwiſe.

Third Degree, when not in the King's Demeſn Woods.

The Third Degree, is alſo declared in the ſaid Aſſizes and Cuſtoms of the Foreſt, *Art.* 4. But if it be out of the Demeſn within the Regard, he ſhall find Six Pledges; and if he be found ſo again, the ſecond Time he ſhall double his Pledges; but if he be found ſo again the third Time, then he ſhall be attach'd by his Body, and be detain'd in Priſon, and not be delivered or bailed but as aforeſaid.

Attachment.

Fourth Degree, for Offenders *contra Vadios & Plegios.*

The Fourth Degree, is alſo expreſſed in *Aſſiſ. Conſ. Foreſt. Art.* 5. about Offenders *contra Vadios & Plegios*, &c. That is, when any Perſon having offended in the Foreſt in Vert, and being therefore bound to the good Behaviour, afterwards commits the like Offence again, and being taken with the Manner, and having no Cattle in the Foreſt, whereby he may attach'd for the ſame Offence, then his Body is to be attach'd, and detain'd in Priſon, until he hath done that which by the Law he ought: And ſuch an Offender (it's ſaid) ſhall not be deliver'd by any Means, or by any other Perſon, than as is aforeſaid.

Fifth Degree relates to Veniſon.

The Fifth Degree relates to Veniſon, and is declared in *Aſſiſ. & Conſ. Foreſt. Art.* 10. If any one ſhall take a Deer in the Foreſt without Warrant, his Body ſhall be arreſted, whereſoever he be found within the Limits thereof; and when he is taken, he ſhall not be deliver'd without Special Command of the

King, or of his Chief Juſtice of the Foreſt. —— And again, in the ſame Aſſizes, *Art.* 11. He that ſees any Offenders to take or carry away any Deer, he ſhall ſeize them, if he can; and if he cannot, he ought to levy Hue and Cry, &c. So that it ſeems, if any Offender be taken with the Manner killing a Deer in the Foreſt, or carrying the ſame away (without he hath good Warrant ſo to do), then in this Caſe the Offender is to be attach'd by his Body, to be impriſon'd and detain'd until he be delivered by the Special Command of the King, or of the Lord Chief Juſtice in Eyre, or Chief Warden of the Foreſt.

Againſt ſuch as ſee Offenders take it away, and do not make Hue and Cry.

The Sixth Degree of ſuch Offenders in the Foreſt as are to be attach'd by the Body only, without Pledges or Mainprize, is declared in the Statute, *Anno* 1 *Ed.* 3. *cap.* 8. and relates to Vert or Veniſon, *viz.* — It is agreed and ordain'd, That from henceforth no Man ſhall be taken nor impriſon'd for Vert or Veniſon, unleſs he be taken with the Manner, or elſe indicted after the Form ſpecified and declared in the ſame Statute: So that if he be indicted according to that Statute, ſuch an Offender may be attached by his Body, either by the Foreſter or by the Sheriff, having a Warrant for that Purpoſe from the Lord Chief Juſtice in Eyre, or from the Chief Warden of the Foreſt, or his Lieutenant; and then his Body is to be retain'd in Priſon, and he may not be mainpriz'd or bail'd, but by Special Command as is aforeſaid.

Sixth Degree relates either to Vert or Veniſon.

When taken with the Manner, or indicted.

And may be attach'd by the Foreſter or Sheriff.

And in the very like manner it is, Where an Offender in the Foreſt is outlawed for the ſame Offence, and his Body is attached by the Sheriff, by *Capias Utlegatum.* See for theſe Attachments, &c. in *Manw. L. For.* 448, 449, &c.

Upon a *Cap' Utl.*

Et idem 457. it is obſerved, That in every Caſe where the Offender is to be attach'd by the Body only, without Pledges or Mainprize, as in the aforeſaid Six Degrees; there ſuch an Offender is not to be bail'd by Verderors, nor by the Foreſters, nor by any other Miniſter or Officer of the Foreſt, unleſs by the King's Special Command, or by the Lord Chief Juſtice in Eyre of the Foreſt, or by the Chief Warden of the Foreſt.

Where neither Verderors nor Foreſters may Bail.

Alſo by 1 *Ed.* 3. *cap.* 8. before ſet forth amongſt the Ordinances of the Foreſt; it ſeems the Chief Warden is in ſuch Caſes obliged to let to Bail or Mainprize, or otherwiſe the Party may have a Writ for that Purpoſe out of *Chancery*: And if he then let him not to Mainprize, the Party may have an Attachment out of *Chancery* againſt the Chief Warden, directed to the Sheriff, who ſhall let the Party to Mainprize in the Preſence of the Verderors, and then the Warden is to pay the Party grieved treble Damage, and be ranſom'd at the King's Will. (See for this before.)

But the Chief Warden is obliged.

Or elſe the Sheriff.

In Preſence of Verderors, &c.

And as concerning taking Bond by Pledges, in all Caſes where an Offender is to be attach'd by his Goods and Chattels, which is the Firſt Manner of Attachments; or elſe to be attach'd by his Body, by Pledges and Mainprize, which is the Second Manner of Attachment: The Verderors are ſaid to be the fitteſt Men to take the ſaid Bonds, becauſe they are Judges of Record; but the Foreſters may not, becauſe they are only Accuſers and Preſenters of Offences before the ſaid Verderors; and great Inconveniency might happen, if they had Liberty to bail Offenders themſelves.

Where the Verderors are fitteſt to take Obligations.

And not the Foreſters.

The Verderors therefore may take an Obligation of the Offender and Pledges with him, as the Law doth appoint in the Caſe, and keep the ſame until the coming of the Lord Juſtice in Eyre of the Foreſt; which Obligation being made unto the King's Majeſty's Uſe, will be as forcible in Law (by Reaſon of the Statute, *Anno* 33 *H.* 8. *cap.* 39.) as any Recognizance, acknowledged according to the Statute of the Staple. The Verderors alſo are to cauſe the Foreſter to preſent the ſame Offence in the ſame Nature as it was done, and the Preſentments to be entered in the Rolls of the Verderors accordingly.

They are to be kept until, &c.

To cauſe the Preſentment to be made, and then enter to it.

Concerning the Charge at the Swainmote, &c.

Note, *That the Preſentments and Conviction of Offenders and Offences at the Swainmote, are ſuch neceſſary Preparatives, in order to Puniſhment at the Court of Juſtice-Seat, that if they come otherwiſe before the High Court, they are traverſable, as was adjudged by the whole Court, in the 24th Year of Queen* Elizabeth, *when certain Offences were preſented at the Court of Juſtice-Seat by the Foreſters and Jury, againſt divers Offenders: Which were all traverſed, becauſe they were not preſented at the Court of Swainmote, and found by the Jury there, and convicted; by which Means they become Matters of Record, and therefore not traverſable.*

The Neceſſity of Preſentments, &c. in the Swainmote.

To prevent Traverſes in the Juſtice-Seat.

An Abſtract of the Charge given in the Swainmote.

To inquire if Suitors be preſent.

1. YOU ſhall inquire, If all thoſe that owe Suit to this Court be here; and thoſe that be not, you ſhall preſent their Names.

Alſo of Aſſarts, Purpreſtures, and Incroachments.

2. If there be any Aſſarts or Purpreſtures newly made in the Foreſt, when, and by whom, *&c.* Alſo, If there be any that maketh any Great or Small Cloſes next to Borders of the Foreſt, and inlargeth his own Ground by ſetting out his Hedges and Ditches, whereby the Foreſt is ſtreighten'd; you ſhall preſent the ſame.

If any Perſon hath removed the Marks or Bounds of the Foreſt, made Mines or Clay-Pits, levied any Mill, Swine-houſe or Sheep-houſe or Sheepſcot, *&c.* without Licence.

Of burning Heath, *&c.* near the Foreſt; and of bringing Cattle, *&c.*

3. Alſo, If any Perſon hath lately burnt any Heath, Fern or Ling, within any Place adjoining to the Foreſt, you ſhall preſent, *&c.* Alſo, If any come with Sheep or Cattle in Fawning Time, where they have Common, and are not Sworn to be True to the King's Game.

Of Hunting before and after the King's Hunting.

4. If there be any Perſon that hath hunted the King's Deer, within Seven Miles about the Foreſt, at any Time within Forty Days next after the King's Hunting therein, or Forty Days before it was ſo hunted; and if there be any ſuch, you ſhall let us know who they are. [See the Reaſon of this afterwards in the *Pouralles.*]

Of keeping Salteries in Parks.

5. If any Perſon hath any Great Park or Great Cloſe within Three Miles of the Foreſt, that have Salteries, or great Gaps, called Deer-Leaps, to receive Deer into them when they be in chaſing; and when they are in them cannot get out again.

Of killing Deer without Warrant.

6. If any Perſon hath ſlain any of the King's Deer within the Foreſt without Warrant; you ſhall preſent his Name, and what Deer was ſlain, and within whoſe Walk the ſame was done.

If Perſons exceed their Warrant, *&c.*

Or hunt without View.

7. If any Perſon, that had a Warrant for Deer, hath taken more than his Warrant did mention: How many? What Deer? And of what Seaſon? (For a Buck is out of Seaſon in Winter, and a Doe in Summer.) And whether he took the Deer compriſed in his Warrant, without Sight of the Verderors or Foreſters, or not?

Of paſſing through the Foreſt with Dogs, *&c.*

8. If any Perſon keep any Hounds or Dogs, and riding or going through the Foreſt, as the Highways do lie, taketh not up his Dogs, but ſuffereth them to chaſe and kill the King's Deer; whether the Death of ſuch Deer be within the Foreſt, or without, you ſhall preſent the Name of the Perſon, and the Deer ſo killed.

Of taking Deer with Nets, *&c.*

9. If any Perſon hath taken any Deer with Nets, Cords, Ropes, double *Pater-Noſters*, Buckſtalls, or Engine; and who keeps any ſuch Engines within the Foreſt, or near it; you ſhall preſent their Names.

Of chaſing, and not killing, *&c.*

10. If any Perſon chaſe, courſe, or ſet any Net or Engine, though he kill not; you ſhall preſent his Name, and Fact, and where and when the ſame was done.

Of Perſons killing Foxes *&c.* without Authority.

11. If any Perſon come into the Foreſt, and there kill any Fox, Hare, Coney, or any other Beaſt or Fowl of Warren, without Authority; the ſame is puniſhable as a Breach of the King's Free-Chaſe, and therefore you ſhall let us know the ſame.

Of Borderers keeping ſtrange Greyhounds, *&c.*

12. If there be any Perſon that dwelleth about the Borders of the Foreſt, which keeps any ſtrange Greyhound, and waiteth when the King's Deer are out of the Foreſt, and foreſetteth ſuch Deer, ſo that they may not return Home, and by that Means are hurt or ſlain; you ſhall preſent who he is, and who owns the Greyhound, that they may be puniſh'd for the ſame accordingly.

To preſent Perſons keeping Hounds and Greyhounds.

And Hunters in the Pourallee.

13. If there be any Perſon within the Juriſdiction of this Court that keeps any Hounds or Greyhounds, and is not qualified ſo to do by the Laws and Statutes of this Kingdom, who hunteth in the Pourallee of his own Authority; you ſhall preſent his Name, the Time when he ſo hunted, and what Damage he did to the King in diminiſhing the Game at ſuch Hunting.

If Pourallee-Hunters hunt in due Time.

Fence-Month.

14. If any Pourallee-Hunter hunts oftner than thrice in a Week, or before the Sun riſing, or after the Sun ſetting, or with other Company than his own Menial Servants, or on Sundays, or in the Fawning or Fence-Month, which is Fifteen Days before and Fifteen Days after *Midſummer.*

If they Foreſtall, *&c.*

15. If any Pourallee-Hunter at any time Foreſtall the King's Deer, whether it be with dead Hay or with quick; for they ought to let run at the Tail of the Deer, otherwiſe 'tis Fineable, as if he hunted in the Foreſt.

If they make Incloſure to hinder the Deer.

Of Beaſts impounded.

16. If any Perſon hath made a Coppice, or Incloſure of the Pourallee, in hindering the King's Deer to get into the Foreſt; or hath impounded the Beaſts of any Commoner out of the County, and not put them in open Pound in the County, whether it were in the Time of Pawnage or not; thereof you ſhall give us Notice.

There are alſo many other Things to be there enquired of by the Suitors of the Court; and when they are preſented, they are to be ſealed with the Seals of the Miniſters aforeſaid, and ſent before the Juſtices of the Foreſt in the Seſſions: Which Particulars will hereafter more fully appear in the Summary of the Charge given by the Lord Chief Juſtice in Eyre.

To preſent. As to Inquire and Preſent,

Foreſters, &c. The Number of Foreſters or Walkers within the Foreſt.

Oppreſſions. Alſo Oppreſſions and Extortions committed by Miniſters and Officers.

Taking Oaks. Concerning the King's Vert, and felling and carrying away great Oaks.

Underwood, &c. Felling and carrying away ſmall Wood and Underwood.

Browſing. Of Foreſters, &c. browſing in the Winter for their own Advantage.

Honey, &c. Of taking away Honey and Wax, &c. out of hollow Trees.

Taking Eggs. Of taking Hawk Eggs, Heron Eggs, Pheaſant Eggs or Partridge Eggs, out of their Neſts being within the Foreſt.

Trees. Of taking more Trees than a Warrant is granted for.

Timber. Of converting Timber to another Uſe, which was granted for the King's Uſe.

Fencing. If Wood-Sellers make fencing of the Coppices.

Concealing. If ſuch Wood-Sellers conceal the Profit, or make hurtful Incloſures.

Percourſe. Of making Percourſe of Swine and Pigs out of Woods into the Foreſt.

Swine unring'd. Of Swine coming into the Foreſt unring'd.

Surpluſage. Of more Swine running in Pawnage-Time, than allow'd by Patent, &c.

Swine attach'd. Of Swine and Goats once attached and forfeited.

Sheep attach'd. Of Sheep three Times attach'd and forfeited.

Rents due. Of Rents and Services due, and in arrear to the King.

Selling Maſt. Of taking Acorns and Crabs out of the Foreſt to ſell.

Stopping Ways. Of ſtopping Church-ways, or other Ways in the Foreſt or *Purlieu*.

Mills. Of not repairing Mills within the Foreſt, as they ought to be.

Waifs, &c. To preſent all Waifs and Strays.

Agiſtment. Of Agiſtment taken to the Hurt of the King's Deer.

Surcharge, &c. And if any do ſurcharge the Common with Cattle or otherwiſe, more than the Law doth ſuffer, according to the Quantity of his Tenure or Grant.

A general Charge to the Inqueſt. And of theſe and all others that you do know to be any Offence, either in Vert or Veniſon, or againſt the Laws of the Foreſt, you ſhall inquire thereof, and preſent the ſame, &c.

For which, ſee after concerning the Charge of the Chief Juſtice in Eyre, in 84 Articles.

The Charge given at the Swainmote Court holden upon St. Edmonds-Day *for the Fence-Month by the Verderors of the ſeveral Wards and Diviſions, unto the Officers of the Foreſt for the ſame Diviſions, as the Foreſters, Regardors, Agiſtors, and Woodwards, how and in what Manner they ſhall cauſe their Watch to be kept for the ſame Month, beginning Fifteen Days before* Midſummer, *and ending Fifteen Days after* Midſummer, *upon St.* Cyril's Day.

Warning to keep up all Dogs. NOTE, at this Time the Foreſters do give open Warning to every Houſekeeper within every Bailiwick of the Foreſt, that they ſhall keep in all their Dogs, and not ſuffer them to go abroad; alſo, during this Time, Maſtiffs that are expeditated, according to the Aſſizes, may not be ſuffered to go from their Maſters Houſes, nor any kind of Dogs whatſoever.

The Charge of Warding.

To attach ſuſpicious Wanderers. 1. That if they ſhall find any Man ſuſpiciouſly wandring up and down in the Foreſt out of the High-way, without ſome ſpecial Buſineſs in this Time, they ſhall attach him, and bring him to the Verderors.

To take up Dogs, &c. 2. If they ſhall find any Dogs running up and down, like to do Hurt, or to frighten any Deer, they ſhall enquire whoſe Dog the ſame is; and alſo take him up, and bring him to the Verderors.

To attach Hunters. 3. If they ſhall ſee any Man hunting or courſing any wild Beaſts within the Foreſt, they ſhall attach him, and bring him before the Verderors.

Carriers of Fawns. 4. If they ſhall ſee any Perſon carrying away of any young Fawn or Fawns; they ſhall apprehend him, and carry him to the Verderors.

5. If

Carriers of Bows, Guns or Engines.

5. If they ſhall find any Man out of the King's High-way, carrying of either Croſs-bow, Long-bow, or Gun, or any other Engine, to hurt or deſtroy any wild Beaſt of the Foreſt; they ſhall take them with the ſame, and bring them to the Verderors.

Such as gather Ruſhes or Bents, *&c.*

6. If they ſhall find any Perſon or Perſons gathering of Ruſhes, or Bents, or ſuch-like, within the waſte Soil of the Foreſt, or within the King's Demeſn Woods or Lands, or elſewhere, to the Hurt of the wild Beaſts, in this Time; they ſhall attach him, and cauſe him to be brought before the Verderors to find Pledges.

Swine-drivers, *&c.*

7. If they ſhall ſee any Perſon or Perſons driving any Swine into the Foreſt to feed; they ſhall forthwith attach him and the Swine alſo, and carry him and the Swine to the Verderors.

Foreigners driving Cattle.

8. If they ſhall find any Foreigner driving his Cattle in the waſte Soil of the King's Foreſt, to agiſt them there; they ſhall apprehend him, and carry him to the next Verderors.

Finding Deer hurt, *&c.*

9. If they ſhall find any Deer hurt or dead, they ſhall enquire how he came by the ſame, and give Notice thereof to the Verderors.

To make Hue and Cry.

10. If they ſhall ſee any Offenders or Treſpaſſers in the Foreſt, they ſhall apprehend them, and carry them before the next Verderor, if they can; and if they cannot take them, then they ſhall make Hue and Cry after them, until they be taken.

To attach Perſons driving Cattle, *&c.*

11. Alſo if any Man ſhall fetch or drive any kind of Cattle or Beaſts thro' the waſte Soil of the King's Foreſt, to the Hurt of the wild Beaſts; they ſhall attach him, and carry him before the Verderors.

And this being done in every Point accordingly, and theſe Articles truly perform'd, the wild Beaſts ſhall have a quiet Peace for their Time of Fawning.

How theſe were formerly obſerved.

And it appears by the Aſſizes of the Foreſt of *Lancaſter* and *Pickering*, that this Courſe was obſerv'd in every Point in the Time of K. *Ed.* 3.

A Summary *of the Charge of the Lord Chief Juſtice in Eyre of the Foreſt, which he doth uſe to give at the* Juſtice-Seat.

Of Attachments concerning Vert and Veniſon ſince the laſt Seſſions.

1. TO enquire of all Attachments made ſince the laſt Seſſions, concerning the Vert and Veniſon, as well in the King's Demeſn Woods, as in any other Place within the Bounds of the Foreſt, by whom, and how the Attachments were made; if there had been any Hunting within the ſaid Bounds, and by whom; and if the Foreſters, or any other conſented to the ſame: Alſo, who had hunted with Warrant or without, and when, where, and how often.

Of Attachments by Night.

2. To enquire if any were attached by Night, who they were, and by whom attached.

In the Fence-Month.

3. What Attachments were made in Fence-Time of Offenders and ſuſpected Perſons.

Of Aſſarts, Waſtes and Purpreſtures.

4. If there had been any Aſſarts, Waſtes or Purpreſtures not formerly preſented, other than thoſe by Grant or Licence, whether in the King's Demeſn, or the Lands of any other; by whom made, and when; in whoſe Holding the ſame be, how incloſed, and how many Acres they contain.

Of incloſing the Borders.

5. If any Perſons had incloſed any, and what Quantity of Ground bordering upon the Foreſt, to inlarge his or their own Ground, Hedges or Ditches, and ſo ſtreigthening the Foreſt; to preſent their Names, and the Quantity of the Ground ſo inlarged.

Taking away Bounds.

6. If any Perſons have raiſed up, or taken away any Mark or Bound of the Foreſt; to preſent their Names, and the Time when.

Limits of Bailiwicks.

7. To enquire of the Bounds and Limits of all Bailiwicks within the Foreſt, in what Manner they are bounded, and how the Bailiffs and Foreſters have uſed to keep and walk; what they claim to appertain to their Offices, what they take by Reaſon thereof, and by what Warrant.

Makers of Mines.

8. To preſent the Names of ſuch Perſons as have made any Sort of Mines, and where the ſame are ſo made.

Tanners and White-Tawers.

9. To enquire what Tanners or White-Tawers uſe their Faculties within the Precinct of the Foreſt.

Buildings and Mines.

10. To preſent the Names of ſuch as have new-builded, or made any Mine ſince the laſt Seſſions, and not preſented before.

Of new Churches, *&c.* erected.

11. If any Church, Town or Houſe, hath been erected within the Bounds of the Foreſt ſince the laſt Seſſions; by whom, and how long, and what Beaſts were thereby fed, to the over-charging of the ſaid Foreſt.

Of Swine-houſes, *&c.* erected.

12. To enquire if any Swine-houſe, Neat-houſe, Sheep-houſe or other Houſe, be erected to the Noiſance of the Foreſt, by whom, how much the Ground is, and how much Paſture for Deer is thereby, and by the Beaſts going to and from the ſame, ſurcharged and impared.

Swearing Inhabitants.

13. If the Inhabitants within the Foreſt be ſworn to be true to the Foreſt, and of their Appearance and Default at the Grand Seſſions.

14. If

If Officers be ſworn.

14. If any of the Officers, having Walks, and acting in the Foreſt, be unſworn; to preſent his Name, and whether he be preſent at, or abſent from the Seſſions.

Of Saltaries and Leaps.

Ground tilled.

15. To enquire what Parks be within the Bounds of, or near to the Foreſt; how incloſed, what hurtful Saltaries and Leaps they have; what common Treſpaſſers be in the King's Parks in that Shire, with Bows, Arrows, or other Engine; and what Grounds be till'd in ſuch Parks without Licence.

Of Waifs and Strays.

16. To enquire what Waifs and Strays were ſince the laſt Seſſion, how the King is anſwer'd for them; whether any other Claim and take them, and by what Warrant.

Of Bees and and Honey, *&c.*

17. If any Perſons have taken any Swarm of Bees, Honey or Wax, within the Foreſt, the Number, Quantity and Value, and to whom they of Right belong.

Of Turbary.

18. Who taketh the Profit of Turbary, if any within the Foreſt; whether any Rent be due for the ſame, and what Detriment or Hurt it is.

Of new Rivers and Creeks, *&c.*

19. Alſo if there be any new Haven, River or Creek made, whereby Wood, Timber or Veniſon hath been convey'd; and to preſent the Offenders, their Aiders and Conſenters.

Of Scot-Ales and Oppreſſion.

20. If any, and what Officer hath made Scot-Ales, gathered Sheaves of Corn, and committed any, and what Extortion or Oppreſſion by Colour of his Office.

Seeking Cattle in Fence-Month.

21. Alſo to preſent ſuch as (being not ſworn to the Aſſize) come into the Foreſt in the Fence-Month to ſeek for Cattle.

Of keeping the Swainmote, and the Forty Days Court.

22. Whether the Steward of the Swainmote has kept his Court Three Times in the Year, and taken his Preſentments, affirm'd by Verdict, and enſealed by the Verderors and other Officers, according to the Foreſt-Law; and whether the Forty-Day Court hath been kept according to the Statute.

Of taking Fines, *&c.* And falſe Indictments.

23. Whether the Keeper, Bailiff or Steward, hath taken Fines or Amercements of Treſpaſſers, or of thoſe indicted or ſuſpected for Vert or Veniſon; of whom, and how much; and if they had cauſed any Perſon to be falſly indicted, and after what Manner.

Of Concealments by Foreſters, *&c.*

24. Alſo, Whether the Foreſters, Verderors, Regardors and Agiſtors, *&c.* have concealed Treſpaſſes, or made Attachments for their own Gain, or concealed Purpreſtures, or other Matters belonging to their Office; and whether they have appropriated to themſelves that which ſhould belong to the King.

Taking Fines or Rewards.

25. *Item*, To enquire and preſent, if any Foreſters of Fee, or other Officers, have wrongfully taken Fine or Reward, Chiminage or Paſſage; or by Colour of his Office, made Collections contrary to the Charter of the Foreſt.

Having ſuſpected Reſorters.

26. If any Foreſter hath any Perſons uſually reſorting to him, and that haunt the Foreſt; and what ſuch Perſons do uſually receive of the Foreſter; if ſuch Perſons be ſuſpected for Treſpaſſes done within the Foreſt, and to preſent their Names.

How the Foreſters behave themſelves, *&c.* and if they give Rewards.

If more than neceſſary.

If they harbour undue Lodgers, *&c.*

Or made Innovations.

27. *Item*, To enquire how the Foreſters behave themſelves in their ſeveral Offices, and who of them are or are not profitable or uſeful to the King; if they give any Thing for their Bailiwicks, and to whom, ſo that the King is a Loſer thereby. *Item*, To enquire of Foreſters amoved by the Steward or Verderor, for what Cauſe, and who they are; and whether there be any more Foreſters in a Bailiwick than are neceſſary, and whether any of them ſurcharge their Bailiwick by undue Lodgers, and which have their Horſes there for three Days and three Nights in other Mens Houſes, either within or without the Bailiwick; which of the ſaid Foreſters have any lewd or hurtful Walking-Servants; which of them have made any new Innovation concerning the Foreſt, to the Damage of the King's Majeſty, or Prejudice of the Country.

Of Foreſters in Fee, their Warrant, and their Rent, *&c.*

28. To enquire of all Bailiffs, which be Foreſters in Fee, by what Warrant they enjoy their Bailiwicks, what yearly Farm or Annuity they pay to the King therefore, and what they ought to take of the Foreſt to pay the ſame; what are the right Meets and Bounds of their Bailiwicks, and what Demeſn Lands the King hath therein, and how they are meeted and bounded.

If they place for Reward.

29. If any Foreſter in Fee, or other, hath taken Reward of any Foreſter, that he ought to be deemed within the Liberty of the Foreſt; and after ſuch Reward taken, doth diſplace the Foreſter, and for a new Reward putteth another in his Place.

Of Incloſures and Woods afforeſted.

30. If any Perſon within the Bounds hath incloſed his ſeveral Ground, Wood or Warren, to the Prejudice of the Foreſt; or that, without Warrant, hath afforeſted any Wood of his own.

Of Deer found newly dead, *&c.* and diſtributing it.

31. Whether any Deer hath been found by the Foreſters newly dead, or mortally wounded; and whether the Fleſh thereof hath been well diſtributed amongſt the Poor, as it ought, and who can teſtifie the ſame.

Of the Head, *&c.*

32. *Item*, Whether the Head and Skin of ſuch dead Deer were delivered to the Freemen of the next Town adjoyning, *&c.*

Of Arrows found.

33. *Item*, If due Preſentment hath been made to the Verderors, of Arrows found within the Foreſt, that the Verderor might enter them in his Roll.

Of Greyhounds found.

34. Whether Greyhounds found running to diſturb the Game, were preſented to the Verderors, to the intent the ſame ſhould be ſent to the King, or Chief Juſtice of the Foreſt.

Of Lawing Dogs.

35. If Dogs that ought to be Lawed, be well and orderly Lawed.

Of great Dogs.

36. If any Man in Haveſt-time hath taken in any Maſtiff, or great Dog, to the Hurt of the Deer.

Of Free Chaſers.

37. If any Perſon, to whom the King had granted Liberty of Free-chaſing in the Foreſt, hath by Colour thereof done any Hurt to the King's Majeſty.

Of Hunters of Vermin.

38. If any Perſon who had like Liberty to hunt Vermin, or chaſe Foxes, Marterns, wild Cats and Squirrels, within the Foreſt, hath, by Colour thereof, kill'd the King's Deer.

Not making Hue and Cry.

39. To preſent the Name of ſuch Perſon, who, ſeeing a Treſpaſſer take Deer in the Foreſt, hath not made Hue and Cry to apprehend the Offender.

Of Dogs and Engines.

40. *Item*, To enquire and preſent ſuch as keep Dogs within the Bounds, or without, that will run and kill Deer, Hares, or any other Beaſts of Chaſe; or do keep any manner of Engine, who do thereby take Deer or other Beaſts, and who are their Receivers, Aiders and Abettors.

Of Deer taken.

41. Whether any Deer have been taken, by whom, and if with Warrant or without.

Offenders in Warrens, *&c.*

42. *Item*, To enquire if any have been Offenders in Warrens of Fiſh-pools within the Liberties of the Foreſt.

Of Bows and Engines.

43. Alſo, what Perſons within the Limits keep Bows, Shafts, Hounds, or other Engines, to the Prejudice of His Majeſty's Beaſts of Chaſe; and to preſent ſuch as uſe to enter into the Foreſt with Bows and Arrows.

If Fee Deer duly taken, *&c.*

44. To enquire if any Perſon (to whom the King hath given Deer, by reaſon of his Office) hath taken any other Kind, or more than his Due; who were aiding and aſſiſting, and whether or not it were in the ſight of the Foreſters and Verderors: Alſo to enquire who hath taken any Kind of Hawks, Pheaſants, Partridge, or other Fowl of Warren, contrary to the Laws of the Foreſt.

Hunting before or after the King.

45. To enquire if any Perſon hath hunted the King's Deer within Seven Miles about the Foreſt, at any Time within Forty Days next before the King's Hunting, or Forty Days next after.

Of *Purlieu-mens* Hunting.

46. If any *Purlieu-hunter* hunt or kill Deer diſorderly, or before the Sun or after, or with other than his Menial Servants, or hunted upon the *Sundays*.

If they foreſtal, *&c.*

47. If any *Purlieu-hunter* at any Time foreſtal the King's Deer, whether it be with dead Hay or with quick, and how (for they may not foreſtall, but let ſlip at the Tail); and whether he hath hunted in the Fence-month or not.

Going againſt the Wind to kill Deer.

48. *Item*, To preſent him, who coming into the *Purlieu*, findeth a Deer in his Feeding, and goeth againſt the Wind, and ſo ſlayeth him with Bow, Greyhound, or other Engine; or foreſetteth him at any Gap or Pitch as the Deer is wont to walk or take his Flight.

Paſſing thro' the Foreſt with Dogs.

49. Alſo, if any Perſon, with long running Hounds, paſſeth thro' the Foreſt as the High-ways lie, and takes not up his Hounds with a faſt Knot, ſo that they wind, drive, and kill the Deer; be it within the Foreſt or without, to preſent his Name, his Place of Abode, and the Deer ſo killed.

Nets and Engines.

50. *Item*, To preſent ſuch as take Deer with Nets, Cords, Ropes, double *Pater-Noſter*, or other Engine.

Setting-Engines.

51. To preſent ſuch as chaſe or courſe, or ſet any Engine, though he kill not.

Killing Fowl, *&c.*

52. Alſo ſuch as come into the Foreſt, and kill any Beaſts or Fowl of Warren, without Authority, *&c.*

Strange Greyhounds.

53. *Item*, Such as dwell about the Foreſt, and keep ſtrange Greyhounds; and when the King's Deer are out of the Foreſt, foreſets and kills them.

Deer-killing.

54. To preſent ſuch as kill the King's Deer within the Foreſt, and what Deer were ſo killed.

Keeping Hounds, *&c.* and not qualified.

55. Alſo ſuch as keep Hounds or Greyhounds, and cannot diſpend 10 *l. per Annum* of Land of Inheritance; or 30 *l. per Annum* of Freehold Land over all Charges; or is not poſſeſſed of Goods and Chattels worth 200 *l.* or is not the the Son of a Knight or Baron, or Heir apparent of an Eſquire, and yet of his own Authority hunteth in the *Purlieu*. [*Note*, Theſe Qualifications are alter'd by 22 *Car.* 2. 25. *See concerning* Purlieu's.]

Agiſting the King's Lands.

56. To enquire if any Foreſter or Officer have agiſted Cattle in the King's Demeſn Hays, and ſeveral Woods; whether they have mowen any of the King's Lands, taken the Graſs or Hay to their own Uſe, or ſold the ſame; how much the ſame was worth, or what they receiv'd therefore.

Agiſtors Accompts.

57. Whether the King's Agiſtors have faithfully agiſted his Majeſty's Woods, and fully accompted for them, or what remains in their Hands.

Percourſe by Swine.

58. To enquire, if any, having Woods adjoining to the Foreſt, take Swine in Pawnage, and then make Gaps for them to eſcape into the Foreſt; and to preſent the Offenders, Number of Swine, and Value.

Swine unring'd.

59. Alſo, if any bring Swine unring'd into the Foreſt in Pawnage-time, and of the Number and Value of ſuch Swine.

Surcharging Pawnage.

60. To preſent ſuch as, having Patent for Pawnage of Swine, put in more than they are allow'd; alſo the Number and Value of ſuch Overplus.

Swine unring'd, Goats and Sheep attach'd.

61. To enquire and preſent the Number and Value of Swine unring'd, and Goats attach'd within the Foreſt, ſince the laſt Seſſion, for they are forfeitable by the firſt Attachment, being no Beaſts of Common; alſo of the Number and Value of ſuch Sheep, as coming within

the Foreſt, have been attach'd Three Times ſince the laſt Seſſion.

Surcharge of Common.

62. To enquire and preſent the Names of all Strangers having Cattel in the Foreſt, to the Surcharge and Nuſance of the Common.

Of Stoned-horſes, and unprofitable Beaſts.

63. To enquire what Stoned-Horſes, under Stature, have been put into the Foreſt; alſo of unprofitable and feeble Mares, Fillies or Foles paſturing therein; and whether the Statute for *Drift of the Foreſt* hath been duly put in Execution.

Fines taken by Officers.

64. Whether any Officer hath taken Fines for agiſting of ſtrange Cattle within the Foreſt, to the Prejudice of Deer, *&c.* and to how much the Paſture hath been prejudiced thereby.

Deſtroying of Covert.

65. Likewiſe, if any Perſon hath ſpoil'd or deſtroy'd any Bruſh, Fern or other Covert or Defence where the Deer do commonly haunt, or uſually calve or fawn.

Of ſelling Eſtovers.

66. If Perſons, to whom the King hath granted Eſtovers of Fern or Bruſh for their only Uſe, have, under Colour, ſold any ſuch Eſtovers; who hath had any Warrant for taking the ſame, and how much the Foreſt is thereby prejudiced.

Surcharging of Paſture.

67. Whether any Perſon hath ſurcharged the Paſture and Meadow within the Foreſt, in what Manner, and to what Damage.

Carrying great Oaks.

68. Whether any Perſon hath fell'd the King's great Oaks, and carried them away; and to preſent the Value of the Horſes and Cart, and of the Trees ſo carried away.

Wood or Underwoods.

69. Alſo to preſent ſuch as have cut down any ſmall Wood or Underwoods, and carried them away unattach'd.

Browſing for Lucre.

70. Alſo, if any Foreſter, in Winter Time, browſeth any Maſt, Bows, or great Oaks, more for the Advantage of ſelling, than ſuſtaining the King's Deer, and the Price thereof.

Licence of Wood.

71. *Item*, If ſuch as having Licence to take Wood, exceed their Grant, how much, and by whoſe Aſſent.

The like of Trees.

72. If Perſons, having Warrant to take Trees, have exceeded; and if they were taken in View of the Verderors or Foreſters.

Selling the King's Oaks.

73. To preſent ſuch as having Warrant to take Oaks to the King's Uſe, take for their own Uſe, or ſell them, and of what Value.

Wood-Sellers Coppices.

74. If upon Commiſſion for Wood, the Wood-Sellers have well made the Hedges of the Coppice; if they have concealed any of the Profit; if made any Incloſures to the Hurt of the Commoners, or put in Cattle to the Hurt of the Springs.

Imbezelment by Officers.

75. Alſo what Oaks or Wood the Foreſters have given, ſold or taken, undermin'd or impair'd, to which the Officers have conſented, *&c.* and the Quantity and Value of ſuch Woods, *&c.*

If they have made Spoil.

76. Alſo of ſuch as have made Spoil or Waſte of Vert in the Woods of the King, and of other Perſons, within the Foreſt; and in what Particulars the Foreſters have misbehaved themſelves concerning Woods within their Bailiwicks; and whether, for Favour or Affection, they have ſuffered Spoil or Waſte of Woods; what, and how much, and for what Reward, *&c.*

Of Woods aſſarted.

77. To enquire concerning the Value of the Veſture and Covering of Woods aſſarted, and who received the Profits; and the Value of the Corn ſown on the ſeveral Aſſarts.

Walking with Bows, *&c.*

78. To preſent ſuch Perſons as walk in the Foreſt with Bows and Arrows out of the King's High-way, contrary to the Aſſize of the Foreſt, other than the Keepers and Officers belonging to the ſame.

If Foreſters do duly walk.

79. To enquire, if the Foreſters duly and timely walk within their Limits, and perform their Offices in watching and hearkning after Offenders coming into the Foreſt.

Stopping of Ways.

80. To preſent the Names of ſuch as have ſtopped or ſtreightned any Church-way, Miln-way, or other Ways within the Foreſt or *Purlieu.*

Selling of Maſt.

81. If any Perſon gather any Acorns, Crabs, or any other Maſt, and maketh Sale of them, to the Hurt of the King's Deer and Commoners.

Incloſures in the *Purlieu*, &c.

82. If any Perſon hath made Coppice or Incloſure in the *Purlieu*, to the Hurt of the King's Deer, and of the Owners, or pounded the Beaſts of Commoners out of the Shire, and not in open Pounds, and whether in the Pawnage-Time or not.

If Rents duly paid.

83. *Item*, Whether all ſuch Rents, Services, and other Duties which ought to be paid and done to the King or his Foreſters, have been duly and truly anſwered and done, yea or no.

Impleading out of the Juriſdiction.

84. And laſtly, You ſhall likewiſe preſent, if there be any Perſon or Perſons which hath impleaded or uſed any Plea, which doth appertain to our Sovereign Lord the King, and which is within the Juriſdiction of the Juſtice of the Foreſt, and before him to be determined: Or, If there be any Perſon that hath taken any Fine or Ranſom for taking or killing any Hares, and for having and keeping any unprofitable Dogs in the ſaid Foreſt, contrary to the Aſſize of the ſame; or for any other Treſpaſs, for which the King's Majeſty ought to have Reformation.

Taking Fines, *&c.* for Favour.

Of giving Verdict.

Note, By *Stat.* 7. *R.* 2. *c.* 3. the Verdict is to be given up, where the Charge is given to the Jury, as was before obſerved.

Wood ſeized for Default.

Note, That if any Subject that hath any Wood within the Foreſt in his Woodward, do make Default at any Juſtice-Seat, his Wood ſhall be ſeized into the King's Hands, and ſo it ſhall remain until he hath replevied the ſame, and made his Fine. *Itin. Lanc. fo.* 7.

Trees given away, *&c.*

That at every Juſtice-Seat of the Foreſt, the Number of Trees that have been given away by good Warrant or otherwiſe, and alſo the Windfalls, muſt be preſented.

So Profit of Pawnage, *&c.*

Likewiſe the Profit of Pawnage, Ruſhes, Fern, Gorſe, Sedges, and ſuch-like, muſt be preſented there: But all this is to be underſtood of the King's own Woods, or Waſte Soil. *Ibid.*

The Chief Foreſter muſt well Account.

And by the Aſſizes of the Foreſt, the Chief Foreſter muſt make account of all the Trees that have been fell'd, and by what Warrant they were cut down; and for thoſe for which he cannot ſhew good Warrant, he ſhall be amerc'd. *Item. Pick.* 187.

The Freeholders Reeve, and Four Men with him; muſt appear.

All the Freeholders within the Foreſt, as well Spiritual as Temporal, muſt appear before the Juſtice-Seat the firſt Day of the *Iter*; and of every Town, the Reeve, and Four Men alſo with him: Which is called, *Prepoſitus & quatuor Homines, &c.* or elſe to be amerced and affeared.

See, before the Brief Account, what Matters and Things may be inquir'd of, and determined, by the Court of Juſtice-Seat.

Of Hunting and Hawking within the Foreſt, and what ſhall be ſaid Lawful, and what Unlawful.

Before we proceed further in this Matter, it may be convenient to count over the Terms which are to be uſed for Beaſts of Venary and Chaſe, as they are in Company one with another.

Whereupon, it is obſerrv'd, That Foreſters and good Woodmen do uſe to ſay,

A Herd of Harts.
A Herd of all manner of Deer.
A Bevy of Roes.
A Sounder of Swine.
A Rout of Wolves.
A Richeſs of Marterns.
A Brace or a Leaſe of Bucks.
A Brace or a Leaſe of Foxes.
A Brace or a Leaſe of Hares.
A Couple of Rabbets.
A Couple of Conies.

Terms for their Lodging.

A Hart, harboureth.
A Buck, lodgeth.
A Roe, beddeth.
A Hare, ſeateth or formeth.
A Coney, ſitteth.
A Fox, kennelleth.
A Martern, treeth.
An Otter, watcheth.
A Badger, eartheth.
A Boar, coucheth.

Terms for their Diſlodging.

Unharbour the Hart.
Diſlodge or Rouze the Buck.
Start the Hare.
Bolt the Coney.
Unkennel the Fox.
Tree the Martern.
Vent the Otter.
Dig the Badger.
Rear the Boar.

Terms for the Noiſe at Rutting-time.

A Hart, belleth.
A Buck, growneth or troateth.
A Roe, belloweth.
A Hare, beateth or tappeth.
A Fox, barketh.
A Wolf, howleth.
A Boar, freameth.
An Otter, whineth.
A Badger, ſhricketh.
A Goat, rattleth.

Terms for Copulation.

A Hart, or Buck, goeth to Rut.
A Roe, goeth to Tourn.
A Boar, goeth to Brim.
A Hare and Coney, goeth to Buck.
A Fox, goeth to Clicketing.
A Wolf, goeth to Match or to Make.
An Otter, hunteth for his Kind.

Terms for the Treading or Footing of all Beaſts of Venary and Chaſe.

Of a Hart, the Slott.

Of a Buck, and of all Fallow-Deer, the View.

Of all Deer, if on the Graſs, and ſcarce viſible, then 'tis called Foiling.

Of a Fox, the Print, and other ſuch Vermin, the Footing.

Of an Otter, the Marks.

Of a Boar, the Tract.

Of a Hare, diverſly: For when ſhe is in open Field, ſhe Soreth; when ſhe winds about to deceive the Hounds, then ſhe doubleth; when ſhe beateth on the hard High-way, and her Footing can be perceived, then ſhe pricketh; and, in Time of Snow, it is called, *The Trace of the Hare.*

Terms of the Tail.

Of a Hart; the Tail.

Of a Buck, Roe, or any other Deer; the Single.

Of a Boar; the Wreath.

Of a Fox, the Bruſh or Drag; and the Tip at the End, is called *The Chape.*

Of a Wolf; the Stern.

Of a Hare and Coney; the Scut.

Terms of their Ordure.

Of a Hart, and all Deer; their Excrement is called, Fewments or Fewiſhing.

Of a Hare; Crotiles, or Crotiſing.

Of a Boar; the Leſſes.

Of a Fox, the Billiting; and of all other ſuch Vermin, the Fuants.

Of an Otter; the Spraints.

All kind of Deers Fat, is called *Sewet*; and yet you may ſay, *This Deer was a High Deer of Greaſe.*

The Fat of the Hare, and the Boar, is called *Greaſe.*

The Fat of the Roe only, is called *Beavy Greaſe.*

It is ſaid, { A Litter of Cubs.
A Neſt of Rabbets.
A Squirrel's Dray.

Terms for the Attire of Deer.

A Stag.

Of a Stag, if perfect, the round Roll of the Horn that is next to the Head, is called *The Bur*; the little Knobs on it, *The Pearls*; the main Horn it ſelf, is called *The Beam*; and the little Streaks therein, *The Gutters*; then, *The Antlier, The Sur-Antlier, Royal, Sur-Royal*; and all at top, *The Croches.*

Red Hart. Rein-Deer.

Note, That a Red Male-Hart, of a Year old, is called *A Spitter*; that a Rein-Deer is a Beaſt like a Hart, but hath his Head fuller of Antliers.

The Heads go by ſeveral Names, according to Huntſmens Terms:

A Crowned-top.

The Firſt Head is called, *A Crowned-top,* becauſe the Croches are ranged in Form of a Crown.

A Palmed-top.

The Second is called, *A Palmed-top,* becauſe the Croches are form'd like a Man's Hand.

A Head of Croches.

Thirdly, All Heads which bear not above Three or Four, the Croches being placed a-loft, all of one Height, in Form of a Cluſter of Nuts, are to be called, *Heads of ſo many Croches.*

Forked Heads.

Fourthly, All Heads which bear Two in the Top, or having their Croches doubling, are to be called, *Forked Heads.*

Heads only.

And all Heads which have double Burs, or the Antliers, Royals, and Croches turned downwards, contrary to other Heads, are only called *Heads.*

Head of a Hart the Second Year.

It is obſerved of Harts, That they bear not their Firſt Head, called, *Broches,* and in a Fallow-Deer, *Pricks,* until they enter the Second Year of their Age.

Third Year.

In the Third Year, they bear Four, Six or Eight ſmall Branches.

Fourth Year.

At the Fourth, they bear Eight or Ten.

Fifth Year.

At the Fifth, Ten or Twelve.

Sixth Year.

At the Sixth, Fourteen or Sixteen.

Seventh Year.

And at the Seventh Year, they bear their Heads beamed, branched and ſummed, with as much as ever they will bear, and do never multiply but in Greatneſs only.

Buck.

Of a Buck, they uſually ſay, *The Bur, The Beam, The Brow-Antlier, The Back-Antlier, The Advancer, Palm* and *Spellers.*

Palmed Head.

If the Croches grow in the Form of a Man's Hand, it is then called, *A Palmed Hand.*

Crowned Heads.

Heads bearing not above Three or Four, the Croches being placed aloft, all of one Height, are called, *Crowned Heads.*

Forked Heads.

Heads having doubling Croches, are called *Forked Heads,* becauſe the Croches are planted on the Top of the Beam like Forks.

Prick.

The Firſt Head of a Fallow-Deer, is called, *Prick.*

Deer mew.

When Deer caſt their Horns, 'tis ſaid, *They mew.*

Anſwer to the Queſtion, *What a Stag bears.*

If a Queſtion be, *What a Stag bears*; he that anſwers only, reckons the Croches he bears, and never expreſſes an odd Number: As if he have Four Croches on his near Horn, and Five on his far, they ſay, *He beareth Ten*; a falſe Right on his near Horn (for all that the Beam bears, are called *Rights*): If but Four on the near Horn, and Six on the far Horn, they ſay, *He bears Twelve*; a double falſe Right on the near Horn, not only making the Number even, but alſo the Horns with that Diſtinction.

When a Hart breaketh Herd.

When a Hart breaketh Herd, and draweth to the Thickets or Coverts, they uſually ſay, *He taketh his Hold,* or *He goeth to Harbour.*

The ſeveral Sort of Hounds, &c.

There are ſeveral Hounds and Beagles, for which the Hunters have ſeveral Titles; as, *Gaze-Hound, Blood-Hound, Staunch-Hound, Harrier* and *Tarrier,* &c. but they generally in all Kennels and Packs, rank them under theſe Heads, *viz. Enterers, Drivers, Flyers, Tyers,* &c.

What kind of Dogs the Law regards.

There are ſaid to be Four Kinds of Dogs which the Law regards, *viz. A Maſtiff, A Hound* (which comprehends a *Greyhound*), *a Spaniel,* and a *Tumbler*; and in a Dog, a Man may have a Property; ſo alſo of a Ferret, though it be of a more baſe Nature: And that where a Man brought his Action of Treſpaſs for taking of a Blood-Hound, he recovered 10*l.* Damage. *Cro. Eliz.* 125, 126.

Different Terms for Hounds and Grey-Hounds, &c.

Couple. Of Hounds; Two make a Couple, Three make a Couple and Half.

Brace. Leaſe. Of Grey-Hounds; Two make a Brace, Three make a Leaſe.

To ſlip and caſt off. Huntſmen ſlip a Grey-Hound, and caſt off a Hound.

Leaſe. Lyome. The String wherewith they lead a Grey-Hound, is called *A Leaſe*; and for a Hound, *A Lyome.*

Collar. Couples. The Grey-Hound hath his Collar, and the Hound hath his Couples.

A Kennel. A Pack. They ſay, *A Kennel of Hounds*, and *a Pack of Beagles.*

Hounds challenge. When Hounds are caſt off, and find ſome Game or Chaſe, Huntſmen ſay, *They Challenge.*

They bawl. If they are too buſy before they find the Scent good, *They bawl.*

They babble. If they be too buſy after they find good Scent, *They babble.*

They are in full Cry. If they run it End-ways orderly, making it good, and then hold in together merrily, then, *They are in full Cry.*

They Lapſe. When Spaniels open in the String, (or a Grey-Hound in his Courſe) then, *They Lapſe.*

They Plod. When Hounds hang behind, and beat too much upon the Scent or Place, then, *They Plod.*

They Bay. And when they have earthed a Vermin, or brought a Deer, Boar, or ſuch-like, to turn Head againſt them, then it's ſaid, *They Bay.*

Entries. When the Huntſmen find Deer have lately paſſed into Thickets, *&c.* by which they gueſs their Greatneſs, and then put the Hounds or Beagles thereto for the View; they account ſuch Places *Entries.*

A Layr. The Impreſſion where any Deer hath repoſed or harboured, they call, *A Layr.*

Hare ſtarted. When the Huntſmen ſtart a Hare, they ſay, *That, That*, or *There, There.*

Deer. But they ſay, *How*, to a Deer.

A Vauntlay. When they ſet Hounds or Beagles in Readineſs, expecting the Chaſe to come by, and then caſt them off before the reſt come in, they call it, *A Vauntlay.*

A Relay. And when they ſet Hounds in Readineſs, where they expect the Deer will come by, and then caſt them off when the other Hounds are paſſed by, they account that *A Relay.*

They Blemiſh. When Hounds or Beagles find where the Chaſe hath been, and made a Proffer to enter, but return'd; they ſay, *There is a Blemiſh.*

They draw amiſs. When the Hounds or Beagles hit the Scent of their Chaſe contrary, as to hit it up the Wind when they ſhould not, 'tis then ſaid, *They draw amiſs.*

They Challenge. When Hounds or Beagles at firſt finding the Scent of their Game preſently open and cry, 'tis then ſaid, *They Challenge.*

They Yearn. When Beagles bark and cry at their Prey, 'tis ſaid, *They Yearn*; but when they run long without opening or making any Cry, then, *They run Mute.* **They run Mute.**

They run Riot. When Hounds run at a whole Herd of Deer, 'tis ſaid, *They run Riot.*

They draw on the Slot. When the Hounds touch the Scent, and draw on 'till they rouze or put up the *Chaſe*, it's ſaid, *They draw on the Slot.*

They hunt Chaſe. When the Hounds or Beagles take freſh Scent, hunting another Chaſe until they ſtick or hit it again, 'tis ſaid, *They hunt Chaſe.*

They hunt Counter. When the Hounds or Beagles hunt it by the Heel, then, *They hunt Counter.*

They hunt the Foil. When the Chaſe goes off, and comes on again, traverſing the ſame Ground to deceive the Hounds or Beagles, 'tis ſaid, *They hunt the Foil.*

A Reward. When Hounds or Beagles have finiſhed their Chaſe by the Death of what they purſued, and then in Requital are fed by the Hands of the Huntſman or others, 'tis called, *Their Reward.*

A Pricket. *A Pricker*, is a Huntſman on Horſeback.

Wiles. Engines that they take Deer withal, are called, *Wiles.*

Ring-Walks. Huntſmen, when they go drawing in their Springs at Hart-hunting, uſually make Dew-Rounds, which they call, *Ring-Walks.*

Drawing. When they beat the Buſhes after a Fox, they call it *Drawing.*

She is with Cub. When the Fox hath young Ones in her, they ſay, *She is with Cub.*

He takes Soil. When any Deer is hard hunted, and then betakes himſelf to Swimming in any River, *&c.* The Huntſmen ſay, *He takes Soil.*

They know him by his Gate. When Huntſmen endeavour to find a Hart by the Slot, *&c.* and then mind his Step, to know whether he is great and long; they then ſay, *They know him by his Gate.*

They Fray. When Deer rub and puſh their Heads againſt Trees, to cauſe the Pills of their New Horns to come off, 'tis ſaid, *They Fray.*

They Bay. When Deer, after being hard run, turn Head againſt the Hounds, 'tis ſaid, *They Bay.*

Trajoning. When a Roe croſſes and doubles, 'tis called, *Trajoning.*

She goes to the Vault. When a Hare (as ſometimes, though ſeldom) takes the Ground like a Coney, 'tis ſaid, *She goes to the Vault.*

She Carrieth. When a Hare runs on rotten Ground, (or in a Froſt ſometimes) and then it ſticks in her Feet, 'tis ſaid, *She Carrieth.*

The Call. The *Call*, is a Leſſon blowed on the Horn to comfort the Hounds.

A Recheat. A *Recheat*, a Leſſon likewiſe blown on the Horn.

The Mort. The *Mort*, or *Death*, is blown at the Death of any Deer.

Stripping and caſing all manner of Chaſes. The Hart and all manner of Deer are ſlain. Huntſmen commonly ſay, *Take off that Deer's Skin.* The Hare is *Stripped* or *Caſed*, and ſo is the Boar too.

The

From the Noſe to the Tail.

The Fox, the Badger, and all manner of Vermin, are *Caſed*, beginning at the Snout or Noſe of the Beaſt, and ſo turn the Skin over his Ears down to the Body, till you come to the Tail.

Ceremonies at the Death of a Buck or Hart.

Ware Haunch. Cutting the Throat. Blooding the Hounds.

The Firſt Ceremony when the Huntſmen come in to the Death of a Deer, is to cry, *Ware Haunch*, that the Hounds may not break into the Deer; which having ſecured, the next is cutting his Throat, and there blooding the youngeſt Hounds, that they may the better love a Deer, and learn to leap at his Throat.

The Mort blown. Knife. Taking Say of the Deer.

Then having blown the *Mort*, and all the Company come in, the beſt Perſon, that hath not taken Say before, is to take up the Knife that the Keeper or Huntſman is to lay croſs the Belly of the Deer, ſtanding cloſe to the Left Shoulder of the Deer, ſome holding by the Fore-Legs, and the Keeper or Huntſman drawing down the Pizzle, the Perſon that takes Say, is to draw the Edge of the Knife leiſurely along the very Middle of the Belly, beginning near the Brisket, and drawing a little upon it, enough in the Length and Depth to diſcover how fat the Deer is.

Breaking up the Deer. Rewarding the Hounds.

Then he that is to break up the Deer, firſt ſlits the Skin from the cutting of the Throat downward, making the *Arber*, that ſo the Ordure may not break forth; and then he is to Paunch him, rewarding the Hounds therewith.

Perſon to cut off the Head. Double or Treble Mort. A Recheat. A General *Whoo, Whoop.*

Next, he is to preſent the ſame Perſon that took the Say, with a drawn Hanger to cut off his Head; which done, and the Hounds rewarded therewith, the concluding Ceremony is, If a Buck, a Double, if a Stag, a Treble *Mort*, blown by One, and then a whole *Recheat* in Conſort by all that have Horns; and that finiſhed, immediately a General *Whoo, Whoop.*

Ten Pounds and a Purſe for Leaſing.

Heretofore Leaſing was obſerv'd, and the Party receiv'd 10 *l.* and a Purſe, that is, Ten Stripes (more or leſs ſevere, according to the Nature of the Crime); and an Eleventh, that uſed to be as bad as the other Ten, called, *A Purſe.*

Other ſmall and great Faults.

There are obſerv'd to be many other Faults; as, Coming to late into the Field, and miſtaking any Term of Art; which are accounted of the leſſer Size: Of the greater Magnitude, Hallowing a wrong Deer, or leaving the Field before the Death of the Deer, *&c.*

The Laws of the Leach or Courſing (collected from Mr. Markham's *Country Contentments); ſaid to be commanded, allowed and ſubſcribed, by* Thomas *Duke of* Norfolk, tempore Elizabethæ Reginæ; *which are alſo ſaid to have been ſubſcribed by the chief of the Gentry, as Authentical.*

Fewterer. To follow the Hare-finder, *&c.*

1. First, It was order'd, That he who was choſen Fewterer, or Letter-looſe of the Grey-Hounds, ſhould receive the Grey-Hounds Match to run together into his own Leach as ſoon as he came into the Field, and follow next to the Hare-finder, 'till he came into the Form; and no Horſeman or Footman, on Pain of Diſgrace, to go before him, or on any Side, but directly behind, the Space of Forty Yards or thereabouts.

One Brace at a time.

2. That not above one Brace of Grey-Hounds do courſe a Hare at one Inſtant.

Three Sohoes.

3. That the Hare-finder ſhould give the Hare Three Sohoes before he put her from her Lear, to make the Grey-Hounds gaze, and attend her riſing.

Twelve-ſcore-Law.

4. That the Fewterer ſhall give Twelve-ſcore-Law e're he looſe the Grey-Hounds, except it be in Danger of loſing Sight.

Where firſt Turn wins.

5. That Dog that giveth the firſt Turn, (if after the Turn be given there be neither Coat, Slip, nor Wrench extraordinary) ſhall be held to win the Wager.

One turns, and t'other bears.

6. If one Dog gives the firſt Turn, and the other bear the Hare, then he which bore the Hare ſhall win.

Firſt and laſt Turn by one.

7. If one gives both the firſt and laſt Turn, and no other Advantage between them, the odd Turn ſhall win the Wager.

A Coat. A Go-by.

8. That a Coat ſhall be more than Two Turns, and a Go-by, or the bearing of the Hare equal with Two Turns.

When neither gives a Turn.

9. If neither Dog turn the Hare, then he which leadeth laſt at the Covert ſhall be held to win the Wager.

Two Turns equal a Coat.

10. If one Dog turn the Hare, ſerve himſelf, and turn her again, thoſe Two Turns ſhall be as much as a Coat.

An equal Courſe. A dead Courſe.

11. If all the Courſe be equal, then he which bears the Hare ſhall win only; and if ſhe be not born, the Courſe muſt be adjudged Dead.

Who may in Right challenge the Hare.

12. If he which comes firſt in to the Death of the Hare, takes her up, and ſaves her from breaking, cheriſhing the Dogs, and cleanſeth their Mouths from the Wool or other Filth of the Hare for ſuch Courteſy done, he ſhall in Right challenge the Hare; but not doing it, he ſhall have no Right, Privilege, or Title therein.

When a Dog takes a Fall.

13. If any Dog ſhall take a Fall in the Courſe, and yet perform his Part, he ſhall challenge the Advantage of a Turn more than he giveth.

When one Dog turns, *&c.* yet ſtands ſtill.

14. If one Dog turn the Hare, ſerve himſelf, and give divers Coats, yet in the End ſtand ſtill in the Field; the other Dog without Turn-giving, running home to the Covert, that Dog which ſtood ſtill in the Field ſhall be adjudged to loſe the Wager.

A Rider to receive Diſgrace.

15. If any Man ſhould ride over a Dog, and overthrow him in his Courſe (though the Dog were the worſt Dog in Opinion); yet the Party, for the Offence, ſhall receive the Diſgrace of the Field, or pay the Wager; for between the Parties it ſhall be adjudged no Courſe.

Or pay the Wager.

Judgment given.

16. Laſtly, Thoſe which are choſen Judges of the Leach, ſhall give their Judgments preſently before they depart from the Field; or elſe he, in whoſe Default it lieth, ſhall pay the Wager by a general Voice and Sentence.

Officer to make Laws, *&c.*

And hereupon it is noted, ‘ That it ‘ lieth in the Power of him that ‘ hath the Office of the Leach con‘ ferred on him, to make Laws ac‘ cording to the Cuſtom of Coun‘ tries, and the Rule of Reaſon.

Of Hawks, and the Terms of Art in Faulconry.

THE Hawks that are uſually flown in *England*, are placed as undermention'd, *viz.*

Females.	*Their Males.*
Faulcon.	Tiercel Gentle.
Gerfaulcon.	Jerkin.
Mylion.	Tiercel.
Merlin.	Jack.
Hobby.	Robbin.
Goſs-Hawk.	Tiercel.
Sparrow-Hawk.	Musket.
Lanner.	Lanneret.

Females the larger Birds.

And it is obſerv'd, That the Female of all Birds of Prey are much larger, and of greater bulk than the Male, and are reckon'd more ſerviceable, being more watchful, hardy and bold: But of ſuch Birds as do not Prey, the Cocks are the larger.

Age.

The Age of a Hawk.

The Firſt Year, *A Soarage.*
The Second Year, *An Enterview.*
The Third Year, *A White Hawk.*
The Fourth Year, *A Hawk of the firſt Coat.*

Arms.

Arms; are the Legs from the Thigh to the Foot.

Bate.

Bate; is when the Hawk fluttereth with her Wings, either from Pearch to Fiſt, *&c.* as 'twere ſtriving to get away.

Bathing.

Bathing; is when the Hawk waſheth her ſelf at Home or Abroad.

Beak.

Beak; is the upper part of the Bill that is crooked.

Beam Feathers.

Beam Feathers; are the long Feathers of the Hawk's Wings.

Beavy of Quails.

Beavy of Quails; are a Brood of young Quails.

Bewits.

Bewits; are the Leathers with Bells, buttoned about the Hawks Legs.

Binding.

Binding; is Tyring, or when a Hawk ſeizeth.

Bowet.

Bowet; is when a young Hawk draweth any Thing out of her Neſt, and covets to clamber on the Boughs.

Bowſing.

Bowſing; is when the Hawk drinks often, and yet continually thirſteth for more.

Branch.

Branch or *Stand*; is to make the Hawk leap from Tree to Tree, till the Dog Springs the Partridge.

Branches.

Branches; is a young Hawk newly taken out of the Neſt.

Cadge.

Cadge; is that Circular Piece of Wood, on which Hawks are carried when they are expoſed to Sale.

Cancleer.

Cancleer; is when a high-flown Hawk in her ſtooping turneth Two or Three Times upon the Wing, to recover her ſelf before ſhe ſeizeth.

Carry.

Carry; is a flying away with the Quarry.

Caſt.

Caſt your Hawk to the Pearch; is to put your Hawk on the Pearch.

Caſting.

Caſting; is when you give your Hawk any Thing to cleanſe and purge her Gorge.

Carviſt.

Carviſt; is Hawk, that may be ſo called at the beginning of the Year, and ſignifies as much as to carry on the Fiſt.

Cataraſt.

Cataraſt; is a Diſeaſe in Hawks, ſo called.

Cauterizing-Irons.

Cauterizing-Irons; are Irons to Seer with.

Cawking-time.

Cawking-time; is Treading-time.

Crabbing.

Crabbing; is when Hawks, ſtanding too near, fight with one another.

Creance.

Creance; is a fine ſmall long Line of ſtrong and even-wound Packthread, which is faſten'd to the Hawk's Leach when ſhe is firſt Lured.

Check;

Check.	*Check*; that is, when the Hawk forſakes her proper Game to flie at Pies, Crows, or the like, croſſing her in her Flight.
Clap.	*Clap*, is the nether Part of the Hawk's Beak.
Coping.	*Coping-Irons*, are uſed in coping or paring the Hawk's Beak, Pounces or Talons, when over-grown.
Cowring.	*Cowring*, is when young Hawks quiver and ſhake their Wings, in Teſtimony of Obedience towards the old Ones.
Crinets.	*Crinets*, are the ſmall black Feathers like Hairs about the Sere.
Diſcloſed.	*Diſcloſed*, is when the Young juſt peep thro' the Shell.
Dropping.	*Dropping*, is when the Hawk muteth directly downward in ſeveral Drops, not yerking it ſtreight forwards.
Endew.	*Endew*, is when the Hawk digeſteth her Meat, that ſhe not only diſchargeth her Gorge thereof, but likewiſe cleanſeth her Pannel.
Enſeam.	*Enſeam*, is the Purging of a Hawk of her Glut and Greaſe.
Enter.	*Enter a Hawk*, is when ſhe firſt begins to kill.
Eyeſs.	*Eyeſs*, is a young Hawk newly taken out of the Neſt, not able to prey for himſelf.
Eyrie.	*Eyrie*, is that Place where Hawks build, and hath their Young.
Feaking.	*Feaking*, is when the Hawk wipeth her Beak after Feeding.
Filanders.	*Filanders*, a Sort of little Red Worms that uſually breed in Hawks.
Flags.	*Flags*, Feathers next the principal Feathers in the Hawk's Wing.
Fly on Head.	*Fly on Head*, is miſſing her Quarry, and betaking her ſelf to the next Check, as Crows, *&c.*
Formale.	*Formale*, is the Female Hawks.
Formica.	*Formica*, a Diſeaſe in Hawks ſo called.
Frounce.	*Frounce*, is a Diſeaſe common in the Mouth or Throat of an Hawk.
Gleam.	*Gleam*; after a Hawk hath caſt, ſhe gleameth, or throweth up Filth from her Gorge.
Glut.	*Glut*, is the ſlimy Subſtance that lies in the Hawk's Pannel.
Gorge.	*Gorge*, is called in other Fowl, the Craw or Crop.
Gurgiting.	*Gurgiting*, is when ſhe is ſtuff'd and ſuffocated.
Hack.	*Hack*, is the Place where the Hawk's Meat is laid.
Hawk keeps her Mark.	*Hawk keeps her Mark*, is when ſhe waits at the Place where ſhe lays in Partridge, or the like, until ſhe be retrieved.
Hern at Seidge.	*Hern at Seidge*, is when you find a Hern ſtanding by the Water-ſide, watching for Prey, or the like.
Jack.	*Jack*, is the Male-Hawk.
Jeſſes.	*Jeſſes*, are thoſe ſhort Straps of Leather which are faſtened to the Hawk's Legs, and ſo to the Leaſh by Vervails, and ſuch-like.
Imp.	*Imp*, is to inſert a Feather into the Wing of a Hawk, in the Place of one that is broken.
Inke.	*Inke*, is the Neck from the Head to the Body of any Bird which the Hawk doth prey upon.
Inter-mewing.	*Inter-mewing*, is from the firſt Exchange of the Hawk's Coat, till ſhe turn White; and this is ſo called from the firſt Mewing.
Jouketh.	*Jouketh*, is when ſhe ſleepeth.
Lure.	*Lure*; that is, when a young Hawk is called by the Faulconer thereunto, and is made of Feathers and Leather not much unlike a Fowl, which he caſteth up into the Air.
Leaſh.	*Leaſe* or *Leaſh*, is a ſmall long Thong of Leather, by which the Faulconer holdeth his Hawk faſt, folding it many Times about his Finger.
Lean.	*Lean*, is when the Hawk holds in to you.
Make-Hawk.	*A Make-hawk*, is an old ſtaunch Hawk, which uſed to fly, will eaſily inſtruct a young Hawk.
Managing.	*Managing a Hawk*, is to uſe her with Art and Skill.
Make out.	*Make out*, is when the Hawk goeth out to check.
Mails.	*Mails*, are the Breaſt-Feathers.
Manning.	*Manning*, is making a Hawk endure Company.
Mantleth.	*Mantleth*, is when the Hawk ſtretcheth one of her Wings after her Legs, and ſo the other.
Mew.	*Mew*, is the Place where you ſet down your Hawk during the Time ſhe raiſeth her Feathers.
Muting.	*Muting*, is the Excrements or Dung of a Hawk, and ſo it is of a Hern.
Mites.	*Mites*, are a Sort of Vermin that trouble the Head and Nares of a Hawk.
Nares.	*Nares*, are the little Holes in the Hawk's Beak.
Pearch.	*Pearch*, is the Hawk's Reſting-place when ſhe is off the Faulconer's Fiſt.
Pelt.	*Pelt*, is the dead Body of any Fowl the Hawk hath kill'd.
Pill or Pelf.	*Pill* or *Pelf*, is what the Hawk hath left of her Prey after ſhe is relieved.
Plume.	*Plume*, is the general Mixture of Feathers and Colours, by which the Conſtitution of a Hawk is known.
Plumage.	*Plumage*, are ſmall Feathers given the Hawk to make her caſt.
Pluming.	*Pluming*, is after the Hawk hath ſeized her Prey, and diſmantles it of the Feathers.
Pannel.	*Pannel*, is the Pipe next the Fundament of a Hawk, where ſhe digeſteth her Meat from her Body.
Pantas.	*Pantas*, a Diſeaſe in Hawks ſo called.
Pendant Feathers.	*Pendant Feathers*, thoſe Feathers behind the Thigh of a Hawk.
Petty Singles.	*Petty Singles*, are the Toes of the Hawk.
Pounces.	*Pounces*, are the Claws of the Hawk.
Principal Feathers.	*Principal Feathers*, are the two longeſt Feathers in the Hawk's Wings.
Pruneth.	*Pruneth*, is when the Hawk picketh her ſelf.

Put over. *Put over*, is when a Hawk removeth her Meat from the Gorge into her Bowels, by traverſing with her Body, but chiefly with her Neck.

Quarry. *Quarry*, is the Fowl which the Hawk flies at, dead or alive.

Raiſed in Fleſh. *Raiſed in Fleſh*, is when a Hawk grows fat.

Rake. *Rake*, is when the Hawk flies out too far from the Fowl.

Ramage. *Ramage*, is when the Hawk is wild, and difficult to be reclaimed.

Rangle. *Rangle*, is when we give a Hawk Gravel to bring her Stomach.

Retrieve. *Retrieve*, is when Partridges, having been ſprung, are to find again.

Rouze. *Rouze*, is when a Hawk lifteth her ſelf up, and ſhaketh her ſelf.

Ruff. *Ruff*, is when the Hawk hits the Prey, and yet not truſſes it.

Rufter-Hood. *Rufter-Hood*, is a plain and eaſie Leather-Hood, being large, wide, and open behind, and is to be drawn by the Hawk when you firſt draw her.

Reclaim. *Reclaim*, is to make a Hawk tame, gentle and familiar.

Sails. *Sails*, are the Wings of a Hawk.

Sear. *Sear* or *Sere*, is the Yellow between the Beak and Eyes of the Hawk.

Seeling. *Seeling*, is when a Hawk, firſt taken, is ſo blinded with a Thread run thro' the Eye-lids, that ſhe ſeeth not, or very little, the better to make her endure the Hood.

Seizing. *Seizing*, is when a Hawk gripes her Prey, or any Thing elſe, faſt within her Foot.

Setting down. *Setting down*, is when the Hawk is put into the Mew.

Slice. *Slice*, is when a Hawk muteth a great diſtance from her.

Sliming. *Sliming*, is when a Hawk muteth without dropping.

Sniting. *Sniting*, is when a Hawk, as it were, ſneezeth.

Soar Hawk. *Soar Hawk*; that is, from the firſt taking her from the Eyries, till ſhe hath mewed her Feathers.

Spring. *Spring*, is when any Partridge or Pheaſant riſe.

Stooping. *Stooping*, is when the Hawk is aloft upon her Wing, and then deſcends to ſtrike her Prey.

Summ'd. *Summ'd*, is when the Hawk is in all her Plumes.

Swivel. *Swivel*, is that which keepeth a Hawk from twiſting.

Tiercel. *Tiercel* or *Vaſſel*, is the Male-Hawk.

Tiring. *Tiring*, is when you give your Hawk a Leg or Pinion of a Pullet, Pidgeon, *&c.* to pluck at.

Train. *Train*, is the Tail of a Hawk.

Traſſing. *Traſſing*, is when ſhe raiſeth any Fowl aloft, and ſoaring with it, at length deſcendeth with it to the Ground.

Varvels. *Varvels*, little Rings of Silver at the End of the Jeſſes, whereon the Owners of the Hawk have their Names engraven.

Unreclaimed. *Unreclaimed*, is when a Hawk is wild.

Unſeeling. *Unſeeling*, is when you take away a Thread that runs thro' the Hawk's Eyelids, and hinders her Sight.

Unſtrike. *Unſtrike the Hood*, is to draw the Strings, that it may be in a Readineſs to pull off.

Unſumm'd. *Unſumm'd*, is when the Feathers of a Hawk are not fully grown.

Urines. *Urines*, are Nets to catch Hawks withall.

Warbling. *Warbling*, is after a Hawk hath mantled her ſelf, ſhe croſſes her Wings together over her Back.

Weathering. *Weathering*, is when you air your Hawk in Froſt, Sun, or by the Fire-ſide.

Whur. *Whur*, is the riſing and fluttering of Partridge or Pheaſant.

Seizing of Prey by the Faulcon, *&c.* Laſtly, it is obſerved, That the Faulcon, Gerfaulcon, Mylion, Merlin and Hobby, do ſtoop and ſeize their Prey with their Foot, breaking with their Beak the Neck-bone of the Fowl, without pluming or tiring thereupon, till the Fowl hath left busking and baking on the Foot.

By the Goſs-Hawk, Tiercel, *&c.* The Goſs-Hawk, with her Male the Tiercel, and the Sparrow-Hawk, kill their Game by Strength and Force of Wing at Random, and do inſtantly plume and tire upon their Prey.

Of Hunting and Hawking within the Foreſt, and who may grant Warrant or Authority to others.

By His Majeſty's Authority. THE King, and all ſuch Perſons as have any ſufficient Warrant or Authority by Grant or Charter from his Majeſty, may only hunt and hawk within the Foreſt, and no other.

Having Claim allow'd. Alſo all ſuch Perſons as have any lawful Claim allowed in Eyre, in reſpect of any Grant to hunt or hawk within the Foreſt, may uſe the ſame accordingly, provided they purſue their Authority in the ſame Manner it is granted unto them, and not miſuſe it.

But if any Knight, Eſquire, or Gentleman doth dwell within the Regard of Foreſt, and be Lord of a Manor there; yet he may not hunt or hawk therein, except he hath a lawful Claim for ſo doing allowed him in Eyre, as aforeſaid; becauſe, by the Laws of the Foreſt, no Man may hunt or hawk within any Part of the Foreſt, that is within the Regard of the Foreſt, though it be within his own Fee, except he hath a ſufficient Warrant ſo to do.

Who may within the Regard.

Not without a good Warrant. And therefore they muſt forbear to hunt or hawk in their own Grounds, if they be within the Regard of the Foreſt, for that it is a Treſpaſs if they do ſo hunt or hawk, unleſs they have good Warrant for the ſame.

Liberty for Prelates and Noblemen to hunt in the Foreſt.

Every Prelate or Nobleman, as an Archbiſhop, Biſhop, Earl or Baron, when ſent for by the King, and coming to him by that Command, and paſſing through or by any of his Foreſts, may (by Charter of the Foreſt, *Anno* 9 *Hen.* 3. *cap.* 11.) kill one or two of the King's Deer therein by the View of the Foreſter (if he be preſent, but if the Foreſter be abſent, he muſt cauſe a Horn to be blown for him), that he ſeem not to ſteal the King's Deer; and the ſame he may do in his Return home from the King. And by this it ſeems to appear, That ſuch Prelates have, by the ſaid Charter, a lawful Licence to hunt in the King's Foreſts, with Reſtriction as aforeſaid.

Alſo in the King's Chaſes and Parks.

The Lord *Coke* in 4 *Inſtitut.* 308. ſays, We find not that any Chapter or Article of *Charta de Foreſta*, doth extend to Chaſes or Parks, but only the Eleventh Chapter, *Quicunque Archiepiſcopus, Epiſcopus, Comes vel Baro, ad Mandatum noſtrum tranſirit per Foreſtam noſtram*, &c. Which Chapter doth not only extend to Foreſts of the King, but to his Chaſes and Parks alſo; for ſo was the Law before the making of this Act, which is but an Affirmative of the Common Law of the Foreſt before this Act.

To what Nobility it extends.

Viz. Lords of Parliament.

1. In reſpect of the Perſons; for every Lord of Parliament, be he Spiritual or Temporal, had this Privilege, beſides thoſe that be named in this Chapter, as ſuch Abbots and Priors as were Lords of Parliament; and ſo of Dukes, Marqueſſes, Viſcounts, which were erected and created, afterwards being Lords of Parliament, have the ſame Privilege alſo.

The Reaſon thereof.

2. By reaſon of the kind of Commandment, *ad Mandatum noſtrum*, ſaith the Statute, which Words hath reference to the Writ of Parliament, directed to every Lord of Parliament: *Ideo vobis Mandamus*, &c. and is a legal Commandment by Writ directed ſeverally to each and every Lord of Parliament to appear at the King's Court of Parliament, *&c.* to treat *de arduis & urgentibus negotiis Regni, Statum & Defenſionem Regni & Eccleſiæ Anglicanæ concernentibus*; and to recreate themſelves *veniendo*, and after *redeundo*, they may, paſſing by any of the King's Foreſts, Chaſes or Parks hunt and kill one or two of the King's Deer. That the Lords of Parliament may do it at other Times *ex Gratia*, but by Law *eundo & redeundo*, to and from the Parliament.

They may hunt one or two Deer.

Propriis ſuis Canibus, &c.

3. Here is implied, That the Lords of Parliament may, in the Abſence of the Foreſter or Keeper, after the blowing of the Horn, kill one or two of the King's Deer *propriis ſuis Canibus, aut Arcu ſuo proprio.* Id. 309.

A ſecret Concluſion in Law.

4. Here is a ſecret Concluſion of Law, That albeit Spiritual Perſons are prohibited by the Canon Law to hunt; yet by the Common Law of the Land they may, for their Recreation, to make them fitter for the Performance of their Duty and Office, uſe the Recreation of Hunting, as here it directly appeareth, *&c.* And that at this Day, and Time out of Mind, the King hath had, after the Deceaſe of every Archbiſhop and Biſhop, (*inter alia*) *mutam ſuam Canum*, &c. his Kennel of Hounds, or a Compoſition for the ſame; which, and other Things, are in the *Exchequer*, called *Multa.* Ibid.

Canons contrary to the Law, *&c.* are void.

5. The laſt Concluſion is, That all Canons againſt the Laws or Cuſtoms of the Realm are void, and of none Effect. *Ibid.*

Licences to Hunt or Hawk.

Things to be conſidered.

AS for Licences to hunt or hawk in the King's Foreſts, Chaſes, Parks, or Warrens, theſe Things ought to be conſider'd, *viz.*

Concerning Licences to hunt.

1. Who may grant ſuch Licences.
2. How ſuch Licences ought to be uſed.
3. The Difference between a Licence of Profit, and a Licence of Pleaſure; ſo of a Licence in Law, and a Licence in Fait.

Who may grant Licences.

Firſt, His Majeſty.

1. The King being the Chief Monarch of this Realm (unto whom the Government and Regulation of Foreſts, and ſuch-like Places of Royal Paſtime and Recreation, do principally appertain) may himſelf grant Licences to hunt and hawk in any of his Majeſty's Foreſts, Chaſes, Parks or Warrens, unto any of his Subjects, according to his Royal Will and Pleaſure.

Secondly, Thoſe authorized.

As the Lord Chief Juſtice in Eyre.

2. Whoſoever hath any Special Authority derived from his Majeſty in that Behalf, under the Great Seal of *England*, may in the like manner grant Licences, in ſome reſpect, and in ſome Places, to hunt and hawk in his Majeſty's Foreſts, Chaſes, Parks or Warrens; as the Lord Chief Juſtice in Eyre of the King's Foreſt may grant a Licence, or give a Warrant to any Nobleman or Gentleman that hath a Manor or Freehold therein; for the firſt to hunt or hawk in his Manor or Lordſhip, and the other in his Freehold, according to the Purport, and

true Intent or Meaning of ſuch Grant or Warrant.

A Lord of a Foreſt may, to hunt in his Foreſt.

Special Grant.

No Foreſter *ex Officio* can.

Except commanded by Special Warrant.

In like-manner, a Subject that is Lord of a Foreſt may grant Licence to whom he pleaſeth, to hunt and hawk in his Foreſt: But no Perſon can grant any Licence, or give Warrant to any Man, to hunt and hawk in the King's Foreſts, other than the King himſelf, or his Chief Juſtice in Eyre of the Foreſt; or ſuch other Perſons as have the like Authority from the King, by ſome Special Grant to do the ſame. For if any of the King's Foreſters (or other Officer) ſhould attempt or preſume to do the ſame, *ex Officio*, not only ſuch Foreſter or other Officer, but all thoſe who ſhall hunt or hawk with him there by Colour of ſuch Licence or Warrant, would be all Treſpaſſers, and liable to the Puniſhment of the Foreſt-Laws: Foraſmuch as it is the Duty and Office of every Foreſter, or other Officer of the Foreſt, to preſerve and keep the King's Deer for his Majeſty's Uſe, and not to kill and deſtroy them; except he be commanded by Special Warrant ſo to do: And therefore it is not reaſonable to ſuppoſe, that they can licenſe, or give Warrant to any Perſon to hunt or kill Deer, or any other Game within their Liberty or Walk.

No Foreſter may hawk or take Fowls of Warren, *&c.*

Neither can any Foreſter (or other ſuch Officer) hawk, or take any Fowls of Warren, as Pheaſants and Partridges, within his Walk in the Foreſt, becauſe his Office is to preſerve, and not to deſtroy them; and therefore he cannot give or grant any Warrant or Licence to another to hawk, or take any Fowls of Warren within his Walk or Liberty: For if he do, although he hold his Office by Patent from the King, or ſome other Perſon as hath Power to grant the ſame; yet is ſuch his Act ſuch a Miſuſe or Abuſe of his Authority, that it is a Cauſe of Forfeiture of his Office.

Difference in Licences.

In Licences to hunt or hawk within a Foreſt, Chaſe, Park or Warren, there is this Difference to be conſidered:

Viz. Whether for Pleaſure or Profit.

Whether ſuch Licence be of Profit, or for Pleaſure only; for a Licence of Profit is, Where a Man hath a lawful Warrant to kill and carry away with him the Game that is taken by him, either by hunting or hawking, in any of thoſe Places afore-mentioned.

Licence of Pleaſure gives no Property.

But a Licence of Pleaſure is only where a Man hath a Warrant to hunt or hawk in a Foreſt, Chaſe, *&c.* yet doth not thereby acquire any Property in the Game he takes, and ſo hath not any Authority to carry away the ſame with him.

Cannot take Company.

Neither can he that hath only a Licence of Pleaſure hunt or hawk with any more Perſons in his Company than himſelf.

Licence of Profit admits both.

But he that hath a Licence of Profit, may hunt or hawk with his Friends and Servants in his Company, and carry away to his own Uſe the Game that he hath taken.

Of Right to a Fee-Deer.

Right to a Fee-Deer.

Notice to the Foreſter.

IF any Perſon have a Right or Intereſt to have a Fee-Deer within the Foreſt, whether it be by Preſcription, as belonging to an Office, or otherwiſe, he ought to give Notice unto the Foreſter where his Warrant is to be ſerved in convenient Time, and require him to execute the ſame according to the Purport thereof.

If the Foreſter refuſe.

The Party with his Servants may enter, *&c.*

And if the Foreſter doth refuſe to ſerve ſuch Warrant, after Notice given unto him to execute the ſame, then may the Perſon that is to have ſuch Fee-Deer enter into the Walk of the Foreſter, ſo refuſing, with his Servants or Attendants, and there hunt, kill and take ſuch Deer as he is of Right to have, and juſtifie the ſame, both as to himſelf, his Servants and Attendants, becauſe he hath a Licence of Profit, whereby he is authorized ſo to do.

A Maxim in Law for him that hath a Right.

For it is ſaid to be a Maxim in the Law, That where any Perſon hath a Right or Intereſt to any Thing by the Gift or Grant of another, or otherwiſe, but cannot come by the principal Thing without doing ſome other Act, which is the neceſſary Means to acquire the ſame; in ſuch Caſe he may lawfully do that other Act, which is the neceſſary Means to come by the principal Thing.

Example.

Elſe the Party would be Remedileſs.

And ſo it was adjudged, *Mich* 13 *H.* 7. in an Action of Treſpaſs brought againſt one for hunting in the Plaintiff's Park; for otherwiſe, if the Foreſter or Keeper do refuſe to kill and deliver ſuch Fee-Deer to the Perſon who hath a Right unto the ſame, if ſuch Perſon might not juſtifie the killing and taking the Fee-Deer himſelf, he would be without Remedy to come by the ſame; and therefore the Law hath provided the Remedy for the Party to enter and take the ſame in Manner as aforeſaid.

Therefore 'tis juſtifiable by Law.

And this is juſtifiable, as well by the Laws of the Foreſt, as by the Common Law of the Realm; for in the Tenth Article of the *Aſſize of the Foreſt*, it is ſaid, 'If any Body ſhall take a Beaſt of 'the Foreſt in the ſame without Warrant, his Body ſhall be arreſted whereſoever

‘ ſoever he be found within the Bounds ‘ of the Foreſt.

Uſe a ſufficient Authority.

Whereby it appears, that he who takes a Deer of the Foreſt without a Warrant, is puniſhable for the ſame by the Laws of the Foreſt: Nevertheleſs, he that hunts and kills a Deer within the Foreſt by lawful Warrant, ſhall not therefore be puniſhed by any Law; alſo the Intereſt or Right of ſuch Perſon as hath uſed to have Fee-Deer, is a ſufficient Warrant in Law to the Foreſter, or Keeper, to kill and deliver the ſame unto ſuch Perſon, if he will; but if he refuſe, then the Party himſelf, with his Aſſiſtants, may lawfully do the ſame.

The Licence to be conſider'd.

From whom.

To whom.

And to what Purpoſe.

However, every ſuch Licence ought to be ſtrictly conſider'd; Firſt, By whom it was made, and whether he that made the ſame had Power to grant ſuch Licence or Warrant. Secondly, Unto whom the ſame was made, and for what Thing, what Time, and what Place. Third, Whether it be only a Licence of Pleaſure for the Party unto whom it was granted, meerly to divert himſelf in the Foreſt, Chaſe or Park, or a Licence of Profit, whereby the Party obtains a Property in the Thing granted, and hath Liberty to Hunt or Hawk with his Servants or Attendants, and to kill and carry away with him the Game he takes Virtue of ſuch Licence.

Requiſites to be punctually obſerv'd.

All which Things ought to be punctually obſerv'd and purſued, according to the Nature of the Licence or Warrant; that the Party to whom the ſame is granted may avoid the Imputation of being accounted a Treſpaſſer, and therefore rather to be puniſhed, than encouraged.

Licences in Law, and Licences in Fait.

3. The Third Particular is divided, and relates to Licences in Law, and Licences in Fait or Deed. The Firſt whereof, is a Licence by Word of Mouth without Writing, or by a Preſcription, as belonging to ſome Office within the Foreſt; and the other is a Licence reduced into Writing under Hand and Seal, ready to be produc'd upon any Occaſion, as the ſame is required.

A Licence in Law by Word only, is valid.

Alſo it is to be obſerv'd, That a Licence in Law by Word only, without Writing, is held to be as valid from one Subject to another, as any Licence in Writing; but it hath been queſtion'd whether it be ſo between the King and a Subject, becauſe it is ſaid, the King doth neither grant or take any Thing but by Matter of Record.

Juſtification by the King's Command.

Yet by the Opinion of the Judges in *Eaſter* Term, 4 *Hen.* 7. the King may give many Things without Writing that ſhall be good, as to Chattels: And in *Michaelmas* Term, 39 *Hen.* 6. the Defendant in Treſpaſs did plead Juſtification by the King's Commandment, by Word of Mouth only, without Writing; and it was held a good Juſtification.

Therefore the King's Licence by Word, valid.

It is ſo between Subjects.

And therefore, inaſmuch as Hunting without Licence is but a Treſpaſs at moſt, if a Man may plead the King's *Commandment*, by Word only, in bar of ſuch a Treſpaſs; by the ſame Parity of Reaſon he may plead the King's *Licence*, by Word only, in bar of a Treſpaſs: But in the other Caſe of a Subject, it is without Diſpute; That if a Subject, being Owner of a Foreſt, Chaſe, or Park, do Licence any one to hunt in them by Word, without Writing, ſuch Licence is good and lawful.

Puniſhment of ſuch as Hunt without Warrant.

Treſpaſſers taken in the Manner, to be arreſted.

Aliter, bailable.

AS to the Puniſhment of Treſpaſſers in Foreſts, that hunt therein without any lawful Colour or Warrant for ſo doing; if any Foreſter or Keeper ſhall find or take any ſuch Perſon or Perſons in the Manner, he ſhall arreſt their Bodies, and carry them to Priſon, from whence they ſhall not be deliver'd without Special Warrant from the King, or his Majeſty's Juſtices in Eyre of the Foreſt, according to the Aſſizes and Cuſtoms of the Foreſt, *Anno* 6 *Ed.* 1. *Art.* 10. But ſee 1. *Ed.* 3. *Stat.* 1. *cap.* 8. where they are bailable, if not taken in the Manner.

If only hunting, yet puniſhable.

And though the Words there be, [*If any one ſhall take a wild Beaſt of the Foreſt*] yet, notwiththſtanding, if any Perſon be taken Hunting in the Foreſt, he is to be puniſhed by the Law, as if he had kill'd and taken a wild Beaſt of the Foreſt, for in that Caſe the Will ſhall be taken for the Deed; as it was adjudged in the Aſſizes of the Foreſt of *Pickering*, in the Time of *Edw.* 3. *viz.*

The Will taken for the Deed.

That if one enters into a Foreſt with a Bow and Arrows, or with Grey-Hounds, with an Intent to treſpaſs there; notwithſtanding he doth commit no Act, yet he ſhall be puniſh'd as if he had done ſome Act, for the Reaſon aforeſaid: As it appears by the ſame Aſſizes, that an Abbot was, who lent a Bow and Arrows to one to kill the King's Deer; and notwithſtanding there was no Act done, yet the Abbot was fined, and ranſomed.

Treſpaſſer not to be arreſted, unleſs, *&c.*

And therefore, if a Foreſter or Keeper ſhall find any Perſon within the Foreſt, either with Bow and Arrows, or with Grey-Hounds, intending to offend there, he ſhall arreſt and impriſon him, as if he had committed the Fact he intended; but the Body of ſuch Offender ſhall not be arreſted, unleſs he ſhall be taken in the Manner, which (as before-mentioned) may be in one of theſe Four Ways, *viz.*

Four Ways taken in the Manner.

1. Stable-ſtand.
2. Dog-draw.
3. Back-bear; or,
4. Bloody-Hand.

Stable-ſtand.

1. The Firſt whereof is, when any Perſon is found ſtanding in the Foreſt with a Bow ready bent to ſhoot at any Deer, or with his Grey-Hound in a Leach ready to ſlip; this the ancient Foreſters call *Stable-ſtand.*

Dog-draw.

2. The Second is, when one hath hurt or wounded a Deer, or other Beaſt of the Foreſt, by ſhooting at him either by Bow or Gun, and the Foreſter finds ſuch Offender drawing after the Beaſt with a Hound to recover it; this by the Foreſt-Law is called, *Dog-draw.*

Back-bear.

3. The Third is, where one hath ſlain a wild Beaſt in the Foreſt, and the Foreſters diſcover him as he is carrying away the ſame; this they call, *Back-bear.*

Bloody-Hand.

4. The Fourth and laſt, *viz. Bloody-hand,* is where one is found courſing in the Foreſt, with the Blood of any Deer, or other Beaſt of the Foreſt upon him; or is in any manner beſmear'd with ſuch Blood, after Courſing; or is otherwiſe found in the Foreſt imbrewed with Blood in any ſuſpicious manner, although he be not ſeen to hunt or courſe there.

Arreſting and impriſoning ſuch Offenders.

And all theſe are ſaid to be taken with or in the Manner; and ſuch Offenders ſo found, or taken by the Foreſters, are to be arreſted by their Bodies, if it may be, and alſo be impriſon'd until they be delivered by the King's Special Commandment, or his Juſtice in Eyre of the Foreſt.

To be puniſhed by Fine, *&c.*

Alſo they are to be puniſhed at the Court of Juſtice-Seat by Fine, at the Diſcretion of the Juſtice in Eyre there, and impriſon'd until they have paid the ſame, and then be bound there to their good Behaviour towards the Foreſt for ever afterwards.

And bound to good Behaviour.

After a lawful Trial and Conviction.

But this Puniſhment cannot be executed in every Point, but only by a Judicial Sentence pronounced by the Juſtice in Eyre, at his Juſtice-Seat there: In which Caſe the Party is always firſt convicted of the Offence by a lawful Trial, according to the Foreſt-Law.

Abettors and Receivers of Treſpaſſers.

Receiver as bad as the Thief.

IF any Perſon receives Veniſon of one that hath unlawfully come by the ſame, as a Treſpaſſer in the Foreſt, the Receiver ſhall be puniſh'd as well as the Giver. *Vide* 4 *Co. Inſt.* 317.

Horſe carrying ſtolen Veniſon, forfeited.

Alſo by the Aſſizes of the Foreſt, he that ſtealeth Veniſon therein, and carries away the ſame upon his Horſe, the Horſe ſhall be forfeited; but if ſuch Malefactor takes the Horſe of a Stranger, and carries his ſtolen Veniſon away upon the ſame, if ſuch Stranger be ignorant of the Fact, his Horſe ſhall not be forfeited. *Itin. Pick. fo.* 3.

Abettors and all Treſpaſſers are Principals.

Again it appears, by *Hill.* 13 *Hen.* 7. That if one commands another, or divers, to commit a Treſpaſs in the King's Foreſt, Chaſe, Park or Warren, as to hunting or chaſing of Deer, or other Beaſts or Fowls; in ſuch Caſe, he that commands the other to do ſuch unlawful Act, is as much a Principal as they that commit the Treſpaſs; for in Treſpaſſes of the Foreſt all are Principals, and there are no Acceſſories as at Common-Law. *Vide* 4 *Co. Inſt.* 317.

Negligent Foreſters, *&c.* may forfeit their Office.

And further it is to be obſerv'd, That if a Foreſter, Keeper, or other Miniſter of the King's Foreſt, Chaſe, Park or Warren, that hath the Care and Charge of the King's Game, and by his Negligence will not attach or apprehend ſuch Treſpaſſers, *&c.* it is a Forfeiture of his Office.

All Dwellers, *&c.* to help to apprehend Offenders.

And not only the Foreſters and Miniſters of the Foreſt, but every other Perſon dwelling within the Foreſt, is likewiſe to do his utmoſt Endeavour to attach and apprehend ſuch Offenders and Treſpaſſers in Foreſt; and if he cannot take them himſelf, he is to cauſe Hue and Cry to be made after them, to the End they may thereupon be taken, as if they were Felons.

And cauſe Hue and Cry.

Offenders refuſing to yield.

And if upon ſuch Hue and Cry made, the Offenders do ſtill continue in their Offences, or do flie or defend themſelves with Force, and will not keep the Peace, nor yield themſelves when required ſo to do; in ſuch Caſes, if any Man, coming to the Aſſiſtance of the Foreſters, ſhall chance to kill any ſuch Offender within the Bounds of the Foreſt, he ſhall not be arraign'd for the ſame before the King's Juſtices, or any other his Miniſters of Juſtice, but ſhall be thereof acquitted, as if no ſuch Act had been done.

May be kill'd.

And if the Foreſters and thoſe with them, cannot apprehend ſuch Offenders in the Foreſt, by Reaſon of their flying out of the ſame; then may they follow ſuch

Freſh purſuit in View out of the Foreſt.

ſuch Offenders with freſh Purſuit (being ſtill within View but not otherwiſe) out of the Foreſt, and there apprehend them; but then they cannot uſe ſuch Severity and Force with ſuch Offenders as they might do, if they were within the Limits of the Foreſt.

Their Names, *&c.* to be inquired after, and preſented.

And therefore the uſual Way is (in Caſe ſuch Offenders cannot be taken without Danger) for the Foreſters to inquire and find out their Names, with the Places of their Abode, and preſent them to the next *Swainmote* or Court of Attachments, that they may be proceeded againſt according to the Law of the Foreſt.

Deſtroying of Hawks and Eyries.

And Laſtly, if any take Hawks or deſtroy Eyries of Hawks in the King's Woods, it is a Treſpaſs againſt the Aſſizes of the Foreſt; and the Offenders ſhall make Fine for the ſame. *Vide Intin. Lanc. fo.* 7.

Proceſs to the Outlawry againſt Offenders.

There is alſo a Method of proceeding againſt Offenders in Foreſts and Pourallees, by way of Outlawry, which is after this Manner: If any Perſon be preſented for an Offence committed within the Foreſt, or the Pourallees thereof, at either of the Courts of Attachment or Swainmote, and ſuch Offender do dwell in a Foreign County out of the Foreſt, ſo that the Foreſters may not attach him to anſwer the ſame, then he may be Outlawed, according to the Proceedings at the Common Law, *viz.* He muſt be exacted, or called to appear and render his Body at Five County Courts: And when he is exacted, or call'd the Fifth Time to appear, the Coroner of the County, where the Proceedings were made, will for his not appearing pronounce him Outlawed; and ſo he may be taken as an Outlaw whereſoever he can be found, and ſhall forfeit all his Goods and Chattels to the King, and alſo the Profits of his Lands, by Inquiſition of the Sheriff and Coroners.

Of the Purlieu or Pourallee of the Foreſt, and who may hunt therein; when, how often, how far, and in what Caſes, according to Mr. Manwood's Foreſt-Law, *cap.* 20.

What a Purlieu or Pourallee is, and how in ſome Senſe.

IT is ſhew'd before, that a Purlieu or Pourallee is a Circuit of Ground adjoining unto the Foreſt; which compaſs of Ground was once Foreſt, and afterwards diſafforeſted by the Perambulations made for the ſevering the New Foreſts from the Old.

It remains Foreſt ſtill.

But yet that they were not ſo diſafforeſted to every Man, but that they do in ſome Senſe continue Foreſt ſtill as to ſome Perſons, though diſafforeſted in ſome Sort as to others.

It is only diſafforeſted as to the Owners. *Sed vide Poſtea.*

For by the Words of *Charta de Foreſta*, if the King had afforeſted any Woods or Lands of his Subjects, to the Damage of the Owners, they were to be diſafforeſted again; that is, only as to thoſe Perſons whoſe Woods and Lands they were: Who, as the proper Owners thereof, might fell and cut down their Woods at their own Pleaſure, without any Licence from the King; as alſo convert their Meadows and Paſtures into Tillage, or otherwiſe improve their Grounds to the beſt Advantage.

How they may hunt and chaſe, *&c.*

In like manner they might hunt and chaſe the wild Beaſts of the Foreſt towards the ſame, ſo that they did not foreſtall them in their Way thither.

But 'tis Foreſt as to Strangers.

But yet no other Perſon could claim ſuch Benefit in the Pourallee, but only the proper Owner of the Soil thereof: So that the ſame remains Foreſt ſtill, as to all thoſe that have no Property in the Lands therein.

And may again be turn'd into Foreſt.

For it appears, as before, That the Owners of the Woods and Lands therein may ſuffer the Pourallee to remain Foreſt ſtill, if they be ſo minded, notwithſtanding ſuch Diſafforeſtation, (as by Statute 33 *Ed.* 1. *cap.* 5.) and ſome have done ſo for the Benefit of Common within the Foreſt, which otherwiſe they were excluded from, as Pourallee-Men.

The King's Property in Beaſts wandering.

And this doth prove, that the Woods and Lands in the Pourallee are diſafforeſted only for the Owners thereof, and not for every one to hunt and ſpoil the wild Beaſts there at his Pleaſure; for if the Beaſts chance to wander out of the Foreſt into the Pourallee, yet the King hath a Property in them ſtill, againſt every Man but the proper Owner of the Grounds wherein they are, for ſuch Perſon hath a Property in them, *Ratione Soli*; but yet ſo as he may only take them by Hunting, or Chaſing with his Grey-Hounds or Dogs, without any foreſtalling or foreſetting in their Courſe back again towards the Foreſt.

But yet the Pourallee Owner may chaſe, *&c.*

Rangers of the Pourallees to Rechaſe the King's Deer.

For the King hath always Rangers in the Pourallee, to attend ſuch wild Beaſts of the Foreſt as comes there to rechaſe them back again into the Foreſt; which proves, that though the wild Beaſts of the Foreſt do by chance ſtray into the Pourallee, yet the King hath a Property ſtill in them, or otherwiſe the Ranger could have no lawful Authority to make ſuch a Rechaſe.

None may preſcribe under the Owner to chaſe, *&c.*

And by *Hill.* 13 *Hen.* 7. *fo.* 16. *Pl.* 14. it appears, That though a Man may preſcribe to chaſe the wild Beaſts of *J. S.* in the Ground of *J. S.* yet he may not preſcribe to chaſe the King's wild Beaſts in that Ground, ſuch as are the wild Beaſts which ſtray out of the Foreſt of the King into the Pourallee.

None may hunt, *&c.* A Hart proclaim'd.

Alſo it appears in *Paſch.* 7 *Hen.* 6. *fol.* 36. *Pl.* 41. That if a Hart go out of the King's Foreſt, the Foreſters may follow him, and make Proclamation in the adjacent Towns, That no Man preſume to hunt or ſtay him; after which, it is not lawful for any one to moleſt ſuch Hart.

The Pourallee-man may not foreſtall, *&c.*

Whereby it appears, that though ſuch wild Beaſts be out of the Foreſt, and in the Pourallee, yet nevertheleſs the King hath ſtill a Property in them; and this proves, that the Pourallee is in ſome Senſe a Foreſt ſtill, for the King's wild Beaſts to have their free Concourſe in, and ſafe Return to the Foreſt without Moloſtation of any Perſon, except the Owner of the Grounds in the Pourallee; who, when he finds them there, may rechaſe them towards the Foreſt, provided he do neither foreſtall or foreſet them in their Way thither.

A further Difference.

Again, there is this further Difference to be obſerv'd between a Foreſt and the Purlieu or Pourallee, *viz.* That all the Woods and Lands within the Regard of the Foreſt, are abſolutely within the Bounds and Charge of the Foreſt, as well in Reſpect of the Owners thereof, as of any other Perſon.

Woods within the Regard, *&c.*

May not be cut down without Licence.

For no Perſon may cut down his own Woods, or improve his own Grounds within the Regard of the Foreſt, without Licence from the King, or his Chief Juſtice in Eyre of the Foreſt.

Nor the Beaſts there hunted.

Neither may any Perſon in any wiſe hunt, chaſe or moleſt, the wild Beaſts of the Foreſt in his own Grounds, within the Regard of the Foreſt, without Licence or Warrant from the King ſo to do, or from his Chief Juſtice of the Foreſt.

Pourallee-Men are not ſubject to the Bondage of the Foreſt.

But thoſe whoſe Grounds are within the Pourallees, are not ſubject to the Bondage of the Foreſt, inaſmuch as their Lands are without the Regard of the Foreſt; and therefore they may cut down their own Woods, convert their Meadows and Paſtures into Tillage, and otherwiſe improve their Eſtates there to the beſt Advantage, at their Pleaſure, without Licence or Warrant for ſo doing.

Yet Pourallees are not abſolutely Free.

And yet the Woods and Lands in the Pourallees are not abſolutely freed from the Bondage of the Foreſt, in Reſpect of the wild Beaſts having their Haunts therein, when they happen to ſtray out of the Foreſt: And therefore, as they were once abſolutely Foreſt, ſo they are ſtill in ſome Senſe; that is to ſay, conditionally Foreſt, and not abſolutely Free.

Lands abſolutely Free, if not too near the Foreſt.

But as to ſuch Lands which neither are, or never were either Foreſt or Pourallee, but always abſolutely Free; if they adjoin not too near unto the Limits of the Foreſt, it is lawful for any Perſon that is Owner of ſuch Lands, (provided he be qualified by Law to keep Grey-Hounds) to hunt and chaſe with his Dogs ſuch wild Beaſts as he ſhall find therein; but he muſt take Care that he do not Foreſtall them in their Return to the Foreſt. *Manw.* 371. *&c.*

Purlieu, from whence derived.

Now again concerning Purlieus, it may be obſerv'd, from 4. *Co. Inſt.* 303. That *Purlieu* is the right Name of the Place (that was diſafforeſted by *Charta de Foreſta*, and the Perambulations and Grants thereupon) being derived from the *French* Adjective *Pur*, ſignifying clear, intire, and exempt; and the Nown *Lieu*, *i. e.* a Place, that is, a Place entire, clear, or exempt from the Foreſt; and that the Word *Pourallee*, i. e. *Perambulatio*, ſignifies the Perambulation, whereby the Purlieu was diſafforeſted: So that the Purlieu and Pourallee are Two diſtinct Things.

Difference between Purlieu and Pourallee.

What Chaſes cannot have Purlieu.

That by this it appears, That Chaſes that were never any Foreſts cannot have any Purlieu, and that conſequently the Caſe, 16 *Eliz. Dier* 326. is miſtaken.

That the Owners of Purlieus may diſpoſe thereof.

That by this Diſafforeſtation, the Owners of the Grounds within the Purlieu may at their Will and Pleaſure fell, cut down, eradicate, and ſtub up, all the Timber, Woods and Under-Woods, convert their Paſtures, Meadows and other Grounds, to Arable, incloſe them with any kind of Incloſure, build and erect new Edifices upon the ſame, or any Part thereof, and to diſpoſe and uſe the ſame after the Diſafforeſtation, as if they never had been diſafforeſted.

The Miſtake of them that ſay, the Purlieu is diſafforeſted, *quoad* the Owner only.

And that whereas ſome have conceiv'd, that *quoad* the Owners of the Soil, the Purlieu is diſafforeſted, but not as to others; but as to them it ſhould remain a Foreſt, by Reaſon of the Words in the Firſt Chapter, *Ad Dampnum illius cujus Boſcus illus fuerit*; That thoſe Words were added to ſhew the Unlawfulneſs of the Afforeſtation, becauſe it was *ad Dampnum*, *&c.* And then, ſays he, theſe Men muſt make a Diverſity between a Deafforeſtation, by force of the Firſt Chapter of Afforeſtations, in the Reign of K. *Henry* II. and Deafforeſtations, made by Force of the Third Chapter of Afforeſtations, in the Reign of K. *Richard* I. and K. *John*; for there the Clauſe of *ad Dampnum* is omitted; and therefore thoſe Afforeſtations are utterly made void againſt all Men.

Who

Who may properly be ſaid to be a Purlieu-man, and that may lawfully hunt in the Pourallee; according to Mr. Manwood's Law For. cap. 20.

The Qualification of a Pourallee-hunter. See after.

Property, *Ratione ſoli.*

NOw notwithſtanding the Pourallee be Foreſt ſtill to ſuch Perſons as have not any Lands of Inheritance therein, ſo that they cannot pretend to hunt, chaſe, or courſe therein, without rendering themſelves liable to Puniſhment; yet ſuch as have Lands there, to that Value as the Law requires, they may keep Grey-Hounds; and when they find the wild Beaſts of the Foreſt within their Grounds in the Pourallee, they may chaſe them towards the Foreſt, for as they are Owners of thoſe Grounds, they have Property in ſuch wild Beaſts, *Ratione ſoli*, ſo long as they are in the ſame.

When he may purſue his Chaſe.

But no Foreſtalling.

Penalty.

So that if they do firſt make their Courſe in their own Grounds within the Pourallee, they may purſue their Chaſe through every Man's Grounds; but if the wild Beaſts do make towards the Foreſt, they muſt not foreſtall or foreſet them, either with Dogs, Guns, Croſs-Bows, Long-Bows, Hags, or any other Engine whatſoever, but ſuffer them to have their free Paſſage thither; for all ſuch Foreſtalling or Foreſetting is abſolutely forbidden by the Aſſizes of *Woodſtock*, made *Anno* 30 *Hen.* 2. on Pain of ſuffering a Years Impriſonment, and making Fine at the King's Diſcretion.

His Eſtate, or Degree.

By the Statute, 13 *Rich.* 2. *cap* 13. He that may lawfully hunt in any Pourallee, ought to have Woods or Lands of Freehold within the ſame, to the Yearly Value of 40 *s.*

By *Stat.* 1. *Jac.* 1. *cap.* 27.

And according to *Stat.* 1 *Jac.* 1. *cap.* 27. he ought to have Lands of Inheritance of the Yearly Value of 10 *l.* or Lands of Freehold of the Yearly Value of 30 *l.* or have Goods worth 200 *l.* or be the Son of a Knight or Baron, or Perſon of a higher Degree, or Son and Heir Apparent of an Eſquire. (Theſe Two Acts being General, as to Perſons keeping Grey-Hounds, *&c.* the Concluſion, as to the Pourallee-man, are drawn by Conſequence.)

Former Liberties reſtrain'd.

And the Value of the Eſtates advanced.

And therefore it may as well be here noted, That by an Act made 22 and 23 *Car.* 2. *cap.* 25. No Pourallee-Man may keep Grey-Hounds within the Pourallee, or elſewhere, within *England* or *Wales*, other than he that hath Free Warren, or is Lord of a Manor; or is ſuch a Freeholder as is ſeized in his own Right, or the Right of his Wife, of Lands, Tenements or Hereditaments, of the clear Yearly Value of 100 *l.* or of Lands, Tenements or Hereditaments, in his own Right, or in the Right of his Wife, (for Term of Life or Lives) of the Yearly Value of 150 *l.* for ſo that Act runs.

Which is the Reaſon of the Concluſion drawn as before, That no Perſon may hunt in his own Pourallee, with Grey-Hound or other Dog, that is likely to kill any Beaſt of Venary or Chaſe, except he may expend according to the Rate laſt mentioned, by the Year of Free-Lands within the Pourallee or otherwiſe, as is laſt before declared; though this Statute is general to all Perſons.

Purluy.

Pourallee.

Purlieu.

And for that Reaſon it is inſiſted, That the Pourallee is alſo called *Purluy*, that is ſaid to be, for him that is ſo qualified, but ſo that he always begin his Courſe in his own Grounds within the *Pourallee*; from whence alſo it hath the Name of *Purlieu*, i. e. for the Place by which is meant for his own Grounds in particular, but not generally every Place or every Man's Ground.

Though one unqualified may not hunt.

And hence (ſay they) ariſeth the Difference between a Pourallee-man, and one that hath Grounds within the Pourallee; for notwithſtanding a Man hath Grounds within the Pourallee, yet if he be not qualified by Law, according to the Statutes before-mention'd, he is no Pourallee-man.

Yet he may chaſe the Deer out.

Yet, notwithſtanding, that if he finds any wild Beaſts of the Foreſt in his own Grounds, he may chaſe them thereout with little Dogs, but not with Grey-Hounds, or other great Dogs, as it doth appear in 43 of *Ed.* 3. of the Earl of *Arundel. Manw.* 373.

But he that has no Eſtate there, may not.

And therefore by conſequence it is concluded, That if a Man have no Eſtate of Inheritance within the Pourallee, either in Lands or Woods, then it ſeems he cannot pretend to any Privilege therein, but is utterly excluded from Hunting or Chaſing there: And to ſuch Men, the Pourallee is abſolutely Foreſt ſtill. *Manw. ut ſupra.*

When a Pourallee-man may let ſlip and hunt.

And then it follows to this Purpoſe, *viz.* That if a qualified Pourallee-man finds any wild Beaſts of the Foreſt within his own Grounds in the Pourallee, he may let ſlip his Dogs at them, and hunt and chaſe them towards the Foreſt; but he muſt take heed he do not hinder their Return to the Foreſt, as was before obſerv'd.

His Property is upon a Condition.

For though he finds ſuch wild Beaſts in his own Pourallee, and in Reſpect thereof hath a Property therein, *Ratione ſoli*, againſt all Perſons but the King; nevertheleſs ſuch his Property is only upon this Condition, *viz.* That if he can ſlay them with his Dogs in Chaſe without foreſtalling, and before they can recover the Foreſt, then they are abſolutely his; but if they once recover the Foreſt, tho' they be but within the Liſt of the Foreſt, before the Dogs faſten upon them, then they belong to the King, or other Owner of the Foreſt.

When he may purſue the Chaſe to the Foreſt.

But if ſuch a Pourallee-man doth firſt begin the Chace in his own Freehold, he may purſue the ſame thro' every Man's Ground within the Pourallee, provided he enter not into the Foreſt; yet if the Dogs, in chaſing them towards the Foreſt, faſten upon one of them before it can get into the Foreſt, or the Limits thereof, and the wild Beaſt by Force draws the Dogs, as they hang upon him, into the Foreſt; and if, being a conſiderable Space within the ſame, the Dogs ſlay the wild Beaſt: In this Caſe, by Reaſon of the firſt Property the Pourallee-man had in the Beaſt, *Ratione Soli*, and likewiſe by the Purſuit, and Poſſeſſion thereof by his Dogs before it got into the Foreſt, he may follow his Chaſe into the ſame, and there take and carry away the Beaſt, becauſe he was actually poſſeſſed thereof by his Dogs (being in the Nature of Servants) as of his own proper Goods, before the Beaſt could recover the Foreſt. *See after*, for Recalling his Dogs.

When into the Foreſt.

When he begins his Chaſe in another Man's Ground.

But if a Pourallee-man begin his Courſe in another Man's Ground, where the wild Beaſts of the Foreſt are within the Pourallee; if his Dogs faſten upon a wild Beaſt before it can get within the Bounds of the Foreſt, and the Beaſt draws the Dogs into the Foreſt, and is there ſlain by them: Here the Pourallee-man may not enter into the Foreſt, nor take the Beaſt ſo kill'd, becauſe his Courſe was wrongful from the Beginning; for he could claim no Property in the Beaſt, *Ratione Soli*, becauſe he began his Chace in another Man's Ground; and this appears by *Mich.* 12 *H.* 8. *fo.* 10.

He is a Treſpaſſer.

And therefore, if he come not within the Limits of the Foreſt, yet he ſhall be deemed a Treſpaſſer there, upon account of his Dogs entring therein, and killing a wild Beaſt there; and he having no Right or Intereſt to chaſe in the other Man's Grounds, where he began his firſt Courſe, cannot juſtifie ſuch Act, as done by a lawful Pourallee-man.

Flying a Faulcon in a Man's own Wood, and killing the Game in anothers.

So if a Man lets fly his Faulcon at a Pheaſant in his own Wood, he may purſue the Flight after the Pheaſant into any other Perſon's Ground; and notwithſtanding his Faulcon kills the Pheaſant in the other Perſon's Ground, yet the Maſter of the Faulcon ſhall have the ſame, and not the Owner of the Ground where it was kill'd.

The Pourallee-man muſt hunt with his own Servants.

Alſo it is further to be obſerv'd, That a Pourallee-man ought to hunt his own Pourallee himſelf, with no more Company than his own Servants; neither may he appoint, licenſe, or warrant any other Perſon (except his Servants in his Preſence) to hunt by his Commandment in his Pourallee; for the Authority that he hath, is but a Conditional Licence or Profit, which is ſtrictly annexed to his Perſon, and cannot be transferr'd to another.

He cannot licenſe any other.

Where a Licence goes ſtrictly to the Perſon.

As in *Aſhton*'s Caſe, *Mich. Ed.* 4. *fo.* 14. *Pl.* 12. If one grant me Licence to hunt and kill a Buck in his Park, and afterwards to diſpoſe of the ſame, my Servants cannot juſtifie killing the Buck by my Commandment, becauſe the Licence goes ſtrictly to me, unto whom it was granted, and to no other Perſon whatſoever.

When a Pourallee-man ought to recall his Dogs.

Alſo a Pourallee-man, when he lets ſlip his Dogs at the wild Beaſts of the Foreſt in his own Grounds, and his Dogs do ſtill purſue their Courſe towards the Foreſt, he muſt take Care, before they enter the ſame, to recall them back; for otherwiſe, if they happen to kill that Beaſt, or any other in the Foreſt, he will be accounted a Treſpaſſer that kills Deer within the Foreſt; but if he calls back his Dogs before they enter the Foreſt, he will be excuſed, tho' they ſhould happen to kill a Deer therein, provided he enter not into the Foreſt, nor meddle with the Deer ſo killed; for this differs from the Caſe, where the Dogs faſten, and are drawn into the Foreſt by the Deer.

Or is a Treſpaſſer.

He ought not to hunt Deer, *&c.*

Moreover, no Pourallee-man may hunt or kill any raſcally Deer that are out of Seaſon, which he ſhall find at any Time in his *Pourallee*, ſuch being ſeldom able to ſtand Courſe, or ſhift for themſelves; and when dead, are good for nothing.

He ought not to hunt in the Night.

That no Man ought to hunt in the *Pourallees* in the Night, *viz.* after Sun-ſetting, and before Sun-riſing, for the wild Beaſts may not be diſturbed of their peaceable Feeding and Reſt in the Night within the Foreſt; and 'tis utterly impoſſible to hunt in the *Pourallees* in the Night, without diſturbing the wild Beaſts in the Foreſt, by the Noiſe of the Dogs running at the Deer: Alſo the Terror of thoſe Deer, that are then affrighted out of the *Pourallees* into the Foreſt, will, in a great Meaſure, diſquiet, and abundantly terrifie thoſe wild Beaſts that are within the Foreſt.

The Reaſon.

Wild Beaſts to feed in the Night.

Beſides, it is the Nature of thoſe wild Beaſts to ſeek their Food in the Night-time, being a Time of Reſt, when no Body is ſtirring to moleſt or diſturb them: For all the Day they confine themſelves to their Coverts, being afraid of the Noiſe which is made by all Sorts of People that are then abroad about their Buſineſs and Occaſions; ſo that then they cannot feed quietly, or with that Liberty and Freedom they delight in. And therefore by the Thirteenth Article of the *Aſſizes of* Woodſtock, Hunting in the *Pourallees* or other Places in the Night-time is expreſly forbidden.

And in the Day keep Covert.

Alſo

He may not hunt on *Sundays*.

But only three Days in a Week.

Alſo no Pourallee-man may hunt on the Lord's Day, commonly called *Sunday*, by the Laws of the Land: And he is forbidden by the Laws of the Foreſt to hunt in his own Grounds in the *Pourallee* every Day, or oftner than three of the other ſix Days in any one Week; leſt with the Noiſe and Terror of their often hunting in the *Pourallees*, the wild Beaſts of the Foreſt be diſquieted, and put from their Food and wonted Layer.

He muſt not hunt in the Fence-Month.

The Reaſon.

All *Pourallee-men* are forbidden by the Laws of the Foreſt to hunt in their *Pourallee*, during the Continuance of the Fawning or Fence-Month, which begins Fifteen Days before *Midſummer*, and ends Fifteen Days after; for then either the Fawns being very young, or the Does big-bellied, are neither able to run or ſtand a Courſe: And therefore hunting in that Time, the Dogs peradventure purſuing their Chaſe into the Foreſt, may make great Deſtruction of the King's Deer therein; and for that Reaſon, this Space of Time is called the *Forbidden Month*, wherein no Man may either hunt in the Foreſt or *Pourallee*.

He may not hunt within 40 Days before a General Hunting (proclaimed by the King).

The Reaſon.

Alſo no Man may preſume to hunt within Seven Miles of the Borders of the Foreſt, or in his own *Pourallee*, within Forty Days next before the King hath iſſued out his Proclamation, declaring his Royal Will and Pleaſure to make a General Hunting in that Foreſt; becauſe that during all that Time, the wild Beaſts of the Foreſt ought to have the Liberty and Freedom of their Coverts and Thickets, to enjoy their full Repoſe and Quiet therein, until the King comes to view them, and make choice of ſuch as he ſhall think fit to hunt and chaſe for his Game.

Nor within 40 Days after ſuch a General Hunting.

The Reaſon.

As by Charter.

Alſo all the Laws of the Foreſt, and Charters made concerning the *Pourallees*, do forbid every Man to diſturb or make Courſe after any Deer found in his *Pourallee*, within Forty Days next after the King hath made a General Hunting in the Foreſt adjoining thereunto, becauſe then the wild Beaſts of the Foreſt come not into the *Pourallees* of their own Accord, but as they are forced into the ſame by the Hunters, with Clamours and blowing of Horns; ſo that they fly thither for Refuge, where they are privileged to reſt in Peace for Forty Days without being hunted, chaſed, or otherwiſe moleſted; in which Time, 'tis preſumed, they will either return of themſelves into the Foreſt, or be rechaſed thither by the Rangers with their Dogs: And therefore the wild Beaſts have that Time of Liberty allowed them, as appears by the Charter granted for the *Pourallees* of the Foreſt of *Windſor* in the County of *Surrey*.

Not when a Foreſter is ſerving a Warrant.

Neither is it lawful for any Man to hunt in the Pourallee at ſuch Time as a Foreſter is ſerving a Warrant within that Part of the Foreſt that borders upon ſuch Pourallee; nor at ſuch Time as any Nobleman is hunting in ſuch Part of the Foreſt, (if ſuch Pourallee-man have Notice given him thereof) that the Game of the Foreſt may not be diſturbed at ſuch Times.

He may not hunt unſeaſonable Deer, *&c.*

And laſtly, it is obſerv'd, That no Pourallee-man, or other Perſon, may hunt or chaſe any unſeaſonable Deer, *viz.* Deer of Antler in the Winter, or Does and other Winter Deer in the Summer; for when they are out of Seaſon, they are unwholeſom, and not fit for the Food of Man; beſides (as was mention'd before) they are commonly not able to ſtand Courſe, or ſhift for themſelves by making their Eſcape into the Foreſt again: Therefore while they are ſo out of Seaſon, the Laws of the Foreſt do utterly forbid the courſing, hunting or killing them in the Pourallees, or elſewhere.

Six Leſſons to be learnt by the Pourallee-hunter.

There are therefore, according to Mr. *Manwood*, *p.* 376. Six Leſſons to be learnt by a Pourallee-man, *viz.*

1. That he do begin his Chace in his own Pourallee.
2. That he do not foreſtall or kill the wild Beaſts with any Engine.
3. That before his Dogs do enter into the Foreſt, he do call them back again.
4. That he do not purſue his Dogs into the Foreſt, except they faſten upon the Deer firſt; and that the Deer do draw the Dogs into the Foreſt, wherein the Dogs do kill him.
5. That he do hunt with no more Company than his own Servants.
6. That he do hunt no unſeaſonable Deer.

Alſo Ten other Precepts or Prohibitions, according to Mr. *Manwood*, *p.* 377.

Neither may he hunt contrary to the the Ten Precepts following, *viz.*

1. Not in the Night, for that is prohibited by the *Aſſizes* of *Woodſtock*, *Art.* 13.
2. Nor on the *Sunday*, for he is ſpecially prohibited ſo to do.
3. Nor in the Fence-Month, for the diſquieting the Deer that are great with Fawn.
4. Nor oftner than Three Days in one Week, leſt his often Hunting diſquiet the wild Beaſts in the Foreſt.
5. Nor with any more Company than his own Servants, becauſe his Intereſt thereby is but a Conditional Licence of Profit that goeth ſtrictly to him to whom the ſame is given, and not to any other.
6. Nor within Forty Days next before the King's General Hunting proclaimed, becauſe then the wild Beaſts muſt not be diſquieted, to the end the King may have a full View of them.
7. Nor within Forty Days next after the King's General Hunting in the Foreſt,

reſt, becauſe then the wild Beaſts are feared out of the Foreſt, and do not go out of themſelves.

8. Nor when the Foreſter is ſerving any Warrant near unto the Borders of the Pourallees, (having Notice thereof) leſt he hinder him therein.

9. Nor with any manner of Foreſtalling, or other Engine to take the Deer withal, neither with Gun nor Croſs-bow, but only by chaſing with his Dogs, for that is prohibited by the *Aſſizes of* Woodſtock, *Artic.* 13.

10. Nor may he hunt any unſeaſonable Deer, altho' he do find them in the Pourallee; becauſe that then they are little worth, and not able to run: And therefore the Laws of the Foreſt have forbidden that they be kill'd.

Further Obſervations relating to Purlieus.

4 Co. Inſt. 303, *&c.*

BUT here again, we muſt take notice of what my Lord *Coke* further adds, 4 *Co.Inſt.*303,*&c.* concerning the Purlieu.

Charta de Foreſta above 30 Times confirmed.

That in any Purlieu a Man may freely hunt, *&c.*

The Statute of *Charta de Foreſta* (ſaith he) hath been above Thirty Times, and laſtly in the 4th of *Henry* V. Confirmed, and Enacted, and Commanded to be put in Execution; and we find no Authority in Law, that we remember, againſt our Opinion herein: Therefore we proceed and do hold, That in any Purlieu a Man may as lawfully hunt to all Intents and Purpoſes within the Purlieu within his own Grounds, as any other Owner may do in his Grounds that never was afforeſted at all.

Is not limited by Cuſtom, *&c.*

That ſome have endeavoured to limit the Purlieu-man to hunt by Cuſtom or Preſcription; but all the Statutes were made within Time of Memory, againſt which they cannot preſcribe.

Nor by the Foreſt-Law.

Againſt Acts of Parliament.

That ſome endeavour to maintain it to be by Foreſt-Law, but it is queſtion'd; whether there be any ſuch Foreſt-Law in that Point, for *quod non legitur, non creditur:* But to conclude this Point, he adds, That no Foreſt-Law can ſtand againſt Laws enacted by Authority of Parliament; and he denies that the Statute of 33 *E.* 1. *Stat.* 5. or ſome other made *tempore E.* 1. *E.* 2. or *E.* 3. do in ſome ſort reſtrain their Hunting, as others have thought.

All ſuch Statutes for Reſtraint, *&c.* repeal'd.

And, *fol.* 304. that if any ſuch Statutes were, they are (being contrary to the Statute of *Charta de Foreſta*) repealed by the Statute of 42 *E.* 3. *cap.* 1. And all the Statutes or Aſſizes, either that of *Woodſtock* in the Reign of *Hen.* 2. or any other in his Time, or in the Reigns of K. *Richard* I. or K. *John*, are all abrogated by the Statute of *Charta de Foreſta* made in the 9th of *H.* 3. *cap.* 1, *&* 3. as to the Deafforeſtations, *&c.* And that the Statute or Aſſize of *Woodſtock* doth extend to Deafforeſtations before, and not after; the Words thereof being, *Nullus faciat aliquam inſtallationem inter Foreſtam & Boſcos,* &c. *per ipſum, vel Progenitores ſuos deafforeſtatos.*

That he may keep his Dogs unexpeditated, *&c.*

And for the ſame Reaſon (ſays he) the Purlieu-man may keep his Dogs within the Purlieu unexpeditated; and ſeeing the wild Beaſts do belong to the Purlieu-man *Ratione ſoli*, ſo long as they remain in his Grounds, he may kill them; for the Property, *Ratione ſoli*, is in him.

The Law miſtaken.

So as hereby concerning Pulieus, and the Reſolution of the Judges concerning Chaſes, it appeareth, That the Makers of the Statute of 22 *Ed.* 4. miſtook the Law in both of them, *viz.* concerning Chaſes and Purlieus; but the Statute being in the Affirmative, worketh no Prejudice to any.

When he ought to call back his Dogs.

And not enter the Foreſt.

And if he chaſe them with Greyhounds, and the Beaſts of the Foreſt do fly towards the Foreſt for their Safety; if the Owner purſue them to the Bounds of the Foreſt, and then call back his Dogs, and do his Endeavour to call them again from the Purſuit, altho' the Dogs follow the Chaſe in the Foreſt, and kill the king's Deer there, this is no Offence, ſo as the Owner enter not into the Foreſt, nor meddle with the Deer ſo killed.

When he may enter and take the Deer.

But if the Dogs faſten upon the Deer before he recover the Foreſt, and the Deer drag the Dogs into the Foreſt, there the Purlieu-man may follow his Dogs, and take the Deer.

Of the Forty Days reſerv'd for the Deer's Returning.

That as to the Forty Days reſerv'd to the King, for his wild Beaſts within the Purlieus to return again, and for his Rangers within that Time to rechaſe them into the Foreſt, (which is taken to be a convenient Time for that Purpoſe) ſome Letters Patents for the Perambulations, or Pourallees of Foreſts made by King *Ed.* 3. take notice thereof.

Permiſſion to rechaſe into the Foreſt.

And that altho' theſe Purlieus be abſolutely diſafforeſted, and have no Liberty of Foreſt there; yet, for Conveniency, it hath been permitted, that the Rangers of the Foreſt ſhould, as often as the wild Beaſts of the Foreſt range into the Purlieu, with his Hound rechaſe the ſame.

Rangers uſed to preſent Treſpaſſers, but not the Purlieu-man.

And theſe Rangers have uſed to preſent unlawful Hunting and Hunters of the King's Deer within the Purlieu, as in the Night, or at unſeaſonable Deer, or killing of the King's Deer in Purlieus, by no Purlieu-man, but unlawful Hunters,

ters, or the like; ſuch as ſhould not take any Advantage of their own Wrong, both to the King and Purlieu-men; and that they are known to be Deer belonging to the King's Foreſt, becauſe there are no other within the Purlieu.

Directions as to their Preſentments.

Concerning Preſentment of Matters done within the Purlieus of the Rangers, he directs and refers to the Records and Precedents of Eyres of *Pickering* and *Lancaſter*, &c. and notes (in the Margent), That the Oath of the Office of a Ranger proveth, that the Purlieus are no Part of the Foreſt, but diſtinct Things.

The Abbot of *Whitby* took the King's ſtraying Deer with Nets, *&c.*

In *fol.* 305. is cited the Caſe of the Abbot of *Whitby*, who with Nets took the King's Deer, ſtraying out of the Foreſt of *Lancaſter* into the Foreſt of *Whitby* adjoyning; and the Abbot was thereof acquitted upon his Pleading a Grant to him of the Foreſt, and ſuggeſting, That the Deer of one Foreſt could not be diſtinguiſhed from the other, ſeeing the King's Deer are not branded or ſigned with any Mark, that they may be known whoſe they are out of the Foreſt, *&c.* That by which Record, and many others, it doth appear, That when the King's Game of the Foreſt do range out of the Foreſt (and Purlieu, if any be) they belong not to the King, but are at their natural Liberty, *& occupanti conceduntur.*

And was acquitted.

When the Property is out of the King, *& occupanti conceduntur.*

And this (he ſays) is the Reaſon that ſome have ſaid, That where the King was ſeiſed of the Foreſt of *M.* in Fee, and that a Cuſtom was pleaded, Time out of Mind, That if any Beaſt of the Foreſt ſhould range into the Free Chaſe of the Abbot *de D.* adjoyning to the ſaid Foreſt, That the Foreſters of the ſaid Foreſt, *&c.* might enter into the ſaid Chace, and with little Dogs rechaſe the King's Beaſts of his Foreſt into the Foreſt again: But that this Cuſtom is againſt Law, for that (beſides the Reaſon yielded in the Abbot of *Whitby*'s Caſe) immediately when they are out of the Bounds of the Foreſt, the Property is out of the King; for the being within the Foreſt, maketh the Property in that Caſe: But the Book of 7 *H.* 6. is left at large, Whether the Preſcription be good or no; and yet Aid was thereupon granted: But in the Abbot of *Whitby*'s Caſe, there is no Preſcription for the King, but againſt him.

So that theſe laſt Obſervations ſeem to run counter to Mr. *Manwood*'s Particulars relating to a Purlieu and Pourallee-man, except what may be inferr'd from the General Statutes againſt keeping Greyhounds, *&c.* as afore obſerved.

Certain Reſolutions, with Principal Notes, of the Aſſizes *and* Iters *of the Foreſts of* Pickering *and* Lancaſter; *taken from Mr.* Manwood's Laws of the Foreſt, Chap. 25. *&c. and* 4 Co. Inſtitut. Chap. 37. *whereby moſt of the former Charges relating to Foreſts, are further confirm'd.*

How Foreſt appear from Chaces, *&c.*

IT was reſolved by all the Judges, 5 *Jac.* 1. *Regis*, That Foreſts appear by Matter of Record, as by the Eyres of Juſtices, Swainmotes, Officers, *&c.* but the Appellation of it by the Name of a Foreſt, in Grants, Offices and Conveyances, is not any Proof that it is a Foreſt.

How a Freeholder may cut his Timber.

That if ſuppoſed Foreſts are no other than Free-Chaces, and not Foreſts in Law, then he that hath any Freehold within them, may cut his Timber and Wood growing upon it, without any View or Licence of any: But if he cut ſo much, that there is not ſufficient for Covert, and to maintain the Game of the King, he ſhall be puniſhed at the Suit of the King.

And ſo if a Common Perſon hath a Chace in another's Soil, the Owner of the Soil cannot deſtroy all the Covert, but ought to leave ſufficient Covert, and ſufficient Browſwood, as hath been accuſtomed.

He may there preſcribe for a Common and Warren in a Free Chace.

That within ſuch a Chace, the Owner of the Soil, by Preſcription, may have Common for his Sheep, and Warren for Conies, by Grant or Preſcription; but he cannot ſurcharge with more than hath been uſed, from the Time which, *&c.* nor make Burrows in other Places than hath been uſed, unleſs he hath Warren by Grant, and then he may uſe it according to his Grant; but he cannot erect a new Warren without Charter.

And may build a Lodge.

That he who hath ſuch a Warren, may lawfully build upon his Inheritance, within his Warren, a convenient Lodge for Preſervation of his Game.

A Park within a Foreſt by Preſcription.

Id. 90. It is agreed, That one may have a Park within a Foreſt by Preſcription, or by Grant; but then the ſame ought to be kept ſo incloſed, that the Beaſts of the Foreſt cannot enter into the Park, otherwiſe 'tis a Forfeiture of the Liberty of the Park. And ſo it is if he hath a Saltery or Deer-Leap; for the

Forfeiture thereof.

Nature of a Park is to be incloſed. And it was adjudged, 15 *Ed.* 3. That if a Grantee of a Park does ſo ſlightly incloſe the Park, ſo that the Foreſt Beaſts may get in there, that it is a Forfeiture, and the Lord of the Foreſt may enter and take the Deer. *Id.* 90.

See, for theſe Things, more at large in 4 *Co. Inſt.* 298, 299.

Preſcription to fell Timber without View.

That a Man may preſcribe to take and cut down Timber-Trees within his own Woods in a Foreſt without the View of the Foreſter, notwithſtanding the Ordinance of 34 *Ed.* 1. and the *Stat.* of 1 *E.* 3. *c.* 2. becauſe that Statute is but an Affirmance of the Common Law, and 34 *E.* 1. is no Statute; and the Statutes that are only Declarative, *antiqui Juris*, and not Introductive, *novi Juris*, a Man may preſcribe againſt them. 4 *Co. Inſt.* 297, 298.

Otherwiſe where the Law appointeth a Means.

And if a Man hath a Wood in a Foreſt, and hath no ſuch Preſcription, the Law doth appoint him a Means to fell both Wood and Timber, ſo as it be no Prejudice to the Game, but ſufficient is left beſides; and this Means is by a Writ of *ad quod Dampnum*; upon Return whereof, the King doth licenſe him. 4 *Co. Inſt.* 298.

Wood ſeiſed till replevied, *&c.*

The Wood of a Subject may be ſeiſed into the King's Hands, for the Default of his Woodward, at the Juſtice-Seat; and may be detained till it be replevied, and Fine made.

Woodwards Default.

Woodwards may not walk with Bow and Shafts, but with Foreſt-Bills. If he that is Owner of a Wood within a Foreſt doth appoint a Woodward, where there was never any before, it is fineable by the *Aſſizes of the Foreſt*, *Pick. fo.* 10.

Making Charcoals.

That if a Man do make Charcoals or Browſwood within the Foreſt, it is Fineable; and if he will make Title by Preſcription ſo to do, if he do it not, the firſt Day of the Juſtice-Seat he ſhall anſwer to the King for the Value of the Coals. *Aſſ. Pickering fol.* 10.

Browſwood.

But the Lord of a Foreſt may enter by his Officers into any Man's Wood which is growing within the Regard of the Foreſt, and cut down Browſwood for the Deer in Winter. *Ibid.* 19.

Deſtroying Hawks, *&c.*

If any Man do take any Hawks, or deſtroy Ayries of Hawks in the King's Woods, he is fineable for the ſame. *Itin. Lanc. fo.* 7.

Freemens Ayries to be enquired of.

And tho' every Freeman, by *Chart. Foreſt. Art.* 13. ſhall have, within his own Woods, Ayries of Hawks, Sparrow-Hawks, Faulcons, Eagles and Herons; yet the Uſage thereof ſhall be inquired by the Miniſters of the Foreſt, becauſe that *non Uſer* is Cauſe of Seizure. *Itin. Pick. fo.* 148, 166. &c.

Acquittal of Pawnage.

Adjudged, That a Man may be quit of Pawnage, as appurtenant unto his Free-hold; ſo by Preſcription appurtenant unto Lands.

An Office claimed.

Alſo the Office of a Woodward, and the Bark of Trees fell'd, may be claimed as pertaining to a Manor.

Common claimed.

A Claim made for Common of Paſture, is good; but neither Sheep nor Swine are allowed to have Common within the Foreſt, nor may any Man common with Goats, without Special Warrant.

Claim of a Wood within the Foreſt, but, *&c.*

How one ought to make Claim that hath a Manor, whereunto doth belong a certain Wood; the which Wood is within the Compaſs of the Foreſt, or inviron'd with the Foreſt, and yet without the Regard of the Foreſt. *Manw. L. For.* 546. 4 *Co. Inſt.* 291.

Claim to hunt.

The ſame Perſon made a Claim to hunt the Hare, the Fox, the wild Cat, the Martron in *B. Ibid.*

Claim for Heath, *&c.*

He alſo claimed to have Liberty to pluck up the Heath by the Roots, and to dig Turfs, and the ſame to ſell at his Pleaſure, and to carry them out of the Foreſt.

Claim to agiſt.

Alſo to agiſt, and take the Agiſtment to his own Uſe, *&c.* All which Claims being found to be true by the Miniſters of the Foreſt, were allowed by Judgment, *viz. Et habeat & gaudeat ſalvo Jure.*

Tithe of Veniſon claimed.

There is no Tithing of Veniſon by the Law, but in ſome Places by Uſage; alſo it may be claimed by Vertue of a Grant, as alſo the Tenth Peny of the Pawnage of the Foreſt, when collected.

And allow'd.

The Prior of *York* claimed by Charter to have Tithe of all Veniſon, *tam in Carne quam in Corio*, whereas he ought to have it in *Corio* only; for which he was fined, but enjoyed it in *Carne.* 4 *Co. Inſt.* 297.

Where none may incloſe.

By *Aſſiſ. Lanc. fol.* 6. none may incloſe any Ground in the Foreſt *ad nocumentum Ferarum.*

Building Houſes.

That it is Purpreſture for a Man to build a Houſe there, although it be upon his own Free Land; and both he and his Aſſignee may be amerc'd.

Hedges.

Hedges of Four Foot high, are contrary to the Aſſizes.

Entring by Night.

No Man may enter the Foreſt by Night, tho' it be to take out his own Horſe depaſturing there.

With Bows, *&c.*

Neither may he enter with Bows and Arrows, with Intent to offend there; *quia Voluntas reputabitur pro Facto.*

Ligna virida.

He that doth cut down *Ligna virida*, is a Treſpaſſer in Vert.

Waſting of Eſtovers, *&c.*

He that hath Eſtovers for Hedging, which might laſt Two Years, and at the Year's End conſumes it, he ſhall not be allowed new; and if he take more at one Time then he ought, they ſhall be ſeized, and he ſhall be fined.

Cutting of Buſhes, *&c.*

He that cuts down Buſhes and Thorns, and carries them away in a Cart, the Cart and Horſes ſhall be ſeized, and he ſhall be fined. If he cuts and carries away Green-hue upon a Horſe, he ſhall forfeit

Forfeiture.

forfeit the Price of the Vert, and his Horſe.

Nuts gathering.

It appeareth, that none may gather Nuts within the Foreſt, without Warrant.

Townſhip fined.

Where the People of a whole Townſhip make Waſte in Green-hue, the whole Townſhip ſhall be fined.

Firing dry Oaks.

He that doth ſet dry Oaks on fire within the Foreſt, is puniſhable.

Swine *tempore vetito.*

Swine found in the Foreſt *tempore vetito*, are forfeited to the King; ſo are Sheep and Goats *in Menſe vetito, & Warda facta.*

Not repairing Bridges, *&c.*

He that ought to repair Bridges or High-ways, and doth not, he ſhall be fined, and amend, or elſe his Land ſhall be ſeized.

White Tawyer.

If any White Tawyer dwell within the Foreſt, he ſhall be removed, and make Fine; for they are common Dreſſers of Skins of ſtolen Deer.

Default in Hue and Cry.

If Hue and Cry be made by the Miniſters of the Foreſt, and not purſued and followed with Effect, the Townſhip that are faulty ſhall be well fined. 4 *Co. Inſt.* 292. they ſhall be amerced at the Juſtice-Seat.

When Hue and Cry is to be made, and who may make it.

By 4 *Co. Inſt.* 292. Hue and Cry, by the Foreſt-Law, is not to be made for Treſpaſs in Vert, but in Veniſon only; and that it cannot be purſued, but only within the Bounds of the Foreſt; and the Offence muſt be committed within the Foreſt, and not within the Purlieu: Alſo that this Hue and Cry may be made by any of the King's Miniſters of the Foreſt, for any of them may arreſt the Malefactor; and none can make Hue and Cry, but he that may arreſt in that Caſe, and cannot; and that ſo are the general Words, *Si quis viderit*, &c. to be underſtood.

Deer, Trees, *&c.* to be preſented, *&c.*

The Number of Deer and Trees given away by Warrant, or otherwiſe; Deer that have died, or been kill'd, and Wind-falls, Profit of Pawnage, Ruſhes, Fern, *&c.* muſt be preſented at the Juſtice-Seat.

Fee-Foreſter.

That a Man may be a Foreſter in Fee, *jure Uxoris, &c. Vide* 4 *Co. Inſt.* 297.

Cuſtos Foreſtæ.

It appears, that there was a Perſon called *Cuſtos totius Foreſtæ.*

Supervisor, *&c.*

Alſo another Officer call'd *Supervíſor Foreſtariorum.*

Fee Forfeited, *&c.*

The Earl of *Norfolk* did forfeit his Foreſterſhip in Fee of the Foreſt of *Pickering*: And 4 *Co. Inſt.* 315. Their Bailiwicks in Fee cannot be granted over, without the King's Licence. *Ibid.* And if a Foreſter, by Patent for Life, be made Juſtice in Eyre of the ſame Foreſt, *pro hac vice*, the Foreſterſhip is void.

All Treſpaſſers Principals.

In Treſpaſs in the Foreſt, there are no Acceſſaries, but all are Principals.

It is noted, That in the higheſt and loweſt Offences, *viz.* Treaſon and Treſpaſs, there are no Acceſſaries; but in Felony, which is between both, there be Acceſſaries both before and after. 4 *Co. Inſt.* 317. *in Margin.*

The Lord *Dacres*'s Caſe.

The Lord *Dacres* and *Manſell*, and others in his Company, came unlawfully to hunt in a Foreſt; and being reſiſted, one of the Company, when the Lord *Dacres* was a great way off and not preſent, kill'd a Man, and it was adjudged Murther in him, and all the reſt; and the Lord *Dacres* was hang'd. *Vide Kelyng's Rep.* 87. *Moor's Rep.* 86. *Stow's Ann.* 582.

A Steward indicted for Offences.

Nicholas de Gower was indicted, for that he killed the King's Game in the King's Foreſt, when he was the King's Steward of the ſame; and alſo had taken Ronſom for Indictments, which Indictments were removed *coram Rege*, and the Steward was put to anſwer thereto.

Receivers.

He that receives Veniſon of a Treſpaſſer, ſhall be puniſhed as well as the Principal. *Vide* 4 *Co. Inſt.* 317.

Several Offenders grievouſly fin'd, *&c.*

Several Offenders in the Foreſt, who with Bows, Arrows and Dogs, had kill'd 43 Stags and Hinds within the Foreſt; and, in deſpite, had cut off their Heads, and ſet them upon Stakes; were committed to Priſon, and grievouſly fin'd, and afterwards bound to their good Behaviour.

Good Behaviour.

He that is indicted for Foreſt-Cauſes, if his Pardon be allowed, he muſt find Sureties for his good Behaviour.

Horſe carrying ſtolen Veniſon.

He that ſteals Veniſon in the Foreſt, and carries it away upon Horſe-back, the Horſe ſhall be forfeited, unleſs it be the Horſe of a Stranger, who is ignorant of the Fact.

Lending a Bow.

Lending of a Bow and Arrow to kill Deer, is fineable.

Fee for Secrecy.

He that takes a Fee or Reward of an Offender, to keep Counſel, is to be impriſon'd, fined, and ranſomed.

Striking Hares, *&c.*

Two were indicted for ſtriking a Hare in her Form, and for taking another within the Foreſt; the one was impriſoned, fined and ranſomed, and the other was outlawed.

Greyhounds to be ſeized, *&c.*

If Greyhounds run about, to the Hurt of the Deer, *&c.* the Foreſter ought to retain them, and preſent them in the Preſence of the Verderors, and to ſend them to the King, or Chief Juſtice of the Foreſt.

Killing within a Boundary.

An Abbot was fined for killing of an Hart within a River, being a Bound of the Foreſt. Alſo no Man may fiſh in a River that is a Boundary, without Warrant.

Baker and Brewer.

It is againſt the Aſſize of the Foreſt, that any Baker or Brewer ſhould bake or brew in the Foreſt.

A Courſe given.

If a Foreſter do give a Nobleman a Courſe, and his Dogs do kill, it muſt be preſented at the Juſtice-Seat.

Aſſarts continued.

If he that is preſented for Aſſarts, makes Fine, and after compounds with the Juſtice, he may continue it at a yearly Rent.

Agiſtors Account.

Agiſtors muſt bring a true Account before the Juſtice-Seat.

He

Deer dying of the Murrain, &c. He that takes off the Skin of a wild Beaſt dying of the Murrain, if it be preſented, he ſhall be puniſh'd; if he comes in, he ſhall pay the Price of the Skin, and be amerced. It ſeems by the Aſſizes of *Lanc.* and *Pick.* ſuch Beaſts ought to be hung upon high Trees, as Oaks, *&c.*

Strangers Beaſts. It is fineable to permit the Beaſts of a Stranger to paſture in the Foreſt.

Pulling down Houſes. He that, without Warrant, pulleth down his ancient Houſe in the Foreſt, and ſetteth it up without the Foreſt, is finable: So to make any new Buildings, without Special Licence or Warrant.

Fin'd for Extortion, &c. If the Foreſters diſturb the Cattle of Commoners, or extort any Money from them, 'tis fineable. And a Riding Foreſter was indicted for Negligence and Oppreſſion in taking Oats, *&c.* And if a Foreſter take Money for Bark, his Land ſhall be ſeized.

A Parſon's Dogs not expeditated. A Parſon indicted, for that his Dogs were not expeditated or lawed, pleaded *Magna Charta, Quod Eccleſia Anglicana ſit libera, & habeat omnes Libertates ſuas integras & illæſas*; and was thereby diſcharged.

Surcharge of Common. They are to be indicted that overcharge the Common within the Foreſt.

Barcary. No Subject may have a Barcary within the Foreſt, without Warrant.

Interrupting a Verderor, &c. If any Man do interrupt the Verderor or Regardor of the Foreſt, 'tis fineable.

Taking Pheaſants, &c. 'Tis fineable to dig Turfs, likewiſe to take Pheaſants, Partridges, or other Birds within the Foreſt.

Treſpaſſer dying, the Heir charg'd. If a Man cut down Vert, and dieth before Preſentment thereof, yet the King ſhall be anſwered for the Treſpaſs by his Heirs or Land-Tenants.

Agiſting his own Lands, &c. No Man may agiſt within his own Lands, within the Regard of the Foreſt, except he have Special Licence ſo to do; neither may any Man aſſert or diſcolour, but by the King's Warrant.

Eſtovers miſpent. Forfeiture. If Eſtovers granted to a certain Meſſuage be ſpent in another Houſe, 'tis good Cauſe of Seizure; for this is an Abuſer, which is a good Cauſe of Forfeiture. *Itin. Lanc. fo.* 67. *b.* and the ſame Law is of a Common of Paſture. *Ibid.*

Quietum eſſe {
- *De Miſericordia Foreſtæ*, is to be quit of all Fines and Amercements.
- *De Vaſto*, to be quit of Waſtes.
- *De Buroſtall, de Fledwite, de Careyo, de Panagio*, and ſuch-like. *Vid.* 4 *Co. Inſt.* 306.
- *De omnibus Geldis.* Ibid.

Quietum eſſe {
- *De Petura*, or *Pitura*, to be quit of Scot-Ales; which is to be free from a Tribute or Contribution of Drinking for the Miniſters in their Perambulation of the Foreſt, which afterwards they claim'd for all Victuals for themſelves, their Servants, Horſes, and Dogs. *Idem* 307.

To be quit of Eſcapes. To be quit of *Eſcapes* within a Foreſt, doth ſignifie, That whereas if any Man's Beaſts be found within the Lands forbidden, or in the Fence-Time, in the Foreſt; the Law is, That the Owner ſhall be amerced for every Foot 1 *d.* alſo for the ſecond Time in like-manner; and for the third Time, the Beaſts are to be forfeited unto the Lord of the Foreſt. Of all which, he that is *Quietus de Eſcapio*, is clearly diſcharged. *Pick.* 15, 17, 19.

Note, The Fence-Month contains One and thirty Days.

Quit of Footgeld. To be quit of *Footgeld*, is to keep Dogs within the Foreſt unlaw'd, without any Amercements, Fine or Forfeiture. *Id.* 17.

Quit of Chiminage. To be quit of *Chiminage*, is a Diſcharge of Money paid for Paſſage thro' the Foreſt, with Carriage of any Thing upon Horſe-back. *Ibid.*

Horngeld. *Horngeld*, is a Tax within the Foreſt for all manner of Horned-Beaſts; and to be free thereof, is a Privilege granted by the King to whom he thinks good. *Cowel's Interp. Verb. eod.*

Woodgeld. *Woodgeld*, is the Gathering or Cutting of Wood in the Foreſt, or the Money paid for it, to the Uſe of the Foreſters; or an Immunity for this by the King's Grant. *Idem Verb. eod.* For theſe and ſuch-like, *See Manwood's L. For. cap.* 25. and 4 *Co. Inſt.* 306, 307. &c.

Frank Chaſe. *Frank Chaſe*, is ſaid to be a Liberty of Free Chaſe in a Circuit annexed to a Foreſt; whereby all Men that have Ground without the Circuit, are forbidden to cut down Wood, or diſcover, *&c.* within the View of the Foreſter, tho' it be his own Demeſn. *Idem Verb. eod. See before, at the Beginning of this Treatiſe of the Foreſt.*

Diviſion in a Park. That the Owner of a Park may divide any competent Parcel of the Park for the Feed of the Game in Winter; and he that hath the Herbage, cannot put any Beaſts therein: It ſeems he can have Pawnage but only of the Surpluſage. 4 *Co. Inſt.* 299. And if there be not ſufficient for Winter and Summer for the Game, the Owner may drive out the Beaſts of him that hath Herbage.

If

Liberty to make a Park.

Non-Uſer cauſes Seizure.

If the King do grant Liberty to make a Park, and it is not after uſed, the Non-Uſer ſhall be enquired of: For after a Liberty is granted, if the Grantee do not uſe the ſame continually, the Non-Uſer ſhall be enquired of; the which Non-Uſer is a good Cauſe of Seizure. *Pick. fo.* 15, 17, 18, *&c.* and *fo.* 166.

Certainty of Ground; the proper Soil.

It is noted, That a Licence to empark, or incloſe a Park, muſt contain a certain Quantity of Ground, and it muſt be the proper Soil of the Grantee; or elſe, upon Inquiſition had in due Form of Law, the Park is to be ſeized, *&c.*

How a Subject may Licenſe a Park.

To hold for ever.

A Subject, being Owner and Lord of a Foreſt, gave a Licence unto another to make and incloſe a Park within the Meets of the ſame Foreſt; to have and to hold the ſame Park incloſed, with all ſuch Veniſons as the Grantee ſhall put therein, to him and his Heirs for ever: And this was adjudged and admitted for a good Licence, in a Claim made in Eyre. *Aſſiſ. de Pick. fo.* 64.

If but ſlenderly fenced.

The Lord may enter, *&c.*

And it is noted, That if ſuch a Park be ſo ſlenderly fenced and incloſed, that the wild Beaſts of the Foreſt do enter into the Park, then may the Lord of the Foreſt enter into the ſaid Park, and there hunt at his Pleaſure. *Ibid.*

The Prerogative of the Lord of a Foreſt.

Diſcharge of *Triſtis.*

And it is alſo noted, That the Lord of a Foreſt hath this Prerogative over all Men that dwell in his Foreſt, That at ſuch Time as he is diſpoſed to chaſe within his Foreſt, every Man muſt be ready to hold a Grey-Hound, for the taking of wild Beaſts in ſuch Places as they ſhall be appointed, or elſe the Defaulters to be amerced; but he that hath the Benefit or Diſcharge of this Word *Triſtis*, is not bound by the Aſſizes of the Foreſt to give any ſuch Attendance. *Pick. fo.* 17.

See for theſe above-mention'd Reſolutions and Caſes, in *Manwood's Law For. cap.* 25.

Charta de Foreſta, &c. are *Declarativa antiqui Juris.*

That *Charta de Foreſta*, and moſt of the Statutes concerning Foreſts, are *Declarativa antiqui Juris*; and therefore as againſt the Common-Law, ſo againſt them a Man may preſcribe: But if they were *Introductiva novi Juris*, then no Preſcription can be made againſt them, unleſs he hath another Statute to preſerve the Liberties. 4 *Co. Inſt.* 298.

Ancient and obſcure Words expounded, *&c.*

How the Entry is by the Law of the Foreſt, when any Claim is made by any ancient Charter of any Franchiſe, *&c.* or Diſcharge within the Foreſt, by ancient and obſcure Terms and Words. *Id.* 305.

That Uſe and continual Poſſeſſions are the beſt Expoſitors of ancient and obſcure Words. *Id.* 306.

Where the Grant of a Foreſt ſhall paſs only as a Free Chaſe.

The King being ſeized of a Foreſt, did grant the Foreſt to another in Fee, the Grantee ſhall have no Foreſt, becauſe he hath no Power to make Juſtices and Officers of Foreſts to hold Courts, *&c.* But yet, though it cannot take Effect, *ex vi termini*, as a Foreſt; yet, together with the Game, the ſame ſhall paſs as a Free Chaſe for the Savages and Conies, for every Foreſt is a Free Chaſe, *& quiddam amplius.* Id. 314.

Chacea eſt ad Communem Legem.

Chacea eſt ad Communem Legem, and is not to be guided by the Foreſt Laws; and ſo are Parks. *Ibid.*

Where by the Grant, the Subject ſhall have a Foreſt.

But if the King do grant a Foreſt to a Subject, and granteth further, That upon Requeſt made in the *Chancery*, he and his Heirs ſhall have Juſtice of the Foreſt: Then the Subject hath a Foreſt in Law, as had the Duke of *Lancaſter*, and the Abbot of *Whitby*, *&c.* Which being not underſtood, hath been the Cauſe that Readers and others have err'd. *Ibid.*

A Free Chaſe granted, made Foreſt by Parliament.

Where the Grant of a Foreſt to the Duke of *Gloceſter* paſſed it only as a Free Chaſe; it was enacted by Parliament, That the ſaid Duke ſhould hold the ſaid Foreſt as a Foreſt, and to conſtitute ſuch Juſtices and Officers, *&c.* as belong to a Foreſt. *Id.* 315.

Tranſgreſſio.

Mich. 9 *Ed.* 1. *coram Rege Rot.* 6. *Huntingdon. Trangreſſio in Foreſta Regis pro venatione Regis non eſt hic terminanda.* Ibid.

Treſpaſs dies with the Perſon.

If a Man committed a Treſpaſs in a Foreſt and die by the Foreſt Law, the Treſpaſs is diſpuniſhable, agreeable to the Rule of the Common Law. *Ibid. &* 8 *E.* 3. *Itin. Pick.*

Felony within the Foreſt.

That if any Felony be committed within the Foreſt, it ſhall be inquired of before the Judges of the Common Law, and doth not belong to the Conuſance of the Foreſt. *Ibid. Co. Inſt.*

That a Man may have a Free Chaſe, as well as a Warren and Park, in his own Grounds.

That it is obſerv'd, That a Man may have a Free Chaſe, as belonging to his Manor in his own Woods, as well as a Warren and Park in his own Grounds; for the Chaſe, Warren and Park, are collateral Inheritances, and not iſſuing out of the Soil, as the Common doth: And therefore, if a Man hath a Chaſe in other Men's Grounds, and after purchaſe the Grounds, the Chaſe remaineth. *Id.* 318. *Regiſt. Judic.* 35, 36 *Dier.* 16 *El.* 326, 327.

That the Foreſt-Laws are certain.

That the Laws of the Foreſts of *England* are certain, and eſtabliſh'd by Authority of Parliament, and not as in other Countries, changeable and floting in Uncertainty, *ad Principis placitum. Id. Co. Inſt.* 319.

The King's Anſwer to a Petition againſt evil Cuſtoms.

That the Commons of *Herefordſhire* pray'd Remedy againſt the evil Cuſtoms of the Foreſt of *Ewdyſtone*; namely, for taking their Cattle coming thereunto, as Forfeit: Whereunto the Royal Anſwer of the King in Parliament was in theſe Words, 'The good old Laws and Cuſtoms of 'the Foreſt to be obſerv'd, and the contrary forbidden by a Writ under the

Books and Authorities not allow'd.

'Privy-Seal. *Regalis ſanè & digna Plantagineſtorum genere Sententia. Id.* 318. Wherewith, ſays the Lord *Coke*, we will conclude, That new Opinions of new Authors, or ſingle Opinions of Readers, grounded upon the Authorities of our Books, or Judicial Precedents, are not to be allowed; but the Laws both good and old, and ſpecially the Statute of *Charta de Foreſta*, and other Statutes, and the Reſolution of the Judges thereupon, are to be duly obſerv'd. And directs to ſee the old and juſt Articles of the Charge in *Fleta, Lib.* 2. *cap.* 35. and to reject all new Inventions without Warrant in Law.

The old and juſt Articles of the Charge of the Foreſt.

Of Bows and Guns, and ſhooting at Game.

Of keeping, *&c.* Croſs-Bows, Hand-Guns, *&c.*

BY 33 *Hen.* 8. *cap.* 6. None ſhall ſhoot with, or keep in his Houſe, any Croſs-Bow, Hand-Gun, Hagbut, (Hakebut or Haquebut) or Demihake, unleſs he hath Lands to the Value of 100 *l. per Ann.* on Pain to forfeit 10 *l.* for every ſuch Offence.

Penalty.

Note, By 5 *Co. Rep.* 71, 72. the Word Hand-Gun, includes a Dag, though invented ſince the Statute; and the Word Croſs-Bow, includes a Stone-Bow; alſo a Hagbut is ſaid to be Hand-Gun, Three Quarters of a Yard long.

Dag.

Stone-Bow.

The Length of ſuch Hand-Gun, *&c.*

That none ſhall ſhoot with, or have any Hand-Gun, under the Length of a Yard, nor Hagbut or Demihake under the Length of Three Quarters of a Yard, on Pain to forfeit 10 *l.* Alſo it ſhall be lawful for any Man, having Lands of 100 *l. per Annum*, to ſeize any ſuch Gun, or any Croſs-Bow, uſed or kept contrary to this Statute; but then he ought to break them within 20 Days after, on Pain of 40 *s.*

Penalty.

Travelling with Croſs-Bows bent, or Gun charged, *&c.*

By the ſame Statute, None ſhall travel with a Croſs-Bow bent, or Gun charged (except in Time of War); or ſhoot within a Quarter of a Mile of a City, Borough or Market Town, except for the Defence of himſelf or his Houſe, or at a Dead Mark, on Pain of 10 *l.* Or command his Servant to ſhoot in any Gun or Croſs-Bow, except at a Dead Mark, or in Time of War, on the like Penalty.

Penalty.

How divided.

The Penalties abovesaid are to be divided between the King and the Party that is a Proſecutor, by Bill, Plaint, Action or Information.

Perſons authorized to keep Guns.

But that the Followers of Lords Spiritual or Temporal, Knights, Eſquires, Gentlemen, and the Inhabitants of Cities, Boroughs, and Market Towns, may keep in their Houſes, Guns not under the Length aforeſaid, and uſe and ſhoot therewith, but at a Dead Mark only. So may the Owner of a Ship, for the Defence thereof; and alſo he that dwells Two Furlongs from a Town, or within Five Miles from the Sea-Coaſt; alſo this Laſt may ſhoot at any wild Beaſt or Fowl, ſave only Deer, Heron, Shovelard, Pheaſant, Partridge, wild Swan or wild Elke.

Owner of a Ship.

A Dweller near the Sea-Coaſt.

Commitment by Juſtice of Peace.

Alſo, it may be lawful for any Perſon to convey the Party offending before the next Juſtice of the Peace; who, upon Examination and Proof, hath Power to commit him to Priſon till he hath paid the Penalty, to be divided between the King and the Party who ſo takes the Offender.

Placarts granted by the King.

Every Placart granted by the King, which expreſſeth not at what Beaſts or Fowl the Grantee ſhall ſhoot, and where the Grantee entereth not into Recognizance of 30 *l.* in the *Chancery*, to ſhoot at no other, ſhall be adjudged void.

Offences determin'd.

Juſtices of Peace in Seſſions, and Stewards in Leets, have Power to hear and determine the ſaid Offences.

Forfeitures divided.

And when the Conviction is in Seſſions, the whole Forfeiture is to be levied to the King's Uſe; where in a Leet, the one Half is to the King, and the other Half ought to be divided between the Lord and the Proſecutor.

Jury making Concealment.

And here, if a Jury ſhall willingly conceal any Thing, the Juſtices or Steward have Power to impannel another Jury; by whom, if the Firſt be found guilty of Concealment, they ſhall forfeit 20 *l.* a-piece, *viz.* to the King, if it be in Seſſions; but if in a Leet, then one Moiety to the Lord, and the other to the Proſecutor.

Forfeiture.

Within what Time to be ſued.

Alſo, the Forfeitures accrewing by this Act, are to be ſued for, *viz.* by the King within one Year, and by a Common Perſon within Six Months, otherwiſe they will be loſt.

Servant may ſhoot, *&c.* by his Maſter's Command.

Alſo by this Act, a Servant, upon Command, may uſe his Maſter's Croſs-Bow or Gun (not prohibited as aforeſaid), ſo he ſhoot at no Fowl, Deer, or other Game; and may alſo carry the ſame to any Place to be mended, if he have a Licence in Writing for that Purpoſe.

Note, The Statute of 2 and 3 *Ed.* 6. *cap.* 14. enacting, That none under the Degree of a Baron ſhould ſhoot with any Hand-Gun, within any City or Town, *&c.* was repeal'd by 6 and 7 *Will.* 3. *cap.* 13.

Other Particulars relating to Hunting, Hawking, Fowling and Fiſhing, according to Statute-Law, &c.

Hunting in Foreſts, *&c.* in the Night, or diſguiſed in the Day.

BY *Stat.* 1 *Hen.* 7. *cap.* 7. If any Perſon ſhall hunt within Foreſts, Parks or Warrens, in the Night-time, or diſguis'd, one of the King's Council, or a Juſtice of the Peace, to whom Information thereof ſhall be made, ſhall by his Warrant cauſe the Offender to be brought before himſelf, or ſome other Counſellor or Juſtice of the Peace, to be examined; where, if he conceals the Fact, ſuch Hunting ſhall be alſo deemed Felony; but being confeſſed, the Offence is only fineable at the next General Seſſions: And here a Reſcous of the Execution of any ſuch Warrant ſhall be alſo deemed Felony.

Felony. Fine. Reſcous.

That this is a General Statute.

In 3. *Co. Inſt.* 76. It is obſerv'd, that this Act is General, and extends to all Perſons of what Eſtate or Degree ſoever, as well to Women as to Men; becauſe of the Words [*If any Perſon,*] and *Generalia verba ſunt generaliter intelligenda.*

Diſguis'd by Viſors, or painted Faces.

That to hunt diſguis'd in the Day, doth equal the Caſe of the Night, in Reſpect the Offenders cannot be known or diſcern'd, in Regard of ſuch Diſguiſing, which extendeth to Viſors and other Diſguiſing, as well as painted Faces. *Ibid.*

To what this Act doth not extend.

But it is obſerv'd, that this Act doth not extend to any Chaſe of the King, or any other Perſon; neither doth it extend to any Foreſts, Parks, or Warrens, in Uſe and Reputation only, if they be not ſuch in Law, *ibid.* And that in this ſort of Felony, the Delinquent may have his Clergy. *Id.* 78. And he there further obſerves, That though ſuch Chaſing is made Felony, yet it may be made Treſpaſs at the Pleaſure of the Party, which is the cleareſt way.

Clergy allowed. Felony made Treſpaſs.

Deſtroying Gentlemen's Game.

By 13 *R.* 2. 13. No Layman who hath not Lands of 40 *s.* *per Annum*, nor Clerk who hath not 10 *l.* Revenue *per Annum*, ſhall have or keep any Grey-Hound, Hound, Dog, Ferret, Net or Engin, to deſtroy Deer, Hares, Conies, or any other Gentleman's Game, on Pain of one whole Year's Impriſonment; which Juſtices of Peace ſhall have Power to inflict.

Keeping Deerhays, *&c.*

By the 19 *Hen.* 7. *cap.* 11. None ſhall keep any Deerhays or Buckſtalls, ſave in his own Foreſt or Park, on Pain to forfeit for every Month there ſo kept 40 *s.* Neither ſhall any ſtalk with any Buſh or Beaſt to any Deer, except in his own Foreſt or Park, on Pain of 10 *l.* by 5 *Eliz. cap.* 21.

Stalking with Buſh or Beaſt.

Tracing Hares in the Snow, *&c.*

By 14 and 15 *Hen.* 8. *cap.* 10. None ſhall trace, deſtroy, or kill any Hare in the Snow; and Juſtices of Peace in Seſſions, and Stewards in Leets, have Power to inquire of ſuch Offenders, and ſhall aſſeſs upon every ſuch Offender 6 *s.* 8 *d.* which Penalty aſſeſs'd in Seſſions ſhall go to the King, but in a Leet to the Lord thereof.

Alſo, for tracing Hares in the Snow, *Vide poſtea*, 1 *Jac.* 1. *cap.* 27.

Puniſhment of Treſpaſſes into Chaſes, Parks, *&c.*

By 5 *Eliz. cap.* 21. Such as unlawfully break and enter into any Chaſe, Park, Woods or other Grounds, and there chaſe and kill the Deer, are to ſuffer Three Months Impriſonment, and to be bound to their good Behaviour for Seven Years after. The Party grieved may recover treble Damages; and upon Satisfaction made, hath Liberty in the Seſſions, or elſewhere, to releaſe the Suretyſhip of good Behaviour.

Chacing Deer or Conies in a Park or incloſed Ground.

By 3 *Jac.* 1. *cap.* 13. None ſhall kill or chaſe any Deer or Conies in any Park or incloſed Ground without the Owners Licence; on Pain of Three Months Impriſonment, to pay treble Damages to the Party grieved, to be aſſeſs'd by the Juſtice before whom he ſhall be convict, after the ſaid Three Months is expired, and to be bound with Two good Sureties to the good Behaviour for Seven Years after, or remain ſtill in Priſon, till he find ſuch Sureties: But here the Party grieved being ſatisfied, hath Liberty to releaſe the Behaviour.

Releaſe.

Offences determin'd.

Juſtices of *Oyer* and *Terminer*, Aſſize, and Peace in Seſſions, have Power to hear and determine theſe Offences; and Juſtices of Peace in Seſſions, upon Confeſſion and Satisfaction to the Party grieved, have Power to releaſe the Behaviour. *Id. Stat.*

Uſing Guns or Bows to kill Deer, *&c.*

If any Perſon, not having 40 *l.* *per Ann.* in Lands, or 200 *l.* in Goods, or ſome incloſed Ground uſed for Deer or Conies worth 40 *s.* *per Annum* at leaſt, ſhall uſe any Gun, Bow or Croſs-Bow, to kill any Deer or Conies, or ſhall keep any Buckſtall, Ferret, Dog, Net, or other Engine: It ſhall be lawful for any Perſon, having Lands worth 100 *l.* *per Annum*, to take ſuch Gun, *&c.* from any ſuch Perſon, and to convert the ſame to his own Uſe. *Id. Stat.*

Park made without Licence.

This Act ſhall not extend to any Park or incloſed Ground, hereafter to be made or uſed for Deer or Conies, without the King's Licence.

Election of 10 *l.* or treble Damages.

And by *Stat.* 7 *Jac.* 1. 13. It ſhall be in the Election of the Party grieved, whether he will take for Satisfaction 10 *l.* in

10 *l.* in Money, or treble Damages, as by the Statute of 3 *Jac.* 13. is limited.

Hunting in Foreſt, Chaſe, *&c.* without Conſent of the Owners, *&c.*

None ſhall unlawfully courſe, kill, hunt, or carry away any Deer in any Foreſt, Chaſe, Purlieu, Wood, Park, or other Ground where Deer have been uſually kept, within *England* and *Wales*, without the Conſent of the Owners, or Party chiefly truſted with the Cuſtody thereof, or be aiding or aſſiſting therein, upon Pain (being convicted by Confeſſion, or one Witneſs before any Juſtice of the Peace, within Six Months after the Offence) of 20 *l.* to be levied by Diſtreſs by Warrant of the ſaid Juſtice, one Moiety to the Informer, the other to the Owner of the Deer; and for want of Diſtreſs, to be committed for Six Months to the Houſe of Correction, or Common Gaol for one Year, and not diſcharged till ſufficient Sureties be given for their good Behaviour for one Year after; provided, that upon Puniſhment by this Statute, the Penalty of no other Law be incurr'd.

Penalty.

Not twice puniſhed.

Who may depute Game-Keepers to ſeize Dogs, Bows, *&c.*

By 22 and 23 *Car.* 2. *cap.* 25. Lords of Manors or other Royalties, not under the Degree of an Eſquire, may, by writing under Hand and Seal, depute or authorize one or more Game-Keepers, who may ſeize all Guns, Bows, Grey-Hounds, Setting-Dogs, Lurchers or other Dogs, to kill Hares or Conies, Ferrets, Tramels, Low-Bells, Hays, or other Nets, Hare-Pipes, Snares, or other Engines for taking Conies, Hares, Pheaſants, Partridges, or other Game uſed within ſuch Manors, by Perſons prohibited by this Act to uſe the ſame, *viz.* by Perſons not having Lands, or ſome other Eſtate of Inheritance in their own or Wife's Right, of 100 *l. per Ann.* or for Life or Leaſe of 99 Years, of 150 *l. per Annum*, (other than the Son and Heir of an Eſquire, or other Perſon of higher Degree, or Owners or Keepers of Foreſts, Chaſes, Parks or Warrens.)

To ſearch Houſes of ſuſpected Perſons.

And ſuch Game-Keepers and others, by Warrant from a Juſtice of Peace, may ſearch the Houſes of Perſons ſuſpected to keep ſuch Guns, Bows, Grey-Hounds, *&c.* and ſeize them for the Uſe of the Lord of the Manor, or otherwiſe deſtroy the ſame.

Chaſing in Coney-Grounds.

If any one enter into a Coney-Ground or Warren, tho' not incloſed, and chaſe and kill any Conies without the Owners Conſent, he ſhall forfeit treble Damages, and be impriſon'd Three Months, and 'till he find Sureties for his good Behaviour. *Idem. Stat.*

Taking Conies in the Night upon the Borders of Warrens, *&c.*

Thoſe Perſons that kill or take Conies in the Night-time upon the Borders of Warrens, or on other Grounds uſed for keeping Conies, except Owners, *&c.* ſhall make ſuch Recompence as ſhall be appointed by the Juſtice of Peace, before whom the Party ſhall be convicted, and pay ſuch Sum not exceeding 10 *s.* as the Juſtice ſhall think fit, for the Uſe of the Poor of the Pariſh; or in Default of Payment, to be committed to the Houſe of Correction, not exceeding a Month: And ſuch as uſe Snares, Hare-Pipes or other Engines, are liable to the ſame Penalties. *Id. Stat.*

Penalty.

Hunting, *&c.* in Foreſts, Chaſe, or Purlieu, without the Owner's Conſent.

By 3 and 4 *Wil.* and *Ma. cap.* 10. If any Perſon ſhall hunt, take in Toils, kill or take away any Deer, in any Foreſt, Chaſe, Purlieu, Park, or other Ground incloſed, without Conſent of the Owner or Keeper, or ſhall be aiding or aſſiſting therein, and be thereof convicted by Confeſſion, one Witneſs or more, before a Juſtice of Peace within a Year after the Offence, ſhall forfeit 20 *l.* though no Deer be kill'd or wounded; and for each wounded, killed or taken, 30 *l.* to be levied by Diſtreſs and Sale of his Goods by the Juſtices Warrant, and for want of Diſtreſs, Impriſonment for one Year without Bail, and to be ſet upon the Pillory for an Hour in the next Market-Town. The Forfeiture is to be divided into Three Parts, one Third to the Informer, one to the Poor of the Place where the Offence is committed, the other to the Owner.

Penalty.

Houſes of ſuſpected Perſons to be ſearch'd for Veniſon, *&c.*

Conſtables, Headboroughs, *&c.* by a Juſtice of Peace's Warrant, may enter and ſearch the Houſes of ſuſpected Perſons; and if any Veniſon, Deer-Skins, or Toils be found, may carry the Perſon before the Juſtice; and if he do not give a good Account how he came by them, produce the Party of whom he had them, or prove the Sale upon Oath, he ſhall be convicted by the Juſtice of ſuch Offence, and be liable to the Penalties of this Act for killing a Deer.

Detaining Offenders till, *&c.*

To prevent the Flight or Removal of Offenders after Conviction, the Conſtable or other Officer have Power to detain the Offender in Cuſtody, till ſuch time (not exceeding Two Days) as a Return may be made to the Warrant for the Diſtreſs. *Idem. Stat.*

How Offenders may be reſiſted.

Owners of Deer, and Perſons acting under them, may reſiſt ſuch Offenders, and ſhall be therefore indemnified, as if ſuch Fact had been committed within any ancient Chaſe or Park. *Idem. Stat.*

No *Certiorari*, without Security.

No *Certiorari* ſhall be allowed to remove ſuch Conviction, or other Proceedings on this Act, unleſs the Party convicted become bound to the Proſecutor in 50 *l.* to pay his full Coſts and Damages, to be aſſertain'd upon his Oath; in Default whereof, the Juſtice ſhall proceed to the Execution of the Conviction. *Idem. Stat.*

Not to be twice puniſhed.

No Offender puniſhed by this Act, ſhall be proſecuted upon any other Statute for the ſame Offence. *Ibid.*

And

Pleading General Iſſue.

And any Perſon proſecuted for putting this Act in Execution, may plead the General Iſſue, and give the Special Matter in Evidence. *Ibid.*

Pulling down Pales of Parks, *&c.* in the Night.

Alſo, if any Perſon ſhall, in the Night-time, pull down or deſtroy the Pales or Walls of any Park, or other Ground incloſed for the Keeping of Red or Fallow Deer; being convicted thereof by the Oath of one Witneſs before a Juſtice of Peace, ſhall by ſuch Juſtices Warrant ſuffer Impriſonment for Three Months without Bail. *Id. Stat.*

HAWKING.

Taking up a Hawk, and Proclamation.

BY 34 *Ed.* 3. 22. A Hawk taken up ſhall be deliver'd to the Sheriff; who, after Proclamation made in the Towns of the County, if challenged, ſhall deliver her to the Right Owner.

When ſhe may be retain'd, *&c.*

If the Hawk was taken up by a mean Man, and be not challenged within Four Months, the Sheriff ſhall retain her, ſatisfying the Party for taking her; but if by a Man of Eſtate, who may conveniently keep a Hawk, the Sheriff ſhall reſtore her to him again, he anſwering for the Charge of keeping her.

Concealing a Hawk from the Owner.

And if any do take away or conceal a Hawk, he ſhall anſwer the Value thereof to the Owner, and ſuffer Two Years Impriſonment; and in Caſe he be not able to anſwer the Value, he ſhall remain in Priſon a longer Time.

Stealing a Hawk, Felony.

Alſo by the Statute 37 *Ed.* 3. 19. He that ſteals and carries away an Hawk, not obſerving the Ordinance of 34 *Ed.* 3. 22. ſhall be deemed a Felon. It is ſaid, this extends only to Long-wing'd Hawks, of the Kinds of Faulcons, and not to Goſs-Hawks and Sparrow-Hawks, 3 *Co. Inſt.* 97, 98.

Taking Pheaſants, *&c.* without Conſent.

By 11 *Hen.* 7. *cap.* 17. None ſhall take Pheaſants or Partridges with Engins in another's Ground without Licence, on Pain of 10 *l.* to be divided betwixt the King and the Proſecutor.

Taking away Eggs of Faulcons, *&c.*

None ſhall take out of the Neſt any Eggs of Faulcon, Goſs-Hawk, Lanner or Swan, on Pain of a Year and a Days Impriſonment, and to Fine at the King's Pleaſure, to be divided betwixt the King and the Owner of the Ground where the Eggs ſhall be ſo taken. *Id. Stat.*

Baring an Eyeſs-Goſs-Hawk, *&c.*

None ſhall bare any Hawk of *Engliſh* Breed, called, *An Eyeſs*, *Goſs-Hawk*, *Taſſell*, *Lanner*, *Lanneret* or *Faulcon*, on Pain to forfeit the ſame to the King. *Ibid.*

Bringing an Eyeſs from beyond-Sea.

And he that brings an Eyeſs-Hawk from beyond the Sea, ſhall have a Certificate under the Cuſtomer's Seal where he lands; or if out of *Scotland*, then under the Seal of the Lord Warden or his Lieutenant, teſtifying that ſhe is a Foreign Hawk, upon the like Pain of forfeiting the Hawk. *Ibid.*

Scaring Hawks from the Coverts, *&c.*

None ſhall take, kill or ſcare away, any of the Hawks aboveſaid, from the Coverts where they uſe to breed, on Pain of 10 *l.* to be recovered before Juſtices of the Peace, and divided betwixt the King and the Proſecutor. *Ibid.*

Taking Hawks, or Hawks Eggs, *&c.*

By 5 *Eliz. cap.* 21. None ſhall unlawfully break or enter into any Chaſe, Park, Woods or other Grounds, and there take any Hawks, or Hawks Eggs, on Pain to ſuffer Three Months Impriſonment, *&c.* (as is before-mentioned, out of the ſaid Statute concerning chaſing and killing of Deer.)

Taking an old Heron, *&c.*

By 19 *Hen.* 7. *cap.* 11. None may take an old Heron without his own Ground (unleſs it be with Hawking or Long-Bow), on Pain of 6 *s.* 8 *d.* Nor a young one out of the Neſt, on Pain of 10 *s.* For which Forfeitures, any Man may Sue by Action of Debt, wherein no Wager of Law, *&c.* is to be allowed.

Impriſonment.

Alſo, any Two Juſtices of Peace may examine ſuch Offenders, and commit them to Priſon, till they have ſatisfied the ſaid Forfeitures; whereof the ſaid Juſtices are to have a Tenth Part.

Taking and deſtroying the Eggs of Wild-Fowl.

And by 25 *Hen.* 8. *cap.* 11. None ſhall deſtroy or take away the Eggs of any Wild-Fowl, on Pain to forfeit for every Egg of a Crane or Buſtard, ſo taken or deſtroyed, 20 *d*; of a Bittern, Hern or Shovelard, 8 *d*; and of a Mallard, Tele, or other Wild-Fowl, 1 *d*; to be divided between the King and the Proſecutor. And the Juſtices of Peace have Power to inquire, hear and determine Offences of this Kind, as they uſe to do in Caſes of Treſpaſs.

Taking Pheaſants, *&c.* in the Night.

By 33 *Eliz. cap.* 10. None ſhall kill or take any Pheaſants or Partridges with any Net or Engine in the Night-time, on Pain to forfeit for every Pheaſant 20 *s.* and for every Partridge 10 *s.* which if he pay not in Ten Days, he is to ſuffer a Month's Impriſonment without Bail, and enter into Bond (for Two Years only), with good Sureties before ſome Juſtice of the Peace, not to offend in the like Kind.

Forfeiture to be divided.

The Forfeiture aforeſaid ſhall be recovered in any Court of Record, and divided betwixt the Lord of the Manor and the Proſecutor. But in caſe the Lord ſhall diſpenſe with the Offender, the Poor of the Pariſh are to have his

Moiety, to be recovered by any of the Church-Wardens. *Ibid.*

Hawking, *&c.* in Standing Corn.

None ſhall hunt or hawk with his Spaniels in Standing-Corn, or before it is ſhocked (except in his own Ground, or with the Owner's Conſent), on Pain to forfeit 40 *s.* to the Owner of the Ground, as aboveſaid. *Ibid.*

Offences determin'd.

Juſtices of Aſſize, Juſtices of Peace in Seſſions, and Stewards in Leets, have Power to hear and determine theſe Offences; and one Juſtice of the Peace may examine ſuch an Offender, and bind him over with good Sureties to anſwer it at the next General Seſſions, if the Offence be not before determined at the Aſſizes, or in a Leet. *Ibid.*

Exception for Fowlers.

This Act ſhall not reſtrain Fowlers, which unwillingly take Pheaſants or Partridges, and forthwith let them go at Large. *Ibid.*

Killing Fowl, Tracing Hares, *&c.*

Puniſhment or Penalty.

By *Stat.* 1 *Jac.* 1. *cap.* 27. Every Perſon convicted by his own Confeſſion, or by Two Witneſſes upon Oath before Two or more Juſtices of the Peace, to have kill'd or taken any Pheaſant, Partridge, Pigeon, Duck, Heron, Hare, or other Game; or to have taken or deſtroyed the Eggs of Pheaſants, Partridges or Swans; or ſhall Trace or Courſe any Hares in the Snow; or take or deſtroy any Hares with Hare-Pipes, Cords, or other Engines; ſhall be committed to Priſon for Three Months without Bail, unleſs he immediately pay to the Uſe of the Poor where the Offence was committed, or he be apprehended, 20 *s.* for every Fowl, Hare or Egg, ſo killed, taken, or deſtroyed; or, after one Month's Commitment, be bound with Sureties in 20 *l.* a-piece, before Two or more Juſtices of the Peace, never to offend again by ſhooting, killing, taking or deſtroying, any of the aforementioned Game.

Keeping Grey-Hounds, or Nets to kill or take Deer.

Every Perſon convicted as aboveſaid, to keep a Grey-Hound-Dog, or Net, to kill or take Deer, Hare, Pheaſant, or Partridge, unleſs he have Inheritance of 10 *l. per Ann.* a Leaſe for Life of 30 *l. per Ann.* or be worth 200 *l.* in Goods; or otherwiſe be the Son of a Knight, or Heir Apparent of an Eſquire; ſhall ſuffer Impriſonment as aforeſaid, unleſs he pay 40 *s.* to the Uſe abovementioned. *Ibid.*

Buying and Selling Deer, Hare, Pheaſant, *&c.*

None ſhall Sell or Buy (to Sell again) any Deer, Hare, Pheaſant or Partridge, except by them rear'd up, or brought from beyond Seas, on Pain to forfeit for every Deer 40 *s.* Hare 10 *s.* Pheaſant 20 *s.* and Partridge 10 *s.* to be divided between the Proſecutor and the Poor of the Pariſh where the Offence is committed. *Ibid.*

Offences determined.

Juſtices of Aſſize, and Juſtices of Peace in their Seſſions, or Two or more out of Seſſions, have Power to hear and determine theſe Offences. *Ibid.* And none ſhall, by any former Law, ſuffer Puniſhment for the ſame Offences for which he ſhall be puniſhed by this Law.

Licence to kill Hawks Meat.

This Act ſhall not reſtrain one Licenſed in open Seſſions to ſhoot Hail-Shot, in Hand-Guns or Birding-Pieces, to kill Hawks-Meat, *viz.* Crow, Cough, Pye, Rook, Ringdove, Jay, or ſmaller Birds; but yet he ſhall be bound in Recognizance of 20 *l.* not to kill any of the Game prohibited by this Act, nor to ſhoot within 600 Paces of a Hearnery, within 100 Paces of a Pigeon-Houſe, or in a Park, Foreſt or Chaſe, whereof his Maſter is not Owner or Keeper.

Hawking at Pheaſants, *&c.* between the Firſt of *July* and the Laſt of *Auguſt.*

Proſecution within Six Months.

By *Stat.* 7 *Jac. cap.* 11. Every Perſon convicted by his own Confeſſion, or by Two Witneſſes upon Oath before Two or more Juſtices of the Peace, to have hawked at, or deſtroyed, any Pheaſant or Partridge, betwixt the Firſt of *July* and the Laſt of *Auguſt*, ſhall ſuffer one Month's Impriſonment without Bail, unleſs he forthwith pay to the Uſe of the Poor where the Offence was committed, or he apprehended, 40 *s.* for every Time ſo hawking, and 20 *s.* for every Pheaſant or Partridge ſo deſtroyed or taken: But he that ſhall be puniſhed by this Law, ſhall not be puniſh'd again by any other Law for the ſame Offence. And this Offence is to be proſecuted within Six Months after it ſhall be committed.

Licence to take Pheaſants, *&c.* within their own Grounds.

By this Act, it ſhall be Lawful for the Lord of a Manor, or any having Free Warren, Inheritance of 40 *l. per Ann.* Freehold of 80 *l. per Ann.* or Goods worth 400 *l.* or their Servants, Licenſed by them, to take Pheaſants or Partridges within their own Grounds or Precinct, ſo they do it in the Day-time, and only betwixt *Michaelmas* and *Chriſtmas.*

When mean Perſons take Pheaſants, *&c.*

Recognizance.

And if one of a mean Condition ſhall be convicted by his own Confeſſion, or by one Witneſs upon Oath before Two or more Juſtices of the Peace, to have killed or taken any Pheaſant or Partridge, with Dogs, Nets or Engines, he ſhall by the ſaid Juſtices be committed to Priſon without Bail, unleſs he forthwith pay to the Uſe of the Poor where the Offence was committed 20 *s.* for every Pheaſant or Partridge ſo killed or taken; and alſo become Bound before one or more Juſtices of the Peace, in a Recognizance of 20 *l.* never to offend in the like Kind again.

Searching ſuſpected Houſes, *&c.*

Conſtables, *&c.* may by Warrant of Two Juſtices of the Peace, ſearch the Houſes of Perſons ſuſpected to have any Setting-Dogs, or Nets for the taking Pheaſants and Partridges (contrary to this Act), and the Dogs and Nets there found, to take, carry away, and deſtroy at Pleaſure, as Things forfeited unto the ſaid Officers.

FISHING.

Treſpaſſers in Ponds, *&c.* to pay Treble Damages.

BY *Weſtm.* 1 and 3 *Ed.* 1. *cap.* 20. Treſpaſſers in Ponds ſhall give treble Damages to the Party grieved, ſuffer Three Years Impriſonment, be Fined at the King's Pleaſure, give Security not to offend again in the like Kind, or abjure the Realm; and, if Fugitive, ſhall be Outlawed.

Taking of Salmons at prohibited Times and Places.

By *Weſtm.* 2. *cap.* 17. *Anno* 13 *Ed.* 1. None ſhall take Salmons betwixt the Eighth of *September* and the middle of *November*; nor young Salmon with Nets or other Engines at Mill-Pools, betwixt the midſt of *April* and the 24th of *June*; on Pain of having their Nets and Engines burnt for the Firſt Offence; for the Second, to ſuffer a Quarter of a Years Impriſonment, and after to have their Puniſhment increaſed, according to the Treſpaſs; and in freſh Waters, Overſeers of this Statute ſhall be aſſign'd and ſworn to inquire of the Offenders.

Deſtroying the Fry.

By *Stat.* 13 *Rich.* 2. 19. No Fiſher ſhall uſe any Engine by which the Fry of Fiſh may be deſtroyed, upon the Pains mentioned in the Statute of *Weſtm.* 2. *cap.* 47.

Taking Fiſh out of Seaſon, or under Size.

By *Stat.* 1 *Eliz.* *cap.* 17. None ſhall uſe any Net or Engine to deſtroy the Spawn or Fry of Fiſh, or take Salmons or Trouts out of Seaſon; or Pikes ſhorter than Ten Inches, Salmons than Sixteen, Trouts than Eight, and Barbles than Twelve; or ſhall uſe any Engine to take Fiſh, other than Angle or Net, or a Tramel of Two Inches and a half Meſh: On Pain to forfeit 20 *s.* and the Fiſh ſo wrongfully taken with the Net or Engine wrongfully uſed.

Offences determined.

All Perſons having Juriſdiction of Conſervancy upon Streams or Waters, and Lords of Leets, have Power upon the Oaths of Twelve Men to hear and determine theſe Offences, and ſhall have all the Forfeitures which accrue thereupon. *Ibid.*

To be charged in the Leet.

Alſo the Steward of the Leet ſhall give this Statute in Charge to the Jury, on Pain of 40 *s.* to be divided between the Queen and the Informer.

Forfeiture for not Preſenting.

And here, if the Jury wilfully forbear to preſent Offences of this Kind, the Steward or Bailiff ſhall impannel another Jury to inquire of their Default; which, being found, the Firſt Jury ſhall forfeit 20 *s.* a-piece. *Ibid.*

Determination upon Juries Default.

Upon Default of Preſentment in Leets within one Year, Juſtices of the Peace in Seſſions, Juſtices of Oyer and Terminer, and Juſtices of Aſſize in Circuits, have Power to Hear and Determine the ſaid Offences. *Ibid.*

What Fiſh to be taken.

But this Act ſhall not reſtrain the taking of Smelts, Minews, Bulheads, Gudgeons or Eels, with Nets or Engines formerly uſed, ſo that no other Fiſh be taken therewith; nor ſhall extend to abridge any former Privilege of Conſervancy lawfully enjoy'd; or Fiſhing in *Tweed*, *Uſk* or *Wye*; or in Waters let to Farm by the Queen, ſo that the Spawn or Fry of Fiſh be not therein wilfully deſtroyed. *Ibid.*

Privilege in *Tweed*, *&c.*

But Fry not deſtroyed.

Fiſhing, *&c.* in Ponds without Licence.

By 5 *Eliz.* *cap.* 21. None ſhall unlawfully break down Fiſh-Ponds, or Fiſh there without Licence of the Owner, on Pain to ſuffer and forfeit, as in the ſaid Statute is before obſerv'd, for chaſing and killing Deer, *&c.*

See before, in Hunting, alſo in Hawking, for this Statute.

Erecting of Wears.

By *Stat.* 3 *Jac.* 1. *cap.* 12. None ſhall erect a Wear or Wears along the Sea-Shore, or any Haven or Creek, or ſhall willingly deſtroy the Spawn or Fry of Fiſh, on Pain of 10 *l.* to be divided between the King and the Proſecutor. Neither ſhall any Fiſh in any of the ſaid Places, with any Net of a leſs Meſh than Three Inches and a half betwixt Knot and Knot, (except for the taking of Smoults in *Norfolk* only) or with a Canvas, Net, or other Engine, whereby the Spawn or Fry of Fiſh may be deſtroyed, on Pain to forfeit the ſaid Net or Engine, and 10 *s.* in Money; to be divided betwixt the Poor of the Pariſh and the Proſecutor, and to be levied in Corporations by the Head Officers; and in other Places by Diſtreſs and Sale of Goods, upon a Warrant of a Juſtice Peace, directed unto the Conſtable and Church-Wardens of the Pariſh for that Purpoſe.

Wideneſs, *&c.* of Meſhes.

Penalty.

Fiſhing unlawfully in the River *Severn.*

By the *Stat.* 30 *Car.* 2. *cap.* 9. If any Perſon ſhall, in the River of *Severn*, fiſh with, or make Uſe of any Engine or Device, whereby any Salmon, Trout or Barbel, under the Length appointed by the Statute of 1 *Eliz.* 17. ſhall be taken or kill'd, or ſhall Fiſh with any Net for Salmon, Salmon-Mart, Salmon-Peal, Pike, Carp, Trout, Barbel, Chub or Grayling; the Meſh whereof ſhall be under Two Inches and an Half Square from Knot to Knot, or above Twenty Yards in Length, and Two Yards in Breadth; or above Fifty Yards in Length, and Six Yards in Breadth in the Wing of the Net, in the ſaid River, from *Riplelock-Stake* to *Gloceſter-Bridge*; or above Fifty Yards in Length below *Gloceſter-Bridge*; and Six Yards in Breadth in the Wing of the Net; or ſhall Fiſh with more than one of theſe Nets at once; or ſhall uſe any Device for

Taking the Fry of Eels.

the Fry of Eels; he ſhall forfeit Five Pounds for every Offence, with the Fiſh-Inſtruments, *&c.* and Five Pounds a Time for watering Hemp or Flax in the ſaid River.

Puniſhment how to be.

But none ſhall be puniſhed for the ſaid Offence, but by Information or Indictment before the Juſtices of Aſſize, or General Quarter-Seſſions; the one Moiety of the Forfeiture to the Poor, and the other to the Proſecutor, to be levied by *Fieri facias* or *Capias ad ſatisfaciendum.* Ibid.

Rights, *&c.* ſaved.

And here the Juriſdiction of the Lords of Leets, and all Rights, Titles, *&c.* of the King and others, in the ſaid River, are always ſaved. *Idem Statut.*

Some late General Statutes, relating both to Hunting, Hawking, Fiſhing and Fowling, &c.

Laws to be put in Execution.

BY 4 and 5 *W.* & *M. Cap.* 23. All Laws and Statutes in Force, for the better Preſervation of the Game of this Kingdom, and every Clauſe and Thing therein not hereby alter'd or repealed, ſhall be duly put in Execution.

Searching ſuſpected Houſes, *&c.* for Game.

Conſtables, Headboroughs and Tythingmen, by a Juſtice of Peace his Warrant, may and are required to enter into, and ſearch (as by the Act 3 and 4 *W.* & *M. Cap.* 10. in caſe of Veniſon, or Skin of any Deer or Toils) the Houſes of ſuſpected Perſons not qualified. And in caſe any Hare, Partridge, Pheaſant, Fiſh, Fowl, or other Game, ſhall be found in any Offender's Houſe, the Offender is to be carried before a Juſtice of Peace of the County; and being convicted, ſhall forfeit any Sum not under Five Shillings, nor above Twenty Shillings; and for Want of Diſtreſs, the Offender is to be carried to the Houſe of Correction for a Month, or ſome other Space of Time not leſs than Ten Days. *Ibid.*

Penalty.

Perſons unqualified, keeping Bows, Dogs, *&c.*

And if any Perſon, not qualified by the Laws, ſhall keep or uſe any Bows, Greyhounds, Setting-Dogs, Ferrets, Tumbler, Hays, Snares, *&c.* he ſhall be ſubject to the ſame Penalties as the Perſon who ſhall be found to have any Hare, Partridge, Pheaſant, Fiſh, Fowl, or other Game in his Houſe, as aforeſaid, *Ibid.*

Conviction of ſuch.

And if any Perſon charged, ſhall not give ſufficient Evidence of his Innocence, he ſhall be convicted thereof in the ſame Manner, as the Perſon firſt charged therewith; and ſo from Perſon to Perſon, till the firſt Offender be diſcovered. *Ibid.*

Who may oppoſe Offenders.

And all Perſons authoriz'd by Lords of Manors, *&c.* may, within their Royalties, oppoſe and reſiſt ſuch Offenders in the Night-time, in the ſame Manner as if ſuch Fact had been committed within any ancient Chace, Park or Warren encloſed. *Ibid.*

Keeping Nets and Angles, *&c.* for Fiſhing.

That no Perſon ſhall keep any Net, Angle, Leap, Pitch, *&c.* And that Owners of Fiſheries, or their Deputies, may ſeize and keep all Nets, *&c.* Alſo any Perſon, by a Warrant from a Juſtice of the Peace, may, in the Day-time, ſearch the Houſes of Perſons ſuſpected, and ſeize, detain or deſtroy them, as prohibited to be kept by unqualified Perſons. *Ibid.*

Liberty for a Fiſherman.

But this Act ſhall not abridge any Fiſherman or his Apprentice, lawfully authorized, to fiſh in Navigable Rivers with lawful Nets. *Ibid.*

Hunting, Hawking, *&c.* by inferiour Tradeſmen, *&c.*

And if any inferiour Tradeſman, Apprentice, or other diſſolute Perſon, ſhall hunt, hawk, fiſh or fowl, (unleſs in Company with the Maſter of ſuch an Apprentice qualified by Law) they ſhall be ſubject to the Penalties of this Act, and may be ſued for Treſpaſs in coming upon any Perſon's Ground; in which Suit, the Plaintiff ſhall recover his Damages and full Coſts. *Ibid.*

Penalty.

No *Certiorari* to remove Proceedings.

Alſo no *Certiorari* is to be allowed to remove any Proceedings on this Act, unleſs the Party moving be firſt bound with Sureties in Fifty Pound to pay the Proſecutor his full Coſts, after the Conviction confirm'd, or *Procedendo* granted. *Ibid*

Not twice puniſhed.

Yet Offenders puniſhed by this Act, are not to incur the Penalty of any other Law for the ſame Offence. *Ibid.*

General Iſſue pleaded.

And Perſons proſecuted for any Thing done in purſuance of this Act, may plead the General Iſſue; and if it go for them, they ſhall have Treble Damages. *Ibid.*

Preſerving Heath-Polts.

Laſtly, By this Act for the preſerving the Red and Black Game of Growſe or Heath-Polts, No Perſon on any Mountains, Hills, Heaths, Moors, Foreſts, Chaces, or other Waſtes, ſhall burn between the Second Day of *February* and Four and twentieth of *June*, any Grig, Ling, Heath, Furz, Gorſe or Fern, on Pain of being committed to the Houſe of Correction for any Time not exceeding a Month, nor under Ten Days, there to be whipt, and kept to hard Labour.

Penalty for burning Ling, *&c.*

Penalties for Game deſtroyed by Officers or Soldiers.

By *Stat.* 4 & 5 *W.* & *M. Cap.* 13. If any Officer or Soldier, without Leave of the Lord of the Manor, under his Hand and Seal, take and deſtroy any Game, and ſhall be convicted thereof, upon

Oath before a Juſtice of Peace, he ſhall forfeit, if an Officer, Five Pounds, to be diſtributed among the Poor of the Pariſh. And every Officer commanding in Chief, ſhall forfeit, for every ſuch Offence committed by any Soldier under his Command, Ten Shillings, to be diſtributed, as aforeſaid; and for Default of Payment within Two Days after Conviction, and Demand by the Conſtable or Overſeer, ſuch Officer's Commiſſion is forfeited, and made null and void. This Act was reviv'd by ſeveral ſubſequent Acts, and by 1 *Annæ Seſſ.* 2. *Cap.* 16. was to continue till the 25th of *March* 1704.

Act reviv'd.

The like Proviſion againſt Officers and Soldiers.

And by the *Statute* of 2 & 3 *Ann. Cap.* 20. it was again Enacted, That if any Officer or Soldier, without Leave, (*ut ſupra*) take or deſtroy any Hare, Coney, Pheaſant, Partridge, Pigeon, or any other Sort of Fowl, Poultry, or Fiſh, he ſhall upon Conviction (*ut ſupra*) forfeit, if an Officer, 5 *l.* and for every ſuch Offence committed by any Soldier under Command, the Officer commanding in Chief ſhall pay Twenty Shillings, or loſe his Commiſſion (*ut ſupra*).

The like Proviſion continued.

The like Proviſion, as laſt above, was again Enacted, 3 & 4 *Annæ*, *c.* 16. which Act was continued by another Act paſſed 4 & 5 *Annæ*, *Cap.* 11. to the 25th of *March* 1707. And ſince, all and every the Proviſions, Clauſes, Matters and Things in the ſaid Act of 2 & 3 *Ann.* 20. contain'd, are further continued to *Mar.* 25. 1708.

Forfeiture by Officer or Soldier deſtroying Game.

By an Act made *Anno* 7 *Annæ Reginæ*, for puniſhing of Mutiny, *&c.* it is Enacted, That if any Officer or Soldier, *&c.* without Leave of the Lord of the Manor, *&c.* deſtroy any Game, Poultry or Fiſh, *&c.* and be convict before any Juſtice, *&c.* he ſhall forfeit Five Pounds to the Poor of the Place, *&c.* every Soldier Twenty Shillings; and ſuch Officer not paying within Two Days the ſaid Penalties, ſhall forfeit his Commiſſion.

The laſt Act made, relating to Game.

By an Act of Parliament made 5 *Ann. Cap.* 14. for the better Preſervation of the Game, it is Enacted, That all Laws in being, for the Preſervation of the Game, not thereby repealed or altered, ſhall continue, remain, and be in the ſame Force, *&c.*

Higlers and Carriers, *&c.* having Hares, Pheaſants, *&c.* in their Poſſeſſion.

That if any Higler, Chapman, Carrier, Inn-keeper, Victualler or Alehouſe-keeper, ſhall have in his or their Poſſeſſion any Hare, Pheaſant, Partridge, Moor, Heath-Game or Grouſe; or ſhall buy, ſell, or offer to Sale any ſuch; every ſuch Higler, *&c.* or Carrier (unleſs ſuch Game in the Hands of ſuch Carrier be ſent up by Perſon or Perſons qualified to kill the Game), ſhall upon every ſuch Offence be carried before ſome Juſtice of the Peace for the County, *&c.* where the ſaid Offence is committed, and upon View or Oath of one or more Witneſſes ſhall be convicted of the ſame, and ſhall forfeit for every Hare, Pheaſant, Partridge, Moor, Heath-Game or Grouſe, the Sum of Five Pounds, Half to the Informer, and Half to the Poor of the Pariſh where the Offence was committed; to be levied by Diſtreſs and and Sale of the Offender's Goods, by Warrant under Hand and Seal of the Juſtice, before whom the Offender was convicted. For Want of Diſtreſs, the Offender to be committed to the Houſe of Correction for Three Months, for the firſt Offence; and for every other Offence, for Four Months, without Bail; the Proſecution to be within Three Months after the Offence. *Idem Stat.*

Forfeiture.

Commitment for Want of Diſtreſs.

That no *Certiorari* ſhall be allowed to remove any Conviction, or other Proceedings in this Act, into any Court of *Weſtminſter*, unleſs the Party convicted ſhall firſt become bound to the Party proſecuting with ſufficient Sureties for the Sum of Fifty Pounds, conditioned for paying the Proſecutor, within Fourteen Days after *Procedendo* granted, his full Coſts and Charges, *&c.* *Idem Stat.*

No *Certiorari*.

Without Surety.

If any Perſon that ſhall deſtroy, ſell, or buy any Hare, Pheaſant, Partridge, *&c.* ſhall within Three Months make Diſcovery of any Higler, Chapman, Carrier, Inn-keeper, Alehouſe-keeper or Victualler, that hath bought or ſold, or offered to buy or ſell, or had in their Poſſeſſion any Hare, *&c.* ſo as any one ſhall be convicted of ſuch Offence as aforeſaid, ſuch Diſcoverer ſhall be diſcharged of the Penalties aforeſaid, and ſhall receive the Benefit and Advantage as any other Informer. *Idem Stat.*

Encouragement for Diſcoverers, tho' Treſpaſſers.

Diſcharge, and Benefit.

That if any Perſon, not qualified by Law, ſhall keep or uſe any Greyhounds, Setting-Dogs, Lurchers, Tunnels, or any other Engine to kill and deſtroy the Game, and ſhall be thereof convicted upon the Oath of one or more credible Witneſſes as aforeſaid, he ſhall forfeit the Sum of Five Pounds, to be diſpoſed and levied as aforeſaid; and for Want of Diſtreſs, the Offender to be ſent to the Houſe of Correction for Three Months for the firſt Offence, and Four Months for every other.

Unqualified Perſons keeping Dogs, *&c.* to deſtroy Game.

Forfeiture.

And any of the Juſtices of Peace in their reſpective Counties, *&c.* and the Lords or Ladies of Manors, within their Manors may take away any ſuch Hare, Pheaſant, Partridge, and from any ſuch Higler, Chapman, Inn-keeper, Victualler or Carrier, or any other Perſon not qualified to kill the ſame, as ſhall be found in their Poſſeſſion; and likewiſe may take away ſuch Dogs, Nets, or other Engines, which ſhall be in the Power or Cuſtody of any Perſon not qualified to keep the ſame, to their own proper Uſe. *Id. Statut.*

Who may ſeize, *&c.* ſuch Game from Offenders.

Alſo their Dogs, Nets, *&c.*

Licence given to a Game-keeper.

Alſo any Lord or Lady of a Manor may, by Writing under his or her Hand and Seal, impower his or her Game-keeper within their reſpective Lordſhips or Manors, to kill Hare, Pheaſant, Partridge, *&c.* But if the ſaid Game-keeper ſhall, under Colour of the ſaid Power, kill, and afterwards ſell or diſpoſe thereof to any Perſon whatſoever, without the Conſent of the Lord or Lady of ſuch Manor, upon Conviction, as aforeſaid, he ſhall be committed to the Houſe of Correction for Three Months, there to be kept to hard Labour. *Id. Stat.*

His Puniſhment, if he proves an Offender.

Firing Ling, *&c.* in the Foreſt of *Sherwood*, or County of *Nottingham.*

Forfeiture of Fern-Aſhes.

Alſo if any Perſon ſhall ſet Fire to any Ling, Heath or Brakes, (which Thing tends to the Deſtruction of the Breed of Game) in any Part of the Foreſt of *Sherwood*, or on any Land within the County of *Nottingham*, or ſhall cut any Ling, *&c.* in order to burn the ſame upon the Ground, in any Part of the ſaid County, without Licence from the Owner of the Soil, he ſhall forfeit Ten Shillings to the Owner of the Soil, and all the Aſhes which ſhall be ſo burnt. And whoſoever ſhall buy any Fern-Aſhes of any ſuch unlicenſed Perſon, within the ſaid County, ſhall forfeit, for every Peck of ſuch Aſhes ſo bought, Ten Shillings, one Moiety to the Poor of the Pariſh, the other to the Informer. *Idem Statut.*

Forfeiture of Scythes and Rakes, *&c.*

And the Officers of the ſaid Foreſt, and Owners of the Soil where the Offence ſhall be committed, their Servants or Agents, may take away for their own Uſe the Scythes, Rakes, and other Inſtruments to be uſed for thoſe Purpoſes, of every Perſon ſo offending. *Idem Statut.*

Commitment for Penalties.

And every Perſon convicted of any of the ſaid Offences before any one Juſtice of the Peace, by the Oath of one or more Witneſſes, ſhall immediately pay down the Penalties hereby impoſed, or be committed by ſuch Juſtice to the Houſe of Correction for one Month, unleſs the Penalties be paid in the mean time. *Id. Statut.*

Continuance of this Act.

This Act is to remain in Force for Three Years from the firſt of *May* 1707. and from thence to the End of the next Seſſions of Parliament, and no longer.

A late Act made, relating to the New Foreſt *in* Hampſhire.

Concerning New Foreſt, and encloſing 2000 Acres of Waſte.

To preſerve Timber for the Royal Navy.

NOTE, there is a Statute made 9 & 10 *W.* 3. *Cap.* 36. to enable his Majeſty, his Heirs and Succeſſors, to incloſe and improve 2000 Acres, part of the waſte Lands of the New Foreſt in the County of *Southampton*, for the Growth and Preſervation of Timber for Supply of his Majeſty's Royal Navy: And when thoſe 2000 Acres are thought fit to be laid open, then the like Quantity to be ſet out and incloſed in ſome other Part of the ſaid Waſtes, free of all Herbage, Pannage, or other Rights, while incloſed to be a Nurſery for Timber, as aforeſaid: Alſo there may be incloſed 200 Acres more of the Waſte, for Twenty Years after the firſt 2000 Acres ſet out and incloſed, *&c.*

Notice to the Verderors, *&c.* of felling Timber, *&c.*

Alſo it is Enacted, That when any Wood or Timber is to be fell'd in any Part of the ſaid Foreſt, Two or more of the Verderors, and Four or more of the Regardors of the ſaid Foreſt, ſhall have Notice thereof; and it ſhall not be fell'd, till firſt view'd and allow'd to be fell'd by a Commiſſioner or Officer of the Navy.

Trees to be mark'd out.

Forfeiture for cutting them without Warrant.

Then directs, That Coppice-Woods ſhall not be cut, till the Surveyor ſhall have mark'd ſuch Trees as are fit to be reſerved for Timber. And if any Perſons ſhall fell any ſuch Wood or Trees before View and Allowance, or cut down any of the ſaid marked Trees without good Warrant, they ſhall forfeit for every Tree ſo fell'd, Fifty Pounds, one Moiety to the King, the other to them that will ſue for the ſame.

The Incloſures not to be ploughed, *&c.*

Alſo the ſaid Incloſures ſhall not be ploughed or ſowed with Corn, or fed with Cattle, or kept for Underwood, but in ſuch manner as ſhall be fit for raiſing Timber for the Navy.

Topping or browſing Oaks, *&c.*

Forfeiture.

That if any Foreſter, Keeper, or Under-keeper, or other Officer or Perſon, or any by their Direction, ſhall top, lop, or browſe any Oak or Beech-Tree in the ſaid Foreſt, ſuch Officer, for every ſuch Offence, ſhall forfeit Ten Pounds, and be incapable of any ſuch Office.

Burning of Charcoal.

Nor ſhall any Collier, Keeper or Under-keeper, make or ſuffer any Coal-Fires for making Charcoal within the ſaid Foreſt, (as being contrary to Law) except in the waſte Ground of the ſaid Foreſt particularly appointed, and not within 1000 Paces of any Incloſure to be made by this Act.

Fencing Fires with Buſhes.

Forfeitures.

Drifts.

Nor ſhall ſuch Coal-Fires be fenced with Buſhes, but with Heath or Furz only; but every Collier making ſuch Coal-Fires, and every Officer permitting them, ſhall forfeit for every Offence One hundred Pounds. And the ſaid Under-keeper or Foreſters ſhall alſo forfeit Twenty Pounds for every Neglect in not making the Drifts of the ſaid Foreſt, as directed by the Statute of 32 *H.* 8. (*Sed quære* how theſe Forfeitures are to be recovered and divided.)

Breaking the Incloſures of Nurſeries.
Preſentment.
Penalty.
High-Steward.

That all Perſons who ſhall break down any of the ſaid Incloſures for raiſing Nurſeries of Wood and Timber (which Incloſures are to be kept up Twenty Years at the leaſt from their making), or ſhall burn Heath or Fern, or deſtroy any of the Covert, or ſteal any of the Wood, ſhall, in the next Attachment or Swainmote-Court, be preſented; and upon Proof thereof made, two or more of the Verderors ſhall fine ſuch Perſons for every ſuch Offence, not exceeding Five Pounds, and ſend the Party to Gaol for Three Months, or till Payment of the Fine to the High or Under-Steward of the ſaid Foreſt; one Moiety to the Informer, the other to be accounted for as his Majeſty ſhall think fit.

This Act not to alter the Foreſt-Laws, except, *&c.*

But all Perſons puniſhed by this Act, ſhall not be puniſhed by any other Law for the ſame Offence: Alſo this Act ſhall not alter the Foreſt-Laws, except before-mention'd.

Right of Common, *&c.* ſaved after 1716.
Forfeiture.

All Perſons having Right of Common of Paſture or Pannage, or any Privileges within the ſaid Foreſt, ſhall enjoy their Right of Pannage between the 14th of *September* and the 11th of *November* after *Michaelmas* 1716. and not before, on Forfeiture of any Hog, Pig or Swine, that before the Time aforeſaid ſhall be found in the Waſtes of the ſaid Foreſt.

Common, *&c.* in the Waſte, except in the Fence-Month, *&c.*
Subject to the Foreſt-Laws.

And their Common of Paſture is continued to them in their ſaid waſte Ground of the Foreſt, when not incloſed, except in the Fence-Month, *viz.* Fifteen Days before and after *Midſummer*; and in the Winter Heyning, *viz.* from the 11th of *November* to the 23d of *April*, ſubject to the Foreſt-Laws, as they might have enjoy'd the ſame before the making of this Act: Saving alſo to the adjacent Inhabitants their ancient Right of Fuel, provided they do not ſell or diſpoſe of any Part thereof; nor take the ſame in other Manner than they ought; nor by Reaſon of any Claim not allowed according to the Foreſt Laws before 27 *Eliz.*

Forfeitures by Perſons taking Grants of the Incloſures, *&c.*

If any Perſons take any Grant of the ſaid Incloſures or Waſtes, or any Woods or Trees growing thereon; every ſuch Grant ſhall be void, and the Perſons incapable to hold the ſame, and ſhall forfeit Treble the Value of the ſaid Grant to them that ſhall firſt ſue for the ſame; and ſhall alſo be incapable of holding any Office or Imployment whatſoever.

Notice of Sale of Wood, *&c.*

Publick Notice is to be given in adjacent Market Towns when any Sale of Wood is to be made; and alſo before the Sale, to Two or more of the Verderors, of the Valuation made; and he that offers moſt above the Valuation, ſhall be the Purchaſer.

Officer taking Fees or Gratuities, *&c.*

No Officer ſhall take any Fee or Gratuity for felling Trees to be cut down for the Incloſures, or upon Sale of the Reſidue of ſuch Trees, or of the Lops or Tops, or Roots of the ſaid Trees.

Shall forfeit his Office.

Alſo any Officer offending, in cutting down and diſpoſing of Trees contrary to this Act, ſhall forfeit his Office.

FINIS.